AUROOP R GANGULY
College of Engineering Distinguished Professor, Northeastern University, Boston, MA, USA
(Joint) Chief Scientist, Pacific Northwest National Laboratory, Richland, WA, USA
Fellow: American Society of Civil Engineers (ASCE)
Distinguished Member: Association for Computing Machinery (ACM)
a.ganguly@northeastern.edu | Google Scholar | Wikipedia
Northeastern University: SDS Lab | College of Engineering | LinkedIn | PNNL

EDUCATION

PhD **Massachusetts Institute of Technology (MIT)**, Civil & Environmental Engineering 2002
MS University of Toledo, Civil & Environmental Engineering 1997
B.Tech. (Hons.) Indian Institute of Technology (IIT) Kharagpur, Civil Engineering 1993

APPOINTMENTS

Northeastern University, Boston, MA 2011 – Now
- Associate, Full, and Distinguished Professor, Civil & Environmental Engineering
- By Courtesy: Khoury College of Computer Science; School of Public Policy & Urban Affairs
- Leadership: Global Resilience Institute (Co-Director); Experiential AI (Climate-AI Lead)
- Joint Appointment: Chief Scientist, US DOE's ***Pacific Northwest National Laboratory***
- Guest Appointments: ***Indian Institute of Technology*** (IIT): Bombay, Kharagpur, Gandhinagar
- Startup: ***risQ*** (Co-Founder, Chief Scientific Adviser): Urban Climate: Risks, Equity, Muni Bonds
  - NSF SBIR; Acquired by Intercontinental Exchange (ICE: Fortune 500, owns the NYSE)
- Startup: ***Zeus AI***: Adviser: Weather Prediction, Machine Learning, Satellite Remote Sensing
  - NASA SBIR (seed grant)

Oak Ridge National Laboratory, Oak Ridge, TN 2004 – 2011
- Associate R&D Staff, and Senior R&D Staff, Computational Sciences & Engineering Division
- Affiliations and Project: Climate Change Science Initiative, National Security Directorate
- Joint Faculty: ***University of Tennessee, Knoxville*** (Engineering: Civil/Environmental; Industrial)

University of South Florida, Tampa, FL 2003 – 2004
- Visiting Faculty: Civil and Environmental Engineering

Oracle Corporation, Waltham, MA. Burlington, MA and Nashua, NH 1998 – 2003
- Sr. Management (2003): Senior Product Manager of Analytics and Strategy, Demantra Inc.
  - Subsequently acquired by Oracle Corporation: Waltham, MA to Burlington, MA
- Management (1999-2003): Product Manager, Demand Planning, E-Business, Burlington, MA
- Development (1998-1999): Time Series Software Developer, Server Technologies, Nashua, NH

SUMMARY OF ACCOMPLISHMENTS

- 300 total publications or presentations: ~175 peer-reviewed; 1 textbook; 2 patents
  - High impact: ***Nature***, ***Nature Climate Change***, ***Nature Communications***, ***PNAS***
  - **Best paper awards** in highly selective computer science conferences: ACM SIGKDD Knowledge Discovery and Datamining (***KDD***) and SIAM Data Mining (***SDM***)
  - Top journals in climate, weather, water, infrastructure, complexity, and data sciences
- Societal impact in entrepreneurship, community efforts, and national or international assessments
  - Successful **startups**: urban climate risks and AI-based weather prediction with satellites
  - **Community** and leadership efforts in urban climate assessments and risk management
  - Cited in and/or contributed to major **national and international** climate assessments
- Invited talks or ***keynotes*** at major conferences globally and in ***US National Academy*** workshops
- Mentor: ***3 visiting professors; 9 postdocs; 18 direct PhDs; 12 post-MS; 5 MS; 32 UGs; 6 K-12***
- Media: ***New York Times***, ***Newsweek, Guardian (UK), Independent (UK)*** & many others globally
- Funding: ***Diverse portfolio*** (e.g., NSF, DoD, DOE, DHS, NASA): Total Funding: **~$67 million**

AWARDS & ACCOMPLISHMENTS

Society Honors

- ***Distinguished Member,*** Association for Computing Machinery (ACM), Elected: 2023
- ***Senior Member,*** Association for Computing Machinery (ACM), Elected: 2021
- ***Fellow***, American Society of Civil Engineers (ASCE), Elected: 2019
- ***Member,*** The Council for Good, AI for Good Foundation (AI4Good), Elected: 2019
- ***Senior Member,*** Institute of Electrical and Electronics Engineers (IEEE), Elected: 2018

Institutional Awards

Academia

- ***College of Engineering Distinguished Professor Award***, Northeastern University, 2023
- ***Constantinos Mavroidis Translational Research Award***, Northeastern University, 2021
- ***2011 Faculty Fellow***, College of Engineering, Northeastern University, 2011
- ***Outstanding Joint Research Faculty Award***, University of Tennessee, Knoxville, 2010

Government Laboratory

- ***Joint Appointment as Chief Scientist***, Pacific Northwest National Laboratory, 2020
- ***Significant Event Award*** (Novel Climate Simulations), Oak Ridge National Laboratory, 2010
- ***Significant Event Award*** (Climate War Games Support), Oak Ridge National Laboratory, 2009
- ***Exceptional Mentoring Award***, Oak Ridge National Laboratory, US DOE, 2009
- ***Significant Event Award*** (DARPA behavior model), Oak Ridge National Laboratory, 2009
- ***Outstanding Mentor Award***, United States Department of Energy (for work at ORNL), 2008
- ***Outstanding Mentor Award***, United States Department of Energy (for work at ORNL), 2006
- ***Selfless Mentoring Award***, United States Department of Energy (for work at ORNL), 2006

Best Paper Awards

Highly Selective Peer-Reviewed Conferences

- ***Runner-Up Best Paper Award in ACM KDD Applied Data Science Track 2017***, for: Vandal, T.*, Kodra, E.*, Ganguly, S., Michaelis, A., Nemani, R., and A.R. Ganguly (2017): *DeepSD: Generating high resolution climate change projections thro' single image super-resolution*, **KDD 2017,** 23rd ACM SIGKDD Conference on Knowledge Discovery & Data Mining, August 13–17, 2017, Halifax, NS, Canada. (*2017 Oral Acceptance Rate in Applied Data Science: 8.8%*), 2017
- ***Best Student Paper Award in SDM 2012***, for: Chatterjee, S., Steinhaeuser, K., Banerjee, A., Chatterjee, S., and Ganguly, A.R. (2012): *Sparse Group Lasso: Consistency and Climate Applications*. **SIAM International Conference on Data Mining (SDM 2012)**, Anaheim, CA, April 26-28, 2012. Best Student Paper Award, 2012

Journal Paper: Society Recognition

- ***Clemens Herschel Award***, (to former Ph.D. student Kate Duffy) for: Duffy, K.*, Gouhier, T., A.R. Ganguly (2022): *Climate-mediated shifts in temperature fluctuations promote extinction risk*. **Nature Climate Change**: 12, 1037–1044. Boston Society of Civil Engineers (BSCES), ASCE Member Section, Boston, MA, USA, 2023

Other Peer-Reviewed Conferences and Workshops

- ***Best Climate Paper Award***, for: Watson, J.R.*, Chatterjee, S., A.R. Ganguly (2022): *Resilience of Urban Rail Transit Networks under Compound Natural & Opportunistic Failures*. **IEEE HST**: International Symposium on Technologies for Homeland Security, Boston, MA, USA, 2022
- ***Best Student Paper Award***, for: Yadav, N.*, Ravela, S. and Ganguly, A.R. (2020): *Physics-guided Gaussian Processes for Parameterization in Nonlinear Dynamical Systems with Application in Climate Modeling*, **Fragile Earth Workshop** held with **ACM KDD,** 2020

- ***Best Student Paper Award***, for: Kawale, J., Liess, S., Kumar, A., Steinbach, M., Ganguly, A.R., Nagiza, S., Semazzi, F., Snyder, P.K., and Kumar, V. (2011): *Data Guided Discovery of Dynamic Climate Dipoles*, NASA CIDU 2011, 30-34, **NASA Conference on Intelligent Data Understanding**, Mountain View, CA, Oct. 19-21, 2011
- ***Runner-Up Best Student Paper Award***, for: Agovic, A., Banerjee, A., Ganguly, A.R., and Protopopescu, V.A. (2007): *Non-Linear Anomaly Analysis with Applications to Transportation Corridors*. **The 1st International Workshop on Knowledge Discovery from Sensor Data**, The 13th Int'l Conf. on Knowledge Discovery & Data Mining, San Jose, CA, August 12-15, 2007
- ***Best Student Paper Award***, for: Pan, C.-C., Mitra, P., and Ganguly, A.R. (2007): *Spatio-Temporal Analysis on FEMA Situation Updates with Automated Information Extraction*. **The 1st International Workshop on Knowledge Discovery from Sensor Data**, The 13th International Conference on Knowledge Discovery and Data Mining, San Jose, CA, August 12-15, 2007

Best Poster or Presentation Awards

- ***Student Merit Award***, for: Watson, J.R.*, Chatterjee, S., and Ganguly, A. (2022). *Resilience of multi-scale rail networks against compound floods and opportunistic failures*. In **2022 Society of Risk Analysis (SRA) Annual Meeting**. Extended abstract and presentation by Watson. Student Merit Award, *Risk Analysis Specialty Group*, *Society of Risk Analysis*, 2022
- ***Student Merit Award***, for: Watson, J.R.*, Chatterjee, S., and Ganguly, A. (2021). *A hierarchical network-of-networks framework for resilient design & operation of multiscale rail infrastructure*. In **2021 Society of Risk Analysis (SRA) Annual Meeting**. Extended abstract and presentation by Watson. Student Merit Award, *Risk Analysis Specialty Group*, *Society of Risk Analysis*, 2021
- ***First Place Poster Presentation***, for: Konduri, V.S.*, Kumar, J., Hargrove, W., Hoffman, F.M., and A.R. Ganguly (2020): In-season crop mapping for the continental United States, Hydrology Section, **100th American Meteorological Society Annual Meeting**, Boston, MA, 2020
- ***Best Poster Award***, **Society for Risk Analysis**, awarded to PNNL PI (Sam Chatterjee) for joint project on infrastructure resilience with PNNL, Northeastern, RPI, IIT-GN, and VOLPE, 2020
- ***First Place Virtual Poster Award*** (with a commendation from the CEO of AGU for Babak J. Fard), for: Fard, B.J.*, Hassanzadeh, H.*, Warner, M.E.*, Bhatia, U.*, and A.R. Ganguly (2017): *Effective Mitigation and Adaptation Strategies for Public Health Impacts of Heatwaves for Brookline, MA*. Spring 2017 Virtual Poster Showcase, **American Geophysical Union**, 2017
- ***Excellent Youth Paper Candidate***, for: Bhatia, U.*, and A.R. Ganguly: Invited (2016): *Climate & Complexity: The Resilience of Natural-Built-Human Systems*. **International Conference on Sustainable Infrastructure** (ICSI 2016), Theme on Adaptation to Climate Change (Tuesday, October 18th AM), US National Academy of Engineering (NAE) and the Chinese Academy of Engineering (CAE), 17-19 October, Shenzhen, China, 2016
- ***Best Poster Award for Doctoral Forum Presentation***, Steinhaeuser, K.*, Chawla, N.V., and Ganguly, A.R. (2009): *Descriptive and Predictive Analysis of Climate Data*, **2009 SIAM International Conference on Data Mining** (SDM), Doctoral Symposium Poster (Ph.D. Adviser: Chawla, Co-Adviser, ORNL Mentor: Ganguly), Sparks, NV, April 30-May 2, 2009

Publicity: Highlights in Scientific Venues

- ***Highlights of Journal Articles:*** **Nature** (2015, 2011) & **Nature Climate Change** (2022, 2011)
    - Di Lorenzo, E. *The future of coastal ocean upwelling*. **Nature** 518, 310–311 (2015). https://doi.org/10.1038/518310a
    - *Cold spells in a warm world*. **Nature** 472, 139 (2011). https://doi.org/10.1038/472139d.
    - *Climate panel axed by Trump releases plan to help United States deal with warming*. **Nature**. News. April 4, 2019. https://www.nature.com/articles/d41586-019-01090-0.

- *Temperature variability under climate change increases extinction risk of insects*. **Nature Climate Change** 12, 979–980 (2022). https://doi.org/10.1038/s41558-022-01494-3.
- *Prediction and projection: No end to cold spells.* Our choice from the recent literature. **Nature Climate Change** 1, 92–93 (2011). https://doi.org/10.1038/nclimate1113.
- *Climate war games*. **Nature**. News: 4/5/2008. https://www.nature.com/articles/454673a.

- ***Scientific American***, 2019.
  - *Climate Preparation Report Released by Panel Previously Disbanded by Trump.* **Scientific American**. (April 4, 2019). https://www.nsf.gov/news/news_summ.jsp?cntn_id=134218
- ***National Science Foundation (NSF) News and Media***, 2012, 2015.
  - *More upwelling expected in critical parts of future oceans.* **NSF** News Release 15-016. (2015). https://www.nsf.gov/news/news_summ.jsp?cntn_id=134218
  - *Journal Piece Reveals New Data-driven Methods for Understanding Climate Change*. **NSF** News Release 11-266. (2012). https://www.nsf.gov/news/news_summ.jsp?cntn_id=122604
  - **NSF Multimedia**: ScienceLives Interview with Auroop Ganguly (2014). https://www.nsf.gov/news/mmg/mmg_disp.jsp?med_id=76797
  - **NSF Magazine**: Current, October (2012): Faces of NSF Research. https://www.nsf.gov/news/newsletter/pdf/nsf_current_oct_2012.pdf
- ***National Science Foundation (NSF) News and Media***, 2012, 2015.
  - *More upwelling expected in critical parts of future oceans.* **NSF** News Release 15-016. (2015). https://www.nsf.gov/news/news_summ.jsp?cntn_id=134218
  - *Journal Piece Reveals New Data-driven Methods for Understanding Climate Change*. **NSF** News Release 11-266. (2012). https://www.nsf.gov/news/news_summ.jsp?cntn_id=122604
- ***Highlights and quotes in scientific journals and magazines***
  - Dumont, P. *AGU's Thriving Earth Exchange Links Science with Small Towns*. **EOS Transactions**, American Geophysical Union (2016) https://eos.org/agu-news/agus-thriving-earth-exchange-links-science-with-small-towns
  - *Environmental Research Letters: Highlights of 2015* https://iopscience.iop.org/journal/1748-9326/page/Highlights-of-2015
  - Geophysical Research Letters (American Geophysical Union): Editor's Pick (2011)
- ***Highlights and quotes in engineering journals or magazines***
  - Staff (AR Ganguly). *How grey swans & butterfly effects challenge dam & hydropower management*. **International Water Power & Dam Construction**, (14 June 2024) https://eos.org/agu-news/agus-thriving-earth-exchange-links-science-with-small-towns
  - *What the world can learn from the devastating floods in Pakistan***. Smart Water Magazine** (12 September 2022) https://smartwatermagazine.com/news/northeastern-university/what-world-can-learn-devastating-floods-pakistan
- ***Highlights and quotes in computer science journals or magazines***
  - Delaney, L. *SOLVING CLIMATE RESILIENCE CHALLENGES WITH AI*. **Communications of the ACM**, Association for Computing Machinery (June 2024) https://mags.acm.org/communications/june_2024/MobilePagedArticle.action?articleId=1979868#articleId1979868

Publicity: SELECTED media quotes and/or highlights

- **Bloomberg** (April 20, 2024): *Dubai Floods Expose Weaknesses to a Rapidly Changing Climate:* https://www.bloomberg.com/news/articles/2024-04-20/dubai-floods-expose-weakness-to-climate-change-after-uae-heavy-rains
- **Boston Globe** (August 31, 2023): *Summer of 2023 goes down as second rainiest on record:* https://www.bostonglobe.com/2023/08/31/metro/second-rainiest-summer-mass/
- **Forbes** (September 15, 2023): *Dams and Flood Controls 'Not Ready' For A More Extreme Climate*: https://www.forbes.com/sites/davidbressan/2023/09/15/dams-and-flood-controls-not-ready-for-a-more-extreme-climate/
- **Newsweek** (July 23, 2023): *U.S. Wheat Supply Threatened as Worst Drought in Decade in KS*: https://www.newsweek.com/kansas-drought-crops-wheat-shortage-climate-change-1808724
- **Lifewire** (April 3, 2023): *How Could AI Help Combat Climate Change? Let's Count the Ways:* https://www.lifewire.com/how-could-ai-help-combat-climate-change-lets-count-the-ways-7374806
- **Escola Educação**, Brazil (November 21, 2022): *Extinção em massa: 65% dos insetos vão desaparecer em breve*. https://escolaeducacao.com.br/efeitos-prejudiciais-das-mudancas-climaticas-insetos-em-extincao/
- **The New York Times** (October 3, 2022): *Three Ways to Build Back Smarter After Hurricane Ian* https://www.nytimes.com/2022/10/03/climate/hurricane-ian-rebuilding.html
- **The New York Times** (September 29, 2022): *Hospitals in Coastal Cities Risk Flooding Even in 'Weak' Hurricanes, Study Finds* https://www.nytimes.com/2022/09/29/climate/coastal-hospitals-hurricane-flooding.html
- **Newsweek** (September 2, 2022): *Global Weirding: Humans Have Caused Chaos on Earth* https://www.newsweek.com/climate-change-causing-climate-chaos-weather-extreme-events-1739426
- **Newsweek** (July 27, 2022): *North Carolina Lake Disappears Making Hundreds of Fish Suffocate to Death*: https://www.newsweek.com/north-carolina-lake-disappears-hundreds-fish-suffocate-death-1728238.
- **National Geographic** (October 10, 2022): *Is building more dams the way to save rivers?* https://www.nationalgeographic.com/environment/article/is-building-more-dams-the-way-to-save-rivers
- The **Independent**, UK (September 1, 2022): *What caused Pakistan's deadly floods? From melting glaciers to 'monster' monsoon*. https://www.independent.co.uk/climate-change/news/pakistan-floods-appeal-melting-glaciers-monsoon-b2157377.html
- **Boston 25 News** (August 5, 2022): *Extreme temperatures, demand straining electricity system in Massachusetts.* https://www.boston25news.com/news/local/extreme-temperatures-demand-straining-electricity-system-massachusetts/4GOLFRREC5BTNPTZFY6B74B5EQ/
- **The Wall Street Journal** (July 10, 2022): *The Startups Predicting Climate Risk for Bond Investors.* (Article on risQ: the startup Ganguly co-founded with PhD student Kodra that was acquired by ICE). https://www.wsj.com/articles/high-tech-weathermen-forecast-climate-risks-for-bond-markets-11657461236
- **India Today**, India (November 11, 2022): *65% of insects on Earth to go extinct due to climate change*. https://www.indiatoday.in/science/story/65-of-insects-on-earth-to-go-extinct-due-to-climate-change-2296004-2022-11-11
- **Grist** (December 13, 2022)*: 23 Predictions for 2023: We asked climate and environmental justice experts to share their forecasts for the coming year*. https://grist.org/fix/policy/23-predictions-for-2023-climate-justice-forecast-trends/

- **S&P Global** (October 21, 2020): *Climate change poses big water risks for nuclear, fossil-fueled plants.* https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/climate-change-poses-big-water-risks-for-nuclear-fossil-fueled-plants-60669992
- **Al Jazeera**, Qatar (December 4, 2017): The hurricane season comes to an end. https://www.aljazeera.com/news/2017/12/4/the-hurricane-season-comes-to-an-end
- **The Guardian**, UK (January 19, 2017): *Global Warning: 24 hours on the climate change frontline as Trump becomes president – as it happened?* https://www.theguardian.com/environment/live/2017/jan/19/global-warning-live-from-the-climate-change-frontline-as-trump-becomes-president
- **The Washington Post** (January 30, 2015): *An urban climate double whammy: more heat, less wind*. https://www.washingtonpost.com/news/energy-environment/wp/2015/01/30/an-urban-climate-double-whammy-more-heat-less-wind/ (Ganguly co-author of highlighted paper)
- **Boston Globe** (March 29, 2012): *Climate panel predicts weather disasters ahead* https://www.bostonglobe.com/news/nation/2012/03/28/mumbai-miami-list-for-big-weather-disasters-panel-says/WgCbfgnJRDudGKlJBaeiWJ/story.html
- **NDTV**, India (March 28, 2012): *Mumbai, Miami on list for big weather disasters*. https://www.ndtv.com/world-news/mumbai-miami-on-list-for-big-weather-disasters-473869
- **NBC News** (April 13, 2011): *Chilling: Cold Snaps Will Persist in Warming World* https://www.nbcnews.com/id/wbna42570254
- **Bloomberg** (September 15, 2011): *Ex-Drug Smuggler Turned Data Miner Reclaims Field He Created*. https://www.bloomberg.com/news/articles/2011-09-15/ex-cocaine-smuggler-turned-data-miner-seeks-to-conquer-a-field-he-created
- **The Hindu**, India (September 14, 2009): *Increasing temperatures and heat waves could hit northern India*. https://www.thehindu.com/sci-tech/Increasing-temperatures-and-heat-waves-could-hit-northern-India/article16881341.ece

Publicity: SELECTED Institutional Media Highlights

- **Northeastern University News (News @ Northeastern / Northeastern Global News):**

  July 24, 2024: *With the help of Northeastern, Tennessee Valley Authority experiments with a new forecast model to better predict extreme rainfalls* https://news.northeastern.edu/2024/07/23/ai-weather-forecasts/

  July 18, 2024: *'AI will transform every aspect of our life,' Gov. Healey says at artificial intelligence task force meeting at Northeastern* https://news.northeastern.edu/2024/07/18/healey-ai-task-force-northeastern/

  February 20, 2024: *Recovery from natural disasters or man-made attacks begins with being prepared, researchers say* https://news.northeastern.edu/2024/02/20/disaster-recovery-preparation-research/

  December 4, 2023: *The short-term rain forecast system is broken. Can AI do a better job of predicting deadly floods?* https://news.northeastern.edu/2023/12/04/flood-prediction-artificial-intelligence/

  September 12, 2023: *Flooding in Libya a 'gray swan' event, but dam infrastructure worldwide 'not ready' to meet the demands of a changing climate, expert says* https://news.northeastern.edu/2023/09/12/libya-flooding/

  September 6, 2023: *Ending the 'false argument' about whether we should adapt to climate conditions or work to mitigate climate change* https://phys.org/news/2023-09-false-argument-climate-conditions-mitigate.html

August 28, 2023: *Lessons from Maui wildfires: Build channels of communication before firewalls*
https://phys.org/news/2023-08-lessons-maui-wildfires-channels-communication.html

August 15, 2023: *It can be intimidating for women in male-dominated field of emergency management, but she loves her dream job at Moderna*
https://news.northeastern.edu/2023/08/15/emergency-management-field-women/

June 13, 2023: *Indonesia is building a new capital. Will it be a model amid climate change?*
https://news.northeastern.edu/2023/06/13/indonesia-new-capital-green-city/

May 25, 2023: *Can AI help reduce the risk of climate change disasters?*
https://news.northeastern.edu/2023/05/25/reduce-climate-change-disasters/

February 17, 2023: *Using artificial intelligence to unlock the mystery of El Nino's impact on droughts and floods:* https://news.northeastern.edu/2023/02/17/el-nino-weather/

October 31, 2022: *Are insects doomed? New paper shows added threat of climate change*
https://news.northeastern.edu/2022/10/31/insects-climate-change/

January 12, 2022: *This Northeastern-born startup helps cities deal with changing climate*
https://news.northeastern.edu/2022/01/21/startup-guage-climate-change-risk/

March 16, 2015: *Student projects assess Logan Airport resilience*
https://news.northeastern.edu/2015/03/16/student-projects-assess-logan-airport-resilience/

- **Pacific Northwest National Laboratory (PNNL Spotlight; PNNL News):**

  October 31, 2022: *Simulating the Effects of Climate Change*
  https://www.pnnl.gov/publications/simulating-effects-climate-change

  December 13, 2022: *Watson Recognized for Student Merit in Resilience Analysis*
  https://www.pnnl.gov/news-media/watson-recognized-student-merit-resilience-analysis

  September 22, 2020: *Network Resilience is Key to Surviving Compound Hazard Events, Scientists Say*: https://www.pnnl.gov/news-media/network-resilience-key-surviving-compound-hazard-events-scientists-say

  January 8, 2019: *Infrastructure Resilience Project Wins Risk Analysis Award*
  https://www.pnnl.gov/news-media/infrastructure-resilience-project-wins-risk-analysis-award

- **risQ, Inc. (research at spinoff from Ganguly's SDS Lab showcased by NBC News)**

  September 25, 2021: *Climate Challenge: Latinos Disproportionately Impacted by Wildfires*
  https://www.youtube.com/watch?v=XcMOyna9ixE&ab_channel=NBCNews (0:29 to 0:47)
  Note: risQ has now been acquired by Intercontinental Exchange (ICE)

- **National Aeronautics and Space Administration (NASA Feature):**

  November 9, 2022: *Climate Change Can Put More Insects at Risk for Extinction*
  https://www.nasa.gov/feature/climate-change-can-put-more-insects-at-risk-for-extinction-0

- **Oak Ridge National Laboratory (ORNL News):**

  August 19, 2010: *UT, ORNL crunching numbers to make sense of climate change*
  https://www.ornl.gov/news/ut-ornl-crunching-numbers-make-sense-climate-change

  October 21, 2009: *Scientists Develop New Method to Quantify Climate Modeling Uncertainty*
  https://www.ornl.gov/news/scientists-develop-new-method-quantify-climate-modeling-uncertainty

  June 12, 2007: *New ORNL theory aims to explain recent temperature, climate extremes*
  https://www.ornl.gov/news/new-ornl-theory-aims-explain-recent-temperature-climate-extremes

- **Massachusetts Institute of Technology (MIT News):**

  February 9, 2018: *Alumni call on MIT to champion artificial intelligence education*
  https://news.mit.edu/2018/alumni-call-mit-champion-artificial-intelligence-public-good-0209

Impact: Entrepreneurship and Inventions

- ***Successful startup,*** Cofounded risQ: Acquired by Intercontinental Exchange (Fortune 500), 2021
- ***Advising a startup,*** Zeus AI co-founded by recent PhD students (motivated by risQ), 2022 to now
- ***Two US patents granted, Climate Risks*** (Kodra & Ganguly: **US 10,488,566 B2**) and one on ***Infrastructure Resilience*** (Bhatia, Kumar, Kodra & Ganguly: **US 10,361,907 B2**), 2019 and ***One US patent pending, Facility Resilience*** (Watson, Pal, Ganguly, Chatterjee, Salgado, Gonzalez)
- ***Consulting Startup, Analyticsmart,*** Founder and Chief Technology Officer, 2003 – 2004

Impact: International Assessments

- ***United Nations Disaster Risk Reduction*** (UNDRR), Review of the SENDAI Resilience Framework, Invited Workshop at United Nations Headquarters in New York City, NY (Ganguly and 8 others from his SDS Lab), May 17, 2023. https://www.undrr.org/news/daily-report-17-may-2023-high-level-meeting-midterm-review-sendai-framework
  ICSI UN Report: https://sustainability-coalition.org/wp-content/uploads/2023/07/Accelerating-Implementation-of-DRR-and-Resilience-in-Infrastructure.pdf
- ***United Nations Panel***, **United Nations Environment Programme** (UNEP), Quadrennial Report on "Environmental Effects of Ozone Depletion and Interactions with Climate Change", **Invited Review Panel**, 2010, 2018, 2022.
- ***United Nations Assessments,*** **Intergovernmental Panel on Climate Change** Assessment Report 6 (**IPCC AR6**), **Cited in all three assessments** (specifically, WGI: The Physical Science Basis, WGII: Impacts, Adaptation, and Vulnerability, and WGIII: Mitigation), 2021 and 2022, and in cited in WGI and WGII of **IPCC AR5**, 2013 and 2014. (Note: Ganguly is neither an author nor a reviewer for the IPCC AR processes and does not influence the citation process).

Impact: National Assessments

- ***US National Assessments***, Fourth **National Climate Assessments** (NCA4), **Cited in both assessments** (specifically, Vol. 1: Climate Science Special Report, and Vol. 2: Impacts, Risks, and Adaptation in the United States), 2017 and 2018. (Ganguly is neither an author nor a reviewer for the NCA processes: the citations were independent of his involvement).
- ***US Independent Advisory Committee Assessment*** (originally formed as *US Sustainable National Climate Assessment*, eventually published in AMS journals after committee), Invited (by the original National Climate Assessment committee) as Lead Author for section on **Artificial Intelligence**, https://www.climateassessment.org/, 2019.
- ***United Nations Association of the United Kingdom (UNA-UK) Assessments***, Data-driven solutions, Invited article for Climate 2020: Degrees of Devastation (with a leading article by the United Nations Secretary General), 2018.

Impact: Urban Assessments and Climate Action

- ***Climate Ready Boston***, The Boston Research Advisory Group (BRAG) developed a climate science assessment to inform Climate Ready Boston, Ganguly led the Temperature Extremes section with then recent PhD student Evan Kodra as a team member, 2016.
- ***Climate Ready Greater Boston***, The Greater Boston Research Advisory Group (BRAG) developed a climate science assessment to inform Climate Ready Greater Boston, Ganguly stepped down, former PhD student Evan Kodra led the Temperature Extremes section with then current PhD students Lizzy Warner and Kate Duffy as team members, 2022.
- ***Brookline Heat Risks***, Risk assessment, management, adaptation, and mitigation for Brookline, MA, in the context of public health impacts of heat waves, performed under the aegis of the American Geophysical Union (AGU) Thriving Earth Exchange (TEX), leading to an award from AGU for lead PhD student Babak Fard and team and AGU media attention, 2016, 2017

Impact: US National Academies Contributions

- ***National Academy Workshop Panelist and Report Author***, Invited Panel on coupled natural, engineering, and social systems, **NASEM Workshop on AI/ML for Earth System Sciences**, Workshop Panelist and Contributor to Workshop Report, 2022
- ***National Academy Workshop Keynote and Panelist***, Invited Keynote, Panel Lead and Report Contributor, **NASEM Workshop on Urban Sustainability with Data, Modeling, and Simulation**, Overall Workshop Keynote, Lead of a Panel, Contributor to Report, 2019
- ***Invited Reviewer for National Academies Report***, *From Maps to Models: Augmenting the Nation's Geospatial Intelligence Capabilities*, National Academies Press, 2016.
- ***National Academy Report Citation***, Climate Change and Arctic Sea Ice work led while at the Oak Ridge National Laboratory, cited in the book **National Security Implications of Climate Change for U.S. Naval Forces** by the National Academies Press, 2011.

Service Award: Outstanding Reviewer

- ***Outstanding Reviewer***, Journal of Computing in Civil Engineering, **American Society of Civil Engineers**, 2011

SERVICE & RECOGNITION

Invited Talks and Keynotes

1. Ganguly, A.R. (2024): "Artificial Intelligence in Watershed Science: Novel breakthrough or passing fad?" *Invited Talk*, **AGU FM 2024: H086**, *Integrating Machine Learning and Physics-Based Models in Watershed Science*, Session H086, **2024 Fall Meeting of the American Geophysical Union**, Washington, DC, December 2024 (upcoming).
2. Ganguly, A.R. (2024): "Water Resources and Climate from Science to Decisions", *Invited Talk*, **GSA Connects 2024**, ***Pardee Keynote Symposia***, Session 125 – P2, **CONNECTS 2024**, **Geological Society of America**, Anaheim, CA, September 23, 2024 (upcoming).
3. Ganguly, A.R. (2024): "ADAPTING COMMUNITIES & THE PLANET TO GLOBAL CHANGE WITH NOVEL PHYSICS-AI-HUMAN SYSTEMS", *Invited Talk*, **Vanderbilt University**, Nashville, TN, August 16, 2024.
4. Ganguly, A.R. (2024): "Artificial Intelligence and Predictive Insights in Weather and Climate: Beyond the Hype Cycle", *Invited Talk*, Monsoon Mission III (MM-III) Project Workshop, **IIT-B Center (IDP) for Climate Studies (IDPCS)**, **Indian Institute of Technology Bombay**, Mumbai, India, June 26, 2024.
5. Ganguly, A.R. (2024): "Climate Change and Forever Chemicals: Forever Chemicals Impacts on Climate Mitigation and the Compounding Effect for Adaptation in Human and Planetary Health", *Invited Talk*, PFAS Project Workshop, **Indian Institute of Technology Bombay**, Mumbai, India, June 25, 2024.
6. Ganguly, A.R. (2024): "Earth system model (ESM)–informed Climate Adaptation Decision-making under Uncertainty", *Invited Talk*, COEAI-SPARC Workshop on. Hybrid Physics-AI Models for Climate, Weather and Water, **Indian Institute of Technology Kharagpur**, India, June 19, 2024.
7. Ganguly, A.R. (2024): "A personal journey from research in earth systems sciences and engineering to community engagement and entrepreneurship", *Invited Talk*, **Asian Institute of Technology**, Bangkok, Thailand, May 10, 2024.

8. Ganguly, A.R. (2024): "From Earth System Models to Decisions: The Roles of Variability, Uncertainty, and Predictability," **SIAM UQ 2024: MS206**, *Algorithms for Forward UQ in Climate Modeling – Part II of III*, Minisymposium, **2024 SIAM Conference on Uncertainty Quantification**, Trieste, Italy, March 1.
   SIAM Website: https://meetings.siam.org/sess/dsp_programsess.cfm?SESSIONCODE=78334
9. Ganguly, A.R. (2024): "Decision-making under deep and irreducible uncertainty with implications for climate adaptation," **SIAM UQ 2024: MS234**, *Optimal Design and Decision-Making Under Uncertainty – Part II of II*, Minisymposium, **2024 SIAM Conference on Uncertainty Quantification**, Trieste, Italy, March 1.
   SIAM Website: https://meetings.siam.org/sess/dsp_programsess.cfm?SESSIONCODE=78149
10. Ganguly, A.R. (2024): "What happens at the confluence as statistical methods and parameterized models in water and climate science and engineering confront machine learning and Artificial Intelligence?", *Invited Talk*, **IIT-B Center (IDP) for Climate Studies (IDPCS)**, Indian Institute of Technology Bombay, Mumbai, India, January 10, 2024.
    Recorded Presentation: https://www.youtube.com/watch?v=JQPQt6T92NU
11. Ganguly, A.R. (2024): "A personal journey from research to entrepreneurship with perspectives on diversity, equity, and inclusion", *Invited Talk*, **IIT-B Civil Engineering**, Indian Institute of Technology Bombay, Mumbai, India, January 8, 2024.
12. Ganguly, A.R. (2024): "Stochastic Hydrology Confronts Machine Learning: Opportunities and Challenges", *Invited Talk*, **IIT-GN Engineering**, Indian Institute of Technology Gandhinagar, Gandhinagar, Gujarat, India, January 4, 2024.
13. Ganguly, A.R. (2023): "A network lens on the resilience of installations to climate and compound extremes," **ASCE INSPIRE 2023**, *Infrastructure Innovation & Adaptation for a Sustainable & Resilient World*, **American Society of Civil Engineers**, Arlington, VA, November 16-18.
14. Ganguly, A.R. (2023): "The Role of Big and Little Data in Hydrology and Artificial Intelligence: A Tutorial," in the *International Workshop in Statistical Hydrology (STAHY 2023)*, **The International Association of Hydrological Sciences**, Boston, MA, November 8-10.
    IAHS Website: https://iahs.info/Commissions--W-Groups/ICSH-Statistical-Hydrology/News-and-Events/stahy-workshop-2023/
    Program Schedule: https://iahs.info/Commissions--W-Groups/ICSH-Statistical-Hydrology/News-and-Events/stahy-workshop-2023-programme/
    Ganguly IEAI Video: https://www.youtube.com/watch?v=SUJ2FqQ24-Q
15. Ganguly, A.R. (2023): "Natural Catastrophe Models and the Role of AI in Insurance Risks," in *How to Transform Insurance Operations with AI*, **Northeastern University Institute for Experiential AI**, Boston, MA, June 14, 2023.
    Recorded Session: https://www.youtube.com/watch?v=5j1mnP5UUwY
16. Ganguly, A.R. (2023): "Climate Resilience: The State of Knowledge and The Role of Entrepreneurship", *Invited Talk*, **IIT-D Center for Atmospheric Science**, Indian Institute of Technology Delhi, New Delhi, India, July 17, 2023.
17. Ganguly, A.R. (2023): "Climate and Equity: Economics, Regulatory Frameworks, and Policy", *Invited Roundtable Discussions with Climate Change and Emerging Economies "Dialogue of Civilization"*, **Jawaharlal Nehru University (NJU)**, New Delhi, India, July 17, 2023.
18. Ganguly, A.R. (2023): "Building Climate Resilience: A Personal Journey from Research to Startup", *Invited Talk*, **Workshop on Impacts of Climate Change on Water Resources: Challenges and Needs at Regional and Global Scale, Association of Environmental**

Engineering and Science Professors (AEESP) Research and Education Conference, Northeastern University, Boston, MA, June 20–23, 2023.

19. Ganguly, A.R. (2023): "Disaster Resilience: Climate, Critical Infrastructures and Artificial Intelligence", *Invited Presentation at International Roundtable*, **Midterm Review of the SENDAI Resilience Framework, United Nations office for Disaster Risk Reduction (UNDRR)**, United Nations Headquarters, New York City, NY, May 17, 2023.
    UNDRR Announcement: https://www.undrr.org/news/daily-report-17-may-2023-high-level-meeting-midterm-review-sendai-framework
    ICSI Report: https://sustainability-coalition.org/wp-content/uploads/2023/07/Accelerating-Implementation-of-DRR-and-Resilience-in-Infrastructure.pdf
20. Ganguly, A.R. (2023): "Resilient Development & Global Change: Blending Process Knowledge with Data Sciences", *Invited Presentation to BAPPENAS (Indonesian Ministry of Development Planning)*, **Indonesian Ministry Visit to the Sustainability and Data Sciences Laboratory (SDS Lab: PI Ganguly) of Northeastern University,** Boston, MA, May 1, 2023.
21. Ganguly, A.R. (2023): "Climate Change and Water Sustainability: Enabling Decisions Despite the Uncertainties", *Invited Talk*, **Nardone Family Seminar, D'Amore McKim School of Business**, Northeastern University, Boston, MA, February 8, 2023.
22. Ganguly, A.R. (2022): "A convergence of complexities in climate systems and the role of high-performance computing", *Invited Talk*, **Supercomputing 2022 (SC22), The International Conference for High Performance Computing, Networking, Storage, and Analysis**, Dallas, TX, November 13-18, 2022.
    Abstract: https://sc22.supercomputing.org/presentation/?id=inv107&sess=sess243; ***Recording:*** https://www.youtube.com/watch?v=IauXLDkaQAw&t=2s&ab_channel=SCConferenceSeries
23. Ganguly, A.R. (2022): "Climate science and resilience with physics-guided informatics on big and small data", *Keynote Speech / Plenary Talk*, **TIES 2022, 2022 Annual Meeting of The International Environmetrics Society (TIES)**, Virtual, November 17-18, 2022.
    Abstract: https://www.environmetrics.xyz/TIES2022 (search for "Plenary Talk") ***Recording:*** https://www.youtube.com/watch?v=U6ty8gI66TA&ab_channel=EnvironmetricsWebinar
24. Ganguly, A.R. (2022): "Artificial Intelligence and the Convergence of Complexities in Coupled Natural-Engineered-Human Systems", Invited Panelist, Panel on Emerging Opportunities from Social and Human Engineered Systems, Machine Learning and Artificial Intelligence to Advance Earth System Science: Opportunities and Challenges – A Workshop, **The US National Academies of Sciences, Engineering, and Medicine**, February 7, 10, 11, 2022.
    Vimeo: https://vimeo.com/677744722 (short talk from ~ 1:37:00)
    Workshop Report: https://nap.nationalacademies.org/catalog/26566/machine-learning-and-artificial-intelligence-to-advance-earth-system-science
25. Ganguly, A.R., Hopkins, J., and V. Lee (2022): "Design, Operation and Maintenance of Infrastructure in the Face of Climate Change ("Design")", Invited Talk, Future Weather & Climate Extreme Series, **American Society of Civil Engineers**, January 13, 2022.
26. Ganguly, A.R. (2022): "Uncertainty Quantification in Artificial Intelligence for Earth Systems Sciences and Engineering", Invited Talk, AI/ML Assurance: Applications in Geospatial Sciences, 2022 **Fall Meeting, American Geophysical Union**, Chicago, IL and online everywhere, 12-16 December 2022.
27. Ganguly, A.R. (2022): "Artificial intelligence with uncertainty quantification can plug gaps in climate science and inform multi sector resilience", Invited Talk, **Indian Symposium on Machine Learning** (**IndoML**), Indian Institute of Technology, Gandhinagar, India, December 13–15, 2022.

Abstract: https://indoml.in/ (search for Auroop Ganguly and click the Information "I" icon)
Recording: https://www.youtube.com/watch?v=rD5lWChZrU4

28. Ganguly, A.R. (2022): "Integrated physics and machine learning for coupled earth system models and weather extremes analysis", Invited Talk, Machine Learning for Climate and Weather Applications, Confronting Global Climate Change, **Institute for Mathematical and Statistical Innovation** (funded by the US National Science Foundation), Chicago, IL, October 31 – November 4, 2022.
29. Ganguly, A.R. (2022): "Climate Change Entrepreneurship: Challenges and Opportunities", Invited Talk, Sustainability Conclave, **Indian Institute of Technology Bombay**, Mumbai, India, November 30, 2022.
30. Ganguly, A.R. (2022): "Artificial intelligence with uncertainty quantification can plug gaps in climate science and inform multi-sector resilience", Invited Talk, Financial Mathematics Seminar, Mathematical Finance, Mathematics & Statistics, **Texas Tech University**, Lubbock, TX, September 2, 2022.
31. Ganguly, A.R. (2022): "A convergence of complexities in climate resilience and the role of artificial intelligence", International Conference on Systems Analysis for Enabling Integrated Policy Making, Invited Lecture, **International Institute for Applied Systems Analysis** (IIASA) with Technology Information, Forecasting & Assessment Council (TIFAC), New Delhi, India, August 10-12, 2022.
32. Ganguly, A.R. (2021): "Science-guided Artificial-intelligence for Flood Extremes (SAFE)", Invited Talk, ***NSF Convergence Workshops***, Big Data and Machine Learning Session, Bringing Land, Ocean, Atmosphere and Ionosphere Data to the Community for Natural Hazards, **American Geophysical Union**, 24-28 May.
33. Ganguly, A.R., and E. Kodra (2021): "Climate resilience from academia to startup", Session on Research to Operation/Commercialization, The 3rd NOAA workshop on AI in Environmental Sciences, ***NOAA***, September.
34. Ganguly, A.R. (2021): "Convergence of complexities in climate resilience", **Resilience Week 2021**.
35. Ganguly, A.R. (2021): "Physics-guided uncertainty quantification for scientific machine learning in complex spatiotemporal dynamical systems", Invited Talk, Networks & Dynamical Systems, ***Indian Institute of Technology Madras***, Chennai, India, August 25-28.
36. Ganguly, A.R. (2021): "Advancing the science of hydroclimatology and preparedness to flooding with integrated natural-build-human process models and data-driven sciences", Invited Talk, ***KGML2021 Workshop***, 2nd Workshop on Knowledge Guided Machine Learning (KGML2021): A Framework for Accelerating Scientific Discovery. August 9-11, 2021.
    Recording: https://www.youtube.com/watch?v=4pahdzoXFJ8&ab_channel=KGMLWorkshop
37. Ganguly, A.R. (2021): Invited Talk, Civil & Environmental Engineering, ***Rice University***.
38. Ganguly, A.R. (2021): Invited Talk, Recent Advances in AI & ML for Climate Sciences, November, **IEEE GRSS Kolkata Chapter**, Indian Statistical Institute, Kolkata, India.
39. Ganguly, A.R. (2020): "Is AI the new electricity that will ignite the earth system sciences and engineering?" IndoML 2020**, Indian Symposium on Machine Learning**, Invited Speaker, 16-18 December 2020, *Virtual*.
40. Ganguly, A.R. (2020): "SERDP 2020-Symposium: Project NICE by Auroop Ganguly," Project RC20-1183: Networked Infrastructure under Compound Extremes**, Strategic Environmental Research and Development Program**, US DOD SERDP, 12 November 2020, *Virtual.*
    Recording: https://www.youtube.com/watch?v=BRsifIgUdHA

41. Ganguly, A.R. (2020): "Is Artificial Intelligence the new electricity that will transform the Earth Systems Sciences and Engineering?" ***Texas A&M University***, Interdisciplinary Lecture Series on "Science and Engineering for Sustainability", Invited Speaker, November 4, *Virtual*.
42. Ganguly, A.R., and Kodra, E. (2020): "Convergent academic research to socially motivated startup: The case of Northeastern-spinout risQ," Lunch & Learn, Civil & Environmental Engineering, **Northeastern University**.
43. Ganguly, A.R. (2020): "CARE with MIRACLE: Climate Adaptation and Resilient Engineering (CARE) with Machine Intelligence for Regional Assessment of CLimate Extremes (MIRACLE)", Invited Seminar, **Indian Institute of Technology Gandhinagar**, October 6, *Virtual*.

    Recording:
    https://www.youtube.com/watch?v=Xzd8mzL8vKA&t=1s&ab_channel=IITGandhinagar
44. Ganguly, A.R. and J.F. Hajjar (2020): "Vision CEE 2100: Empowering Civil and Environmental Engineering with Artificial Intelligence for Global Priorities". ***Closing Keynote***, **ASCE Virtual Technical Conference**, **American Society of Civil Engineers**, September 18.
45. Ganguly, A.R. (2020): Invited Panelist and/or Moderator. **VAIBHAV** (Vaishwik Bharatiya Vaigyanik) **Summit** *(Global Summit of Overseas and Resident Indian Scientists and Academicians)*: October–November 2020 (organized by the Prime Minister's Office of India). Invited Expert / Speaker / Panelist in Four Independent (*Virtual*) Sessions:

    Monsoon Modeling (V13-H1-S1): Physics-Guided Data-Driven Modeling of the Indian Monsoon.
    Hydrologic Modeling (V13-H4-S3): Physics-Driven Data Mining in Hydrologic Modeling.
    Climate: Novel Tools (V11-H5-S2): CARE with MIRACLE (Climate & Machine Intelligence)
    Climate Services (V11-H5-S1): Weather & Climate Services for Environmental and Social Security (Panel Moderator: Weather and climate services for environmental and social security)
46. Chatterjee, S., Ganguly, A.R., Halappanavar, M., Brigantic, R. (2020): "Interdependent Infrastructure Network Resilience Analysis Under Compound Extremes", **DHS S&T and DOE Laboratory Summit**, July 16, *Virtual*.
47. Ganguly, A.R. (2020): "Hybrid physics and machine learning for atmospheric, hydrologic, and climate system." Mathematics for Artificial Reasoning in Science (MARS) Program. US DOE's **Pacific Northwest National Laboratory**, May 8, *Virtual*.
48. Ganguly, A.R. (2020): Maine Artificial Intelligence Webinar: Applications of AI in Business, Industry, Government, Healthcare and Environment, Invited Panelist, ***University of Maine***, April 29, *Virtual*.
49. Ganguly, A.R. (2020): "Networked Infrastructures under Compound Extremes". Guest Speaker. **Babson College**, Babson Executive Conference Center, Organized by **CERA Design Associates**, Boston, MA (Postponed owing to COVID-19).
50. Ganguly, A.R. (2019): ***Invited Keynote*. National Academies Committee on Frontiers of Big Data, Modeling and Simulation in Urban Sustainability**. National Academies, Washington, DC, January 30-31.

    Vimeo (recording): https://vimeo.com/318854857
    Workshop Report: https://nap.nationalacademies.org/catalog/25480/enhancing-urban-sustainability-with-data-modeling-and-simulation-proceedings-of
51. Ganguly, A.R. (2019): U04 Data-driven science for earth and space exploration. IUGG Centennial. 27th IUGG General Assembly. **International Union of Geodesy and Geophysics**. July 8-18.

52. Ganguly, A.R. (2019): Machine Learning in Geosciences. **MILA** (Quebec AI Institute) Earth Sciences, July.
53. Ganguly, A.R. (2019): Climate Resilience. **Dayalbagh Educational Institute**. Agra, India, May 16.
54. Ganguly, A.R. (2019): Invited Participant. Design Thinking for Resilience: Workshop with the Stanford Urban Resilience Institute and the d.school. **Stanford University**, May.
55. Ganguly, A.R. (2019): "Intelligent Climate Adaptation and Resilient Engineering for Urban Sustainability (I-CARE-4-US)," Climate Change Science Initiative, US DOE's **Oak Ridge National Laboratory**, April 22.
56. Ganguly, A.R. (2018): Panel on Climate Security: Adaptation and Dangers. 5th Annual ALLIES Civil Military Relations Conference on "Security, Society and the New Climate Regime". **Tufts University**. November 10.
57. Ganguly, A.R. (2018): "Intelligent Climate Adaptation and Resilient Engineering (I-CARE)", Department of Civil and Environmental Engineering, **Rensselaer Polytechnic Institute**, Troy, NY, October 3.
58. Ganguly, A.R. (2018): "Intelligent Climate Adaptation and Resilient Engineering (I-CARE)", US-Serbia and West Balkan Data Science Workshop, **US National Science Foundation** and **Ministry of Education, Science and Technological Development of the Republic of Serbia**, August 26-28, Belgrade, Serbia.

    Endowed Chair Activity (Series of Invited Lectures), Charotar University of Science & Technology, India:

59. Ganguly, A.R. (2018): "The Networked Digital Earth for Urban Resilience and Rural Development to Build a Climate Resilient India," One day Workshop on **'Toward a Climate Resilient India'**, July 31.
60. Ganguly, A.R. (2018): "Adopting the United Nation's IPCC Climate Risk Framework to Emerging Economies with a Focus on India," One day Workshop on **'Toward a Climate Resilient India'**, July 31.
61. Ganguly, A.R. (2018): "Physics-Aware Artificial Intelligence in the Sciences and Engineering: A Fundamental Research Agenda with Societal Impacts," August 1, **Charotar University**, India.
62. Ganguly, A.R. (2018): "The University of the Future: Balancing Knowledge Creation with Knowledge Dissemination in the World of AI, Citizen Science, and MOOC," August 1, **Charotar University**, India.
63. Ganguly, A.R. (2018): "Critical Infrastructures under Climate and Cyber Threats: A Call for Action to Civil and Environmental Engineers," August 2, **Charotar University**, India.
64. Ganguly, A.R. (2018): "Social Entrepreneurship for Future Civil Engineers: Critical Infrastructures, Key Resources, and Social Justice," August 2, **Charotar University**, India.
65. Ganguly, A.R. (2018): "Next-Generation Civil Engineers as Interdisciplinary Pioneers: Making Money, Saving Lives, and Having Fun," August 3, **Charotar University**, India.

    End ***Endowed Chair Activity*** (Invited Lectures Series)

66. Ganguly, A.R. (2018): "Dynamic Threats on Lifelines: Resilience of Critical Infrastructures to Cyber and Climate", Second ACM SIGMETRICS International Workshop on Critical Infrastructure Network Security, ACM SIGMETRICS, **Association of Computing Machinery**, July 18-22, Irvine, CA, USA.
67. Ganguly, A.R. (2018): "Translating Deep Uncertainty in Climate Model Ensembles to Risk-Informed Decisions," **Climate Change, Agriculture, Water, and Food Security: What We**

Know and Don't Know, MIT Experts Workshop, **Massachusetts Institute of Technology**, J-WAFS Abdul Latif Jameel World Water and Food Security Lab, Cambridge, MA, May 8-9.

68. Ganguly, A.R. (2018): "The Networked Digital Earth for Climate Change Impacts on Coupled Natural-Built-Human Systems," First **International Conference on the Networked Digital Earth (ICNDE 2018)**, Indian Institute of Technology, Kharagpur, Kharagpur, India, 7-9 March.
69. Ganguly, A.R. (2017): "Physics Guided Data Science in the Earth Sciences," 2017 Fall Meeting of the **American Geophysical Union**, Session on Machine Learning Applications in Earth Science and Remote Sensing, New Orleans, LA, 11-15 December.
70. Ganguly, A.R. (2017): "Spatiotemporal Chaos as the Next-Gen Grand Challenge in Machine Learning," **Invited Keynote at SSTDM 2017 held in conjunction with IEEE ICDM 2017**, 12th International Workshop on Spatial and Spatiotemporal Data Mining (SSTDM-17) held in conjunction with the IEEE International Conference on Data Mining (ICDM), New Orleans, 18 November.
71. Ganguly, A.R. (2017): Panel Presentation on "Resilience of Coastal Communities" entitled "The Networked Digital Earth for Harnessing Complexity and Designing Policy", 2017 ASCE Convention, **American Society of Civil Engineers**, New Orleans, 8-11 October.
72. Ganguly, A.R. (2017): Managing non-stationarity and deep uncertainty in earth systems science and engineering. **Arizona State University**, Tempe, AZ, October 2.
73. Ganguly, A.R. (2017): "Knowledge Discovery in Earth Systems Sciences and Engineering," **Keynote at the NextGEO summit** of the US Department of Energy's Pacific Northwest National Laboratory, Seattle, Sept. 14.
74. Ganguly, A.R. (2017): **Dwijendra University**, Bali, Indonesia, June 2017.
75. Ganguly, A.R. (2017): **Udayana University** (UNUD), Bali, Indonesia, June, 2017.
76. Ganguly, A.R. (2017): "Lessons learned in flood resilience of coastal cities with applicability to Jakarta, Indonesia," Panel Presentation at Workshop on Cross Disciplinary Approaches to Analyzing Flood Risks in Jakarta, **Universitas Tarumanagara** (UNTAR), Jakarta, Indonesia, May 22-23, 2017.
77. Ganguly, A.R. (2017): "Big Data Meets Extreme Events in an Interconnected World: Climate Adaptation, Critical Infrastructures, and the Sustainability of Key Resources," **National University of Singapore**, Singapore, May 15, 2017.
78. Ganguly, A.R. (2017): "Understanding Climate Science and Informing Adaptation with Physics Guided Machine Learning," Tracking Climate Adaptation Workshop, **Yale-NUS College**, Singapore, 11-12 May 2017.
79. Ganguly A.R.: Invited and U. Bhatia* (2016): "Climate & Complexity: The Resilience of Natural-Built-Human Systems," **International Workshop on Modeling of Physical, Economic and Social Systems for Resilience Assessment**, Session on Modeling of Systems and Dependencies (Thursday, October 20th AM), National Institute of Standards and Technology (**NIST**) and Colorado State University, 19-21 October, Washington, DC.
80. Bhatia, U.*, and A.R. Ganguly: Invited (2016): "Climate & Complexity: The Resilience of Natural-Built-Human Systems," **International Conference on Sustainable Infrastructure (ICSI 2016)**, Theme on Adaptation to Climate Change (Tuesday, October 18th AM), US National Academy of Engineering (NAE) and the Chinese Academy of Engineering (CAE), 17-19 October, Shenzhen, China.
81. Ganguly, A.R. & SDS Lab/risQ (2016): Climate adaptation & resilient engineering, **University of Massachusetts, Amherst**, 10/28.

82. Bhatia, U.*: Invited (2016): "Network Science Based Quantification of Resilience of Multiscale Infrastructure Systems," Session WA52 - Network Repair and Resiliency for Service Restoration (Nov. 16, AM), **The Institute for Operations Research and the Management Sciences Conference** (**INFORMS 2016**), Nashville, TN, November 13-16.
83. Bhatia, U.*, and A.R. Ganguly: Presenter for Northeastern SDS Lab (2016): Resilience of Boston's interdependent public transportation and power distribution network-of-networks to flood surge under high tide and Sandy-like hurricane with sea level rise scenarios, and Kodra, E.*: Presenter for SDS Lab spinout risQ Corporation (2016): Novel recovery strategy for the NYC MTA post-Sandy, presented at the kickoff meeting for critical infrastructure resilience to infrastructure stakeholders and emergency managers in greater Boston.
84. **Indian Institute of Technology, Bombay**, Climate Change Interdisciplinary Program (IDP), Summer 2016.
85. **Indian Institute of Technology, Kharagpur**, Computer Science Department, Summer 2016.
86. **Indian Institute of Technology, Roorkee**, Environmental Engineering Department, Summer 2016.
87. **National Institute of Technology, Hamirpur**, Short Course and Leture, Summer 2016.
88. Ganguly, A.R., Kodra, E.A.*, Oglesby, R., Buja, L., Agrawal, A., Banerjee, A., Boriah, S., Chatterjee, S., Chatterjee, S., Choudhary, A., Das, D.*, Ghosh, S., Hayhoe, K., Hays, C., Hendrix, W., Fu, Q., Kawale, J., Kumar, D.*, Kumar, V., Liao, W.-K., Liess, S., Mawalagedara, R.*, Mithal, V., Najm, H., Salvi, K., Snyder, P.K., Steinhaeuser, K., and Wuebbles, D.J. (2012): "Exploiting Big Data to Understand Climate Extremes and Assess their Impacts," **NASA Conference on Intelligent Data Understanding**, Poster Session, NCAR, Boulder, CO, October 24-26, 2012.
89. Ganguly, A.R. (2011): "Precipitation Extremes with Climate Variability and Change," 2011 Fall Meeting, **American Geophysical Union**, San Francisco, CA, December 5-9, 2011.
90. Ganguly, A.R. (2011): "Computational Data Sciences for Assessment and Prediction of Climate Extremes," 2011 Fall Meeting, **American Geophysical Union**, San Francisco, CA, Dec. 5-9, 2011.
91. Ganguly, A.R. (2011): "Can Machine Learning Help Translate the Science of Climate Change to Information Relevant for Preparedness and Policy?" ICML 2011 Workshop on Machine Learning for Global Challenges, **International Conference on Machine Learning**, Bellevue, WA, June 28 – July 2, 2011.
92. Kodra, E., Chatterjee, S., Ganguly, A.R. (2011): "Challenges & Opportunities toward Improved Data-Guided Handling of Global Climate Model Ensembles for Regional Climate Change Assessments," **2011 International Conference on Machine Learning: Workshop on Grand Challenges**, Bellevue, WA, June 28 – July 2, 2011.
93. **NSF-Sponsored Workshop on Computational Sustainability**, MIT, 2010
94. Conference entitled *Exploring the Dimensions of Environmental Carrying Capacity* organized by the **Steinbrenner Institute at Carnegie Mellon University**, Pittsbirgh, 2009
95. Omitaomu, O.A.*, Ganguly, A.R., Vatsavai, R.R., Gama, J., Gaber, M.M., and Chawla, N.V. [Proceedings Editors] (2010): "Workshop Proceedings, Fourth International Conference on Knowledge Discovery from Sensor Data (Sensor-KDD'10)," **16th International Conference on Knowledge Discovery and Data Mining (KDD 2010)**, Washington, DC, July 25-28, 2010.

96. Chandola, V., Omitaomu, O.A.*, Ganguly, A.R., Vatsavai, R.R., Chawla, N.V., Gama, J., and Gaber, M.M. (2010): "Knowledge Discovery from Sensor Data (SensorKDD)," **ACM SIGKDD Explorations**, 12(2): 50-53.
97. **Environmental Protection Agency**, Raleigh-Durham, NC, 2009
98. **NSF-Sponsored Workshop on Uncertainty Quantification**, USC, LA, 2009
99. **NOAA-Sponsored Symposium on Air Quality and Climate**, JSU, Jackson, MS, 2009
100. Departmental Seminar: Civil and Environmental Engineering, **Carnegie Mellon University**, 2009
101. Seminar: **University of Alabama Huntsville, and NASA, Huntsville**, AL, 2009
102. **US-Japan (11th Specialist) Joint Climate Conference**, ORNL, 2009
103. Omitaomu, O.A.*, Ganguly, A. R., Vatsavai, R.R., Gama, J., Gaber, M.M., and Chawla, N.V. [Proceedings Editors and Workshop Organizers] (2009): "Workshop Proceedings, Third International Conference on Knowledge Discovery from Sensor Data (Sensor-KDD'09)," **15th Int'l Conf. on Knowledge Discovery & Data Mining (KDD 2009)**, Paris, France, 6/28-7/1, 2009.
104. Ganguly, A. R., Steinbach. M., and V. Kumar (2009): "Knowledge Discovery and Nonlinear Modeling can Complement Climate Model Simulations for Predictive Insights about Climate Extremes and Impacts," 2009 **Fall Meeting, American Geophysical Union**, SFO, CA, Dec. 14-18, 2009.
105. Bhat, C., Ganguly, A.R., Gehrke, J., Giannella, C., McGranahan, M., amd Melby, P. [Reports Committee] with Dietterich, T., Gomes, C., Kargupta, H., Kumar, V., Srivastava, A., and Yu, P. [Steering Committee] (2009): "National Science Foundation Summit on the Next Generation of Data Mining for Dealing with Energy, Greenhouse Emissions, and Transportation Challenges," **(NGDM'09)**, Report submitted to the National Science Foundation, Baltimore, MD, Oct. 1-3, 2009.
106. Omitaomu, O.A.*, Vatsavai, R.R., Ganguly, A.R., Chawla, N.V., Gama, J., and Gaber, M. M. (2009): "Knowledge Discovery from Sensor Data (SensorKDD)," **ACM SIGKDD Explorations**, 11(2), 84-87, Dec.
107. Chawla, N.V., Ganguly, A.R., Kumar, V., Steinbach, M., and Steinhaeuser, K.* [Proceedings Editors and Workshop Organizers] (2009): "Knowledge Discovery from Climate Data: Prediction, Extremes, and Impacts," **IEEE Int'l Conf. on Data Mining (ICDM)**, Miami, FL, Dec. 6-9, 2009.
108. Climate Decision Support Workshop, **Aspen Global Change Institute**, Aspen, CO, 2009
109. Erickson, D., Ganguly, A.R., Steinhaeuser, K.*, Branstetter, M., Oglesby, R., Hoffman, F. and Buja, L. (2008): "Extreme Climate Event Trends: The Data Mining and Evaluation of the A1FI Scenario for 2000-2100," **Eos Trans. AGU**, 89(53), Fall Meet. Suppl., Abstract H12B-03 INVITED, December 30, 2008.
110. Vatsavai, R.R., Omitaomu*, O.A., Gama, J., Chawla, N.V., Gaber, M. M., and Ganguly, A.R. (2008): "Knowledge Discovery from Sensor Data (SensorKDD)," **ACM SIGKDD Explorations**, 10(2), 68-73, Dec.
111. Vatsavai, R.R., Omitaomu, O.A.*, Gama, J., Gaber, M.M., Chawla, N.V., and Ganguly, A.R., [Proceedings Editors and Workshop Organizers] (2008): "Workshop Proceedings, Second International Conference on Knowledge Discovery from Sensor Data (Sensor-KDD'08)," **14th Int'l Conference on Knowledge Discovery and Data Mining**, Las Vegas, NV, Aug. 24-27, 2008.

112. **Office of the Secretary of Defense** at the Pentagon, Presentations on Climate Extremes Impacts Assessment for the US Department of Defense, US DoD, Washington, DC, 2008

113. Identifying Outstanding Grand Challenges in Climate Change Research: Guiding the Department of Energy Strategic Planning, **US DOE**, Crystal City, VA, March 25-27, 2008.

114. Workshop on **Modeling Uncertainty in Integrated Assessment Models**, University of Chicago and Argonne National Lab, Chicago, IL, August 2008.

115. Department of Computer Science and Engineering, **University of Notre Dame**, IN, 2008

116. Civil & Environmental Engineering, **Carnegie Mellon University**, Pittsburgh, PA, 2008

117. **Fall Creek Falls Conference**, ORNL/DOE, 2008

118. Department of ***Civil and Environmental Engineering***, **University of Tennessee, Knoxville**, 2008

119. Department of ***Statistics***, **University of Tennessee, Knoxville**, 2008

120. Ganguly, A.R., Gama, J., Omitaomu, O.A.*, Gaber, M.M., and Vatsavai, R.R. [Proceedings Editors and Workshop Organizers] (2007): "Workshop Proceedings, First International Conference on Knowledge Discovery from Sensor Data (Sensor-KDD'07)," **13th Int'l Conf. on Knowledge Discovery and Data Mining (KDD 2007)**, San Jose, CA, August 12-15, 2007.

121. Weather Extremes Impacts on Infrastructure, **NCAR/LANL Workshop**, Sante Fe, NM, February 27-28, 2007.

122. Civil and Environmental Engineering, **University of Texas at Austin**, 2007

123. Ganguly, A.R. (2006): "Basic research needs in SensorNet®," **1st Conf.: Statistical & Quantitative Methods for Defense and National Security**, RAND Corporation and Am. Stat. Assoc., Santa Monica, CA, Feb. 15-16.

124. **US JFCOM**, United States Department of Defense, 2006.

125. Ganguly, A.R. (2006): Selected for a Press Conference at the 2006 Fall Meeting of the American Geophysical Union for the following abstract: Fuller, C.*, Sabesan, A.*, Khan, S.*, Kuhn. G.*, Ganguly, A., Erickson, D., and G. Ostrouchov: "Quantification and visualization of the human impacts of anticipated precipitation extremes in South America," Session on Catastrophic Risk from Natural Perils: Scientific, Engineering, and Financial Issues, Fall Meeting of the **American Geophysical Union**, San Francisco, CA.

126. **US ARMY**, United States Department of Defense, 2005

127. **United States Department of Homeland Security**, 2005

128. **Intelligence Community Consortium** (ARDA, currently DTO), Final round of a major presentation, 2005

129. Ganguly, A. R., Khan, S.*, and Saigal, S. (2004): "Weather Economics: The business of Uncertainty", **Annual Meeting of INFORMS**, Denver, CO, October 24-27, 2004.

130. **Procter and Gamble**, Global Analytics Group (via teleconference), 2004

131. Khan, S.*, Ganguly, A.R., and Saigal, S. (2004): "Complexity analysis and predictive models for hydrologic systems," **Annual Meeting of INFORMS**, Denver, CO, October 24-27, 2004.

132. Data Science Technology for Homeland Security Information Management and Knowledge Discovery, Report of the DHS Workshop on Data Sciences, **Department of Homeland Security**, September 22-23, 2004.

133. Quantitative Methods, **Indian Institute of Management**, Ahmedabad, India, 2002.

Service to Scientific/Technical Societies and Communities

- **American Society of Civil Engineers (ASCE)**
  - Committee on Adaptation to a Changing Climate, 2019 – Now
    - Technical Committee on Future Weather and Climate Extremes (FWCX), 2019 –
    - Technical Committee on Hydroclimatology and Engineering Adaptation, 2019 –
  - The SEI/ASCE (Structural Engineering Institute / American Society of Civil Engineers) International (invitation only) Workshop on the Effect of Climate Change on Life-Cycle Performance, Safety, Reliability and Risk of Structures and Infrastructure Systems, 2022
  - Associate Editor, Journal of Computing in Civil Engineering, 2009 –
    - Outstanding Reviewer Award, 2011
  - Chair, American Society of Civil Engineers, Walter L. Huber Civil Engineering Research Prize Selection Committee, 2019, 2020
- **American Meteorological Society (AMS)**
  - Elected Member, Artificial Intelligence Committee, 2012 – 2018
  - Chair or Co-Chair**,** Three Sessions on Artificial Intelligence for the Environment, American Meteorological Society 100th Annual Meeting, Boston, MA, 2019
  - Co-Chair, Themed Joint Session 7: Machine Learning and Climate Studies, Annual Meeting of the American Meteorological Society, January 10, 2018
- **Association for Computing Machinery (ACM)**
  - Area Chair and Chair of 2 Sessions, Research Track, SIGKDD Conference on Knowledge Discovery and Data mining (KDD), 2024, 2025
  - Senior Program Committee Member and Meta-Reviewer, Research Track, SIGKDD Conference on Knowledge Discovery and Data mining (KDD), 2021, 2022, 2023
  - Program Committee Member and Reviewer, Research Track, SIGKDD Conference on Knowledge Discovery and Data mining (KDD), 2020
  - Organizer (with organizers Abe et al.), Fragile Earth Workshop (held in conjunction with KDD conferences), AI for Good Foundation, 2018, 2019, 2020, 2021, 2022, 2023, 2024.
  - Program Committee, ACM Big Spatial Workshop, 2010 – 2014
  - Lead Founding Organizer (with co-organizers), Knowledge Discovery from Sensor Data (SensorKDD) Workshop, 2007, 2008, 2009, 2010, 2011, 2012
- **American Geophysical Union (AGU)**
  - Early Career Hydrologic Sciences Award Committee, 2021, 2022, 2023
  - Guest Editor, Nonlinear Processes in Geophysics, Journal Special Issue on Physics-driven Data Mining for Climate Extremes, EGU and AGU, 2014
  - Associate Editor, Water Resources Research, 2011 – 2015
- **Association for the Advancement of Artificial Intelligence (AAAI)**
  - Program Committee Member, AAAI Conference, 2021, 2022, 2023, 2024, 2025.
- **Society for Artificial Intelligence and Statistics (AISTATS)**
  - Program Committee Member, AISTATS Conference, 2021, 2022, 2023, 2024, 2025.
- **Institute of Electrical and Electronics Engineers (IEEE)**
  - Lead Founding Organizer, Climate Data Mining Workshop, held in conjunction with the IEEE International Conference on Data Mining (ICDM), 2009–2011
  - Program Committee, IEEE Spatial & Spatiotemporal Data Mining Workshop, 2009–2014

- Invited Keynote, IEEE Spatial & Spatiotemporal Data Mining Workshop, 2017
- Co-Convener, Data Mining in Earth System Science (DMESS), IEEE ICDM, 2011, 2017
- Program Committee, Data Mining in Earth System Science, IEEE ICDM, 2011–Now

- **National Center for Atmospheric Research (NCAR)**
  - Co-Chair, Societal Dimensions Working Group, Community Earth System Model, National Center for Atmospheric Research, Boulder, CO

- **United States Department of Energy (US DOE)**
  - AI4ESP, Artificial Intelligence for Earth System Predictability, https://ai4esp.org/
    - Ganguly et al. (2021): Science-integrated Artificial-intelligence for Flooding and precipitation Extremes (SAFE): https://doi.org/10.2172/1769776
  - Neural Networks Session Chair, AI4ESP Workshop, and Lead Author of Neural Networks Chapter, AI4ESP Workshop Report: https://doi.org/10.2172/1888810
  - Review Panel (invited), US DOE BER Early Career Awards, 2020
  - Regional Climate Modeling Review (invited), DOE BER, 2014
  - Integrated Water Cycle Modeling (invited), DOE BER, 2012
  - Modeling Uncertainty in Integrated Assessment Models, US DOE and ANL, 2008
  - Identifying Outstanding Grand Challenges in Climate Change Research: Guiding the Department of Energy Strategic Planning, US DOE, Crystal City, VA, 2008

- **National Science Foundation (NSF)**
  - Invited Speaker, NSF Convergence Workshop, 2021
  - Invited Attendee, NSF Expeditions in Computing 10th Year Celebrations, NSF HQ, 2018
  - Co-PI, NSF-funded workshop on Sustainable Urban Systems (UT Austin), 2019
  - Breakout Session Lead, NSF Big Data Panel, 2016
  - Invited Attendee, NSF-funded Workshop on Computational Sustainability (MIT), 2010
  - Invited Attendee, NSF-funded Workshop on Uncertainty Quantification (USC, LA), 2009
  - NSF Review Panels and NSF Ad Hoc Reviews, ENG, GEO, CISE, 2004 –

- **European Science Foundations**
  - United Kingdom Research and Innovation, Reviewer and Future Fellows, 2021, 2022
  - Switzerland NSF, Proposal and Early Career Reviewer, 2021, 2022
  - Poland NSF, Proposal Reviewer, 2012, 2021

- **Journal Editorial Roles**
  - Editorial Board, ***PLOS ONE***, 2018–Now
  - Editorial Board (and Guest Editor of a 2024 Collection), ***Scientific Reports***, Nature Research, 2015–Now
  - Specialty Chief Editor, Water and Built Environment, ***Frontiers in Water***, 2019–Now
  - Editor, ***Environmental Data Science***, Cambridge University Press, 2020–Now
  - Associate Editor, ***Water Resources Research***, AGU, 2011–2015
  - Associate Editor, ***Journal of Computing in Civil Engineering***, ASCE, 2009–
  - Guest Editor, ***Nonlinear Processes in Geophysics***, Journal Special Issue on Physics-driven Data Mining for Climate Extremes, EGU and AGU, 2014
  - Guest Editor, ***Intelligent Data Analysis***, Journal Special Issue on Knowledge Discovery from Data Streams, IOS Press, 2009

- ***Journal Peer Reviewer*** (Selected): Nature, Nature Communications, PNAS, PLOS One, Journal of Hydrology, Water Resources Research, Journal of Hydrologic Engineering, Geophysical Research Letters, Climate Dynamics, Climatic Impacts, Journal of Climate, International Journal of Climatology, ACM Data Mining and Knowledge Discovery, Physical Review E, Statistical Analysis and Data Mining, Pattern Recognition Letters, Nonlinear Processes in Geophysics, ASCE Journal of Computing in Civil Engineering, IEEE Transactions, Scientific Reports, Frontiers in Water, and many more.
- ***Other Invited Conference or Workshops*** *(not covered above)**:***
    - Climate Decision Support Workshop, Aspen Global Change Institute, Aspen, CO, 2009
    - Weather Extremes Impacts on Infrastructure, NCAR/LANL, Sante Fe, NM, 2007
    - Data Science Technology for Homeland Security Information Management and Knowledge Discovery", Workshop Report on Data Sciences, DHS, 2004
- ***Other Program and Review Committees*** *(not covered above)**:***
    - Program Committee, GISTAM 2020, The 6th International Conference on Geographical Information Systems Theory, Applications and Management, 2020
    - Program Committee, Climate Informatics Workshop, 2013, 2014, 2015
    - Program Committee, NASA Conference on Intelligent Data Understanding, 2011, 2012
    - Reviewer, Climate Change AI Innovation Grants, Schmidt Futures, 2021
    - International Thesis Evaluator, U. Sydney, Australia, 2012
    - External Proposal Reviewer, Dartmouth College, Durham, NH, 2010
    - External Evaluation for Faculty Awards, Promotions or Hires, Indian Institute of Technology, Bombay, Kharagpur, Gandhinagar, multiple years
    - International Conference on Applied Math, Modeling, Computation (AMMCS), 2013
    - International Workshop on Computing in Civil Engineering (IWCCE), 2017
- ***Session Chairing (****selected****)***:
    - Water and the Built Environment Track, Resilience Week, October 2021
    - Session Oral O3C: Network Embedding, Complex Networks 2021: 10th International Conference on Complex Networks & Applications, 11/30 to 12/02, Madrid, Spain, 2021
    - Modelling and Analytics for Hydrologic Impact Assessments due to Climate Change, Computational Methods in Water Resources Conference, Stuttgart, Germany, June 10-13, 2014, University of Stuttgart
    - Applications of data mining/knowledge discovery and improved understanding of large environmental science datasets, American Meteorological Society (AMS) Conference, Austin, TX, January 6-10, 2013
    - Modelling and Analytics for Hydrologic Impact Assessments due to Climate Change, Computational Methods in Water Resources Conference, Urbana, IL, June 17-21, 2012
    - Environmental Impacts of Urbanization: Hazards, Risks, and Opportunities from Neighborhood to Globe, American Geophysical Union (AGU) Fall Meeting (FM), San Francisco (SFO), CA, December 9-13, 2013
    - Climate Extremes and Impacts: Can Big Data Mining and Fusion Help Reduce Uncertainties? AGU FM, SFO, CA, December 3-7, 2012
    - Predictive Modeling and Uncertainty Quantification for Systematic Evaluation of Climate Models and Data-Guided Enhancements of Regional Climate Projections, AGU FM, SFO, CA, December 13-17, 2010
    - Variability and Predictability of Weather and Climate Extremes, AGU FM, SFO, CA, December 13-17, 2010

  - Impacts of Severe Weather on Environment, Economy, and Society," AGU Joint Assembly, Fort Lauderdale, FL, May 27-30, 2008
  - Nonlinear Data Sciences for Finite Observations with Noise and Periodicity," AGU FM, SFO, CA, December 5-9, 2005
  - Data mining and decision sciences for earth systems science," INFORMS 2004 Conference, Denver, CO, October 24-27, 2004

- ***Scientific Outreach (****selected)*:
  - Invited Presentation, AI for Climate and Sustainability (AI4CaS), Presented to Michelle Yu, Mayor of Boston, and Maura Healey, Governor of Massachusetts, Boston, 2024
  - Invited Speaker, AI for Sustainability, American Consulate in Kolkata, India, 2019
  - Invited Participant, Workshop on Data-driven Resilience, Stanford University, 2019
  - Invitee, Workshop on Water, Food and Climate, MIT J-WAFS, 2018
  - Invitee, Microsoft AI for Earth Education Summit, Redmond, WA, 2017
  - Invitee, Swiss Re Symposium, Boston, MA, 2017
  - Lead PI and Scientist, Brookline, MA, Town Hall, Community Resilience to Extreme Heat, Thriving Earth Exchange, American Geophysical Union, 2016–2017
  - Science Lead, ORNL, Inform climate change assessments for the US Department of Defense 2010 Quadrennial Defense Review (QDR) report, 2009–2010.
  - Science Lead, ORNL, International climate change war games by the Center for a New American Security (CNAS), a Washington, DC, based think, 2008.

Academic Institutional Service: ***Northeastern University***

- Director, AI for Climate and Sustainability (AI4CaS), The Institute for Experiential AI (IEAI), funded by Office of the Provost and Roux Institute, 2023–Now
  - Developed *AI4CaS leadership team* for strategic vision and execution.
  - Coordinated *AI4CaS Core Faculty* from four NU colleges: COE, Khoury, COS, CSSH
  - Coordinating end-to-end (hiring to mentoring) a team of 2 postdocs and 3 data scientists
  - Coordinated the hiring advertisements for 5 new AI4CaS postdocs at the Roux Institute
  - Led recruitment, retention, and diversity strategies.
  - Led P&L (investment and revenue) decisions.
  - Managed distributed team: Boston, Portland (Roux), Seattle
  - Led the development of hiring strategy for a cohort of Experiential AI Postdocs
  - Led the strategy for scientific reputation building.
  - Led the development of publications and presentations (scientific and policy)
- Member, CEE Faculty Search Committee, Infrastructure Systems under Future Climates, 2023-
- Co-Director, Global Resilience Institute, https://globalresilience.northeastern.edu/, 2022–2023
  - Leadership in developing GRI vision for the university with a faculty steering committee
- Leadership Team, Climate-AI Lead, The Institute for Experiential Artificial Intelligence (EAI), https://ai.northeastern.edu/, 2022–Now
- Chair, Civil and Environmental Engineering Awards Committee, 2022–Now
- Adviser, Northeastern University Clean Technology Club
- Climate Justice Committee Member, Northeastern University (a university level cross-college committee launched by the Faculty Senate): Findings presented to the Faculty Senate and to the Northeastern Provost to inform plans in climate and environmental justice, 2021–2022

- Enabled setting up the Lizzy Warner Fellowship at Northeastern to support a Ph.D. student at my Sustainability and Data Sciences Laboratory (SDS Lab) with funding from donor Dr. Evan Kodra (himself an alumnus from my SDS Lab at Northeastern), 2022
- Key role in developing MoU and nurturing collaborations between US DOE's PNNL and Northeastern University to enhance interactions among researchers, 2018–Now
- Chair, Cross-College (Engineering & Khoury/Computer Science) Faculty Search, 2020–2021
- Interdisciplinary Research Sabbatical, Khoury College of Computer Science, 2019–2020
- Member, Presidential Global Fellowship selection committee, 2019, 2020
- Enabled a MoU development and research between US DOE's ORNL and Northeastern, 2018
- Member, CEE Faculty Search Committee, 2017–2018
- Member, Ad hoc Committee for Outreach & Marketing, 2017
- Chair, CEE Faculty Search Committee, 2016–2017
- Chair, CEE Resilience Faculty Search, 2015–2016
- Member, CEE Informatics Faculty Search, 2015–2016
- CEE Representative for COE Research Advancing Priorities Committee, 2015–2016
- Member, Graduate Students Committee, 2015
- International Safety and Security Assessment Committee (ISSAC), Northeastern University Office of the Provost, 2015
- Chair, CEE Interdisciplinary PhD Degree Program, 2014–2015
- Chair, CEE Infrastructure Systems Working Group, 2012–2013
- Chair, Cross-College Urban Coastal Faculty Search (COE/CEE & COS/MES), 2012–2013
- Member, CEE Faculty Search Committee, 2012–2013
- Member, CEE Faculty Search Committee, 2011–2012
- Cross-College Coastal Sustainability Faculty Search Committee (COE/COS), 2011–2012
- Member, Cross- College Statistical Analysis and Large Datasets Faculty Search Committee (Social Sciences, COE, COS, CIS), 2011–2012
- Leadership Role in defining the College of Engineering Research Initiative on Critical Infrastructure Sustainability and Security, 2011–2012

Academic Institutional Service: ***University of Tennessee, Knoxville, TN***

- UTK–ORNL Governor's Chair Search Committee for Climate in CEE, 2009–2011

National Lab Service: ***Oak Ridge National Laboratory (US DOE), Oak Ridge, TN***

- Led the Climate Change Wargames technical team for the US national security
- Mentored UG students from HSCU and MSIs as summer interns
- Mentored high-school students from the TN region

Private Sector Service: ***Oracle Corporation (multiple locations)***

- Senior Product Manager of a global best-of-breed company (Demantra): Led analytics & strategy
- Product Manager of the world's largest database and software company: Cross-location strategy

ENTREPRENEURSHIP & COMMUNITY ENGAGEMENT

Private Sector Entrepreneurship

risQ Corporation, Cambridge, MA: **Co-Founder and Chief Scientific Adviser** (2016–2022)

- Startup spun risq.io out from Ganguly's SDS Lab (sdslab.io) at Northeastern University: 2016
    - Co-Founder and CEO: Evan Kodra (former PhD student of Ganguly's SDS Lab at Northeastern University)
    - Co-Founder and Chief Scientific Adviser: Auroop Ganguly
    - Co-Founder and COO: Colin Sullivan (Northeastern Computer Science BS graduate)

- Funding from NSF seed grants and paying customers: 2016–2021
    - National Science Foundation (NSF): Small Business Innovation Research (SBIR)
        - NSF SBIR Phase I Award ($225,000): 2016-2017
        - NSF SBIR Phase II Award ($750,000): 2018-2020
        - NSF SBIR (Phase I + Phase II + Additional Amount) Total: ~$1.7Million
    - "Bootstrapped", i.e., ran the company the old-fashioned way with paying customers from the public and private sectors, 2016–2021
    - Never approached Venture Capitalists so as not to dilute scope (or equity)
    - Sharpening focus to three areas of urban climate analytics:
        - Compute geospatial-temporal climate risks in urban and urban coastal areas
        - Keep a focus on climate justice especially on weather extremes and urban equity
        - Monetization and incentivization through municipality bonds

- Partnership with Intercontinental Exchange (ICE): January 2020
    - ICE: Fortune 500 company which counts the New York Stock Exchange as a subsidiary
    - risQ starts to provide climate risk analytics for municipal bond ecosystem exclusively to or through ICE
    - Reported in Yahoo! Finance, Bloomberg, Bond Buyer, Business Wire

- Successful "exit" and growth within a Fortune 500 company
    - risQ made a successful "exit" in December 2021 when it was acquired by the Intercontinental Exchange (ICE)
    - Started operations as ICE risQ from January 2022 onwards.
    - Currently operates as the climate analytics organization of ICE
    - ICE is a Fortune 500 company, a subsidiary of which is the New York Stock Exchange
    - risQ within ICE has been in a growth mode since acquisition

Zeus AI, Ames, CA: **Adviser** (2021–2022)

- Startup spinout (myzeus.ai) in 2021
    - Co-Founders: Kate Duffy and Thomas J. Vandal (both SDS Lab PhD alums)
    - Launched with NASA SBIR funds, subsequently received NASA and DOE grants.
    - Weather (viz., wind and precipitation) forecasting based on satellite data with ML/AI

Analyticsmart Inc., Tampa, FL: Founder and Chief Technology Officer (2003–2004)

Community Engagement

- **Climate Ready Greater Boston** (2014–2016)
    - Office of the Mayor, City of Boston with Green Ribbon Commission
    - Boston Research Advisory Group (BRAG) Report (released: June 1, 2016)
        - Boston Climate Assessment to inform Climate Ready Boston
            - Sea Level Rise
            - Coastal Storms
            - Extreme Precipitation
            - Extreme Temperatures
        - Ganguly: Team Lead, Temperature Extremes (one of four chapters)
    - **BRAG Report**: https://www.boston.gov/sites/default/files/document-file-12-2016/brag_report_-_final.pdf
- **Building Community Resilience to Extreme Heat, Brookline, MA** (2015–2016)
    - Stakeholder: Town Hall of Brookline, MA (Final Report: Presented to the Town Hall)
    - Liaison: Thriving Earth Exchange (https://thrivingearthexchange.org/)
      American Geophysical Union
    - Funding: National Science Foundation and Northeastern University
    - Topic: Public Health Risk of Urban Heat Islands
        - Hazards Drivers
        - Risk Quantification
        - Emergency Management
        - Adaptation Strategies
        - Mitigation Choices
    - TEX link: https://thrivingearthexchange.org/project/brookline-ma/
      Report: http://thrivingearthexchange.org/wp-content/uploads/2016/03/Brookline_Heatwaves_SDS-2.pdf
      SDS Lab Addendum: http://thrivingearthexchange.org/wp-content/uploads/2016/03/Brookline-Heatwaves-SDS-Addendum.pdf
    - Risk Assessment, Consequence Management, Adaptation, Mitigation
    - First Prize (to technical lead Babak J. Fard *, Ganguly's PhD student) at AGU Spring 2017 Virtual Poster Showcase: https://blogs.agu.org/onthejob/2017/05/02/announcing-winners-2017-spring-virtual-poster-showcase/
        - Poster: https://www.agu.org/-/media/Files/Learn-and-Develop/VPS-posters/Babak-Fard-VPS-poster.pdf
    - Highlight in EOS Transactions: https://eos.org/agu-news/agus-thriving-earth-exchange-links-science-with-small-towns

Massachusetts Port Authority (2014 – 2015)

- Resilience Assessment of Boston Logan Airport – *Northeastern News:* https://news.northeastern.edu/2015/03/16/student-projects-assess-logan-airport-resilience/

Climate Change Impacts and Projections for the Greater Boston Area (2019 – 2022)

- Follow-up of BRAG Report: Temperature Extremes section led by former (Evan Kodra) and then current (Kate Duffy and Lizzy Warner) PhD students of the SDS Lab
- https://www.umb.edu/editor_uploads/images/school_for_environment/GBRAG_report_05312022@1915.pdf

MENTORSHIP AND TEACHING

Mentorship: PhD Students, Postgraduates and Postdocs, Visiting Professors, UG and K-12

PhD Students *(Ganguly primary adviser, unless otherwise indicated; Graduation year shown)*

Name	Year	Topic	Immediate Position	Current Position
Oak Ridge National Laboratory, Oak Ridge, TN				
Shiraj Khan *Joint Advisers: Ganguly & S. Saigal*	2007	Hydrologic Informatics	AIR Worldwide AIG Clemson (Adj. Prof.)	PIMCO ILS Fund VP, Research & Analytics
Karsten Steinhaeuser *Adviser: N. Chawla* *Co-Adviser: Ganguly*	2010	Climate and Complex Networks	U. Minnesota Research Associate Progeny Systems	AeroVironment Director, Program Management
Northeastern University, Boston, MA				
Evan Kodra	2014	Climate Analytics and Data Science	risQ (Climate Startup: CEO & Co-Founder) Acquired	Intercontinental Exchange (ICE) Sr. Director
Debasish Das *Adviser: Z. Obradovic* *Co-Adviser: Ganguly*	2014	Computer Science and Engineering	Verizon Hitachi AI Cisco	Intuit Staff Data Scientist
Devashish Kumar	2016	Climate Science and Resilience	Tokio Marine Risk Analyst	Tokio Marine Lead Risk Analyst
Kevin Clark	2018	Transportation Resilience	VOLPE Chief, Aviation	VOLPE Chief, Aviation
Babak J. Fard	2018	Climate and Communities	U. Nebraska, School of Health Postdoc	U. Nebraska Research Scientist
Thomas J. Vandal	2018	Machine Learning in Climate Sciences	NASA / BAERI Scientist, NEX	Zeus AI (Startup CEO, CoFounder)
Udit Bhatia	2019	Infrastructures Resilience and Climate Change	Indian Institute of Technology (IIT) Gandhinagar (GN)	IIT-GN Assistant Professor
Venkata Shashank Konduri	2021	Remote Sensing and Data Science	NASA (GSFC) Postdoc	Battelle Env. Scientist
Kate M. Duffy	2021	Climate-Ecology & Remote Sensing AI	NASA / BAERI Scientist, NEX	Zeus AI (Startup CPO, CoFounder)
Nishant Yadav	2022	Environmental and Transportation AI	Microsoft Azure AI Applied Scientist II	Microsoft AI: Scientist
Mary E. Warner	2022	Climate Policy and Social Sciences	US DOE PNNL Intern	Deceased
Bharat Sharma	2022	Climate Change, Biogeochemistry	Oak Ridge National Lab. Postdoc	ORNL Postdoc
Puja Das	TBD	Water Resources	PhD Candidate	PhD Candidate
Jack Watson	TBD	Climate Resilience	PhD Candidate	PhD Candidate
Ashis Pal	TBD	Urban Rail Models	PhD Candidate	PhD Candidate
Dian Indrawati	TBD	Urban Flooding	PhD Student	PhD Student
Aayushi Mishra	TBD	Climate Policy	PhD Student	PhD Student
Archita Ghosh	TBD	Climate & Health	PhD Student	PhD Student
Shuochen Wang	TBD	Climate AI	PhD Student	PhD Student
Danish M. Tantary	TBD	Hydroclimatology	PhD Student	PhD Student
Diyali Goswami	TBD	Climate/Water AI	PhD Student	PhD Student

Diversity *(8 of 27): Female (7): Das, Duffy, Ghosh, Goswami, Indrawati, Mishra, Warner; Minority (1): Clark*

Postdoctoral Researchers *(Ganguly primary supervisor, unless otherwise indicated)*

Name	Year	Topic	Immediate Position	Current Position
Oak Ridge National Laboratory (ORNL), Oak Ridge, TN				
Olufemi Omitaomu	2006 2008	Transportation Security	ORNL R&D Staff	ORNL Sr. R&D Staff
Shih-Chieh Kao	2009 2010	Climate and Hydrology	ORNL R&D Staff	ORNL: Sr. R&D Staff; Group Lead
Northeastern University, Boston, MA				
Daiwei (David) Wang	2013 2015	Climate and Coastal Science	Verisk / AIR Scientist	Verisk / AIR Sr. Scientist
Rachindra Mawalagedara	2012 2014	Climate Science and Policy	Iowa State University Lecturer	Iowa State U. Asst. Professor
Poulomi Ganguli	2013 2015	Stochastic Hydro-climatology	Indian Inst. of Tech. (IIT) Kharagpur: KGP	Asst. Professor IIT, KGP
Hanieh Hassanzadeh	2016 2017	Techno-Social Climate Resilience	Analyst Fidelity Investments	AI Product Manager, Fidelity
Sebastian Ruf	2021 2023	Controls & Tipping Points in Climate	Experiential AI (IEAI) Postdoc, Northeastern	Transition to risQ (now, ICE)
Antonia Sohns	2021 2023	Climate Policy mining with NLP	Experiential AI (IEAI) Postdoc, Northeastern	Ongoing
Rishi Sahastrabuddhe	2022-	Threats / Climate	SENTRY Postdoc	Ongoing
Rachindra Mawalagedara	2022-	Climate Resilience and Policy	GRI 1.5 Postdoc (Same person as prior)	Ongoing
Arnob Ray	2022-	Climate Nonlinear Dynamics	IEAI Postdoc, Northeastern	Ongoing
Dongqin Zhou	2024-	Transportation AI	IEAI AI4CaS Postdoc	Ongoing
Felipe Benavides	2024-	Fisheries AI	IEAI AI4CaS Postdoc	Ongoing
Elzabeth Eldhose	2024-	Climate/Causality	IEAI AI4CaS Postdoc	Offer accepted
Puja Das	2024-	Water/Climate AI	IEAI AI4CaS Postdoc	Offer accepted
Somnath Mondal	2024-	Water Informatics	IEAI AI4CaS Postdoc	Offer received

Diversity *(9/14): Female (7): Das, Eldhose, Ganguli, Hassanzadeh, Mawalagedara (2), Sohns; Minority (2): Benavides, Omitaomu*

Post-Master's Researchers *(Ganguly primary supervisor, unless otherwise indicated)*

Name	Year	Topic	Immediate Position	Current Position
Oak Ridge National Laboratory (ORNL), Oak Ridge, TN				
Gabriel Kuhn	2006 2007	Multivariate Climate Extremes	Ph.D. TU Munchen	Private Sector in Germany
David Gerdes	2006 2009	Transportation Security	Private Sector in Brazil	Private Sector in Brazil
Yi Fang	2006 2008	Sensor Data Mining	Purdue University Ph.D. in CS	Santa Clara Univ. Assoc. Professor
Esther Parish	2009 2010	Water-Climate-Population Nexus	Ph.D.: University of Tennessee, Knoxville	ORNL Scientist
Huiping Li	2010 2011	Community Resilience	Ph.D.: U. North Carolina Charlotte	Shanghai Univ. Assoc. Professor
Northeastern University, Boston, MA				
Joshua Tollen	2011	Climate Model Evaluation	US Cellular Analytics Engineer	Pilot Company Data Scientist

Yash Karwa	2012	Climate Viz: IT Infrastructures	Nike; Home Depot Data Scientist	HP Data Analyst
Xiaoran An	2013 2014	Climate Sentiment Analysis on Twitter	AgaMatrix; Amazon Data Scientist	Microsoft Sr. Data Scientist
Ruting Luo	2016 2017	Air Pollution and Climate Change	China Private Sector (?)	China Private Sector (?)
Summer Zacca	2017 2018	Climate Variability & Downscaling	Fidelity Investments ML/Data Engineer	Peacock Sr. Analyst
Luke Mueller	2022	Green Office Study	Gordon Fellow	ERM Consultant
August Posch	2022-	Remote Sensing AI	Post-MS Consultant	Ongoing

Diversity *(5 of 12): Female (5): Parish, Li, An, Luo, Zacca*

Visiting Professors *(Ganguly primary mentor, unless otherwise indicated)*

Name	Year	Topic	Immediate Position	Current Position
Oak Ridge National Laboratory (ORNL), Oak Ridge, TN				
Pierre Ngnepieba	2009	Climate Model Uncertainty	Florida A&M: Professor	Florida A&M: Assoc. Dean
Subimal Ghosh	2010	Indian Monsoon Rainfall Extremes, Model Evaluation	Indian Institute of Technology Bombay: Asst. Professor	Professor, Head, Climate, AGU Fellow, Bhatnagar
Northeastern University, Boston, MA				
Vimal Mishra	2013	Urban Climate and Hydroclimate	IIT Gandhinagar (GN) Assistant Professor	IIT Professor AGU Fellow, Bhatnagar Prize
Tales Imbiriba	2022-2023	Physics-Guided AI/ Machine Learning	Research Professor	Research Professor

Diversity *(2 of 4): Minority (2): Ngnepieba, Imbiriba*

Doctoral Student Committees *(Ganguly was NOT the primary adviser)* *Student (Adviser)*

Arizona State University, Tempe, AZ: Q. Deng (J. Sabo)			
Northeastern University, Boston, MA			
X. Shen (Q. Wang)	R. Ding (Q. Wang)	K. Farzad (Y. Zhang)	D. Riyanto (A. Myers)
E. Basu (Y. Zhang)	E. Casavant (M. Kane)	W. Hayes (K. Pieper)	M. O'Donnell (S. Munoz)
N. Wang (J. Chen)	C. Poulin (M. Kane)	M. Pathak (M. Kane)	R. Salatin (J. Chen)
Y. Liu (J. Dy)	K. Sharma (M. Kane)	Y. Wang (Y. Zhang)	W. Zhang (A. Mueller)
L. Pourzahedi (M. Eckelman)	R. Philips (M. Eckelman)	M. Saha (M. Eckelman)	D. Vines-Cavanaugh (M. Wang)
R. Masoumi (A. Touran)	L. Troupe (M. Eckelman)	T. McCormack (J. Hopkins)	
Oak Ridge National Laboratory, Oak Ridge, TN, & University of Tennessee, Knoxville, TN			
D. Rastogi (M. Ashfaq)		A. Adeniyi (S. Mukherjee)	
University of South Florida, Tampa, FL: D. Randeniya (M. Gunaratne)			

Graduate Student Summer Interns at Northeastern University: Valeria Zingaretti (Colombia and Chile), Deepayan Chakraborty and S.C.M. Sharma (IIT Kharagpur, India)

Graduate Student Summer Interns (PhD students of Rafael Bras) at Oak Ridge: G. Bisht, R. Knox

Graduate Student Co-Authors: A. Sabesan, S. Bandyopadhyay, V. Vijayraj, N. Singh, N. Feierabend

Undergraduate Student Researchers

Northeastern University, Boston, MA			
A. Skillin	S. Najjar	L. Enright	L. Blumenfeld
A. Ly	M. Tormey	L. Bressler	E. Figueras
J. Schenosky	I. Garay	R. Samtani	E. Segev
M. Mage	R. Dowley	R. Cahill	V. Lingenfelter
C. Moskos	K. Morgan	A. Traylor	H. Henderson
T. Sathyamurthy	T. Hall	R. Heiss	A. Fleurat
S. Bailey	J. Yun	S. Pal (Visiting)	D. Das (Visiting)
S. Bailey	D. Grant	A. Bhatia	J, Egelberg
Oak Ridge National Laboratory, Oak Ridge, TN			
E. Mojica	J. Rann	C. Fuller	K. Abercrombie

High School Student Researchers

Northeastern University, Boston, MA			
A. Adhya	A. Chowdhury	A. Polumbaum	R. Mukhopadhyay
Y. Tsukamoto	A. Chakraborty		
Oak Ridge National Laboratory, Oak Ridge, TN			
E. Lai		E. Roadinger	

Teaching: Classroom & Professional

Note: Student course ratings at Northeastern are primarily judged by "Learning" (I learned a lot) and "Instructor" (the instructor was effective) each on a scale of 5.

Graduate Courses: Created and Taught by Ganguly at Northeastern University

- **CIVE 7100: Time Series and Geospatial Data Sciences**
  - Northeastern University: 4 credits, Graduate
  - Originally titled: Applied Time Series and Spatial Statistics

Semester	Learning	Instructor	# Students
Fall 2023	3.0	3.1	29
Spring 2022	4.3	4.2	20
Spring 2021	3.7	4.2	16
Spring 2019	4.5	4.6	15
Spring 2018	4.6	4.1	23
Spring 2017	3.8	3.8	7
Spring 2016	4.0	3.6	9
Spring 2015	4.5	4.8	14
Spring 2014	3.8	3.7	24
Fall 2012	3.9	4.0	14

Sample Student Comments:

- "The course content was very unique and gave some great interdisciplinary perspectives."
- "There is so much to learn from this course and from the professor."
- "This course helped me learn concepts of time series."
- "Great orator, very positive, always available, answers all doubts."
- "Dr. Ganguly has … very good communication skill to explain the subject in a simple and systematic way."
- "Professor Ganguly is a genius … however, I believe he assumed that his students had higher mathematical competency than the class actually did…"

- **CIVE 7110: Critical Infrastructures Resilience**
  - Northeastern University: 4 credits, Graduate
  - Jointly with Policy (POLS 7704): Textbook written by Ganguly and co-authors

Semester	**Learning**	**Instructor**	**# Students** (Eng.+Policy)
Fall 2024	Current	Current	TBD
Fall 2022	4.1	4.5	10+2 = 12
Fall 2021	4.3	3.5	7+2=9
Fall 2020	4.6	4.4	11+0=11
Fall 2018	4.0	4.0	1+7 = 8
Fall 2017	4.6	4.6	11+4 = 15
Fall 2016	4.5	4.5	4+20 = 25
Fall 2015	4.1	4.5	14+19 = 33
Fall 2014	4.2	4.7	9+27 = 36

Sample Student Comments:

- "Auroop is clearly knowledgeable and enthusiastic about the course material. I also enjoyed the guest lectures he organized."
- "Being an Interdisciplinary course, it is very rare opportunity for me to study along with policy students. It helped me to understand the interdependencies between the engineers and policymakers in the real life."
- "Course needs more structure…"
- "Enthusiastic, visionary, encouraged out-of-the-box thinking."
- "Excellent professor and human being! I highly recommend this course and Professor Ganguly!"

Graduate Course: Created and Taught by Ganguly at University of Tennessee, Knoxville

- **IE 692: Knowledge discovery from time series, spatial and space-time data**
  - Spring 2007; 4 Graduate credits; 12 students

Graduate Course: Created and Taught by Ganguly at University of South Florida, Tampa

- **CGN 6933: Applied time series and spatial statistics**
  - Spring 2004; 4 Graduate credits; 8 students

Graduate Course: Taught by Ganguly at University of South Florida, Tampa

- **CWR 6535: Hydrologic Models**
  - Fall 2003; 4 Graduate credits; 7 students.

Undergraduate Courses: Created and Taught by Ganguly at Northeastern University

- **Climate Science, Engineering Adaptation, and Policy, in Emerging Economies (8 credits)**
  - ***Presentation to University Alumni:*** https://www.youtube.com/watch?v=_YT2rLyFwU8 "Dialogue of Civilizations": Faculty led, intense, month-long study abroad program.
  - Offered as CIVE (CIVE 4777/4778) or HONR (3309-A/3309-B) courses: ***4 credits each***
  - Besides content, Dialogue programs must include host country cultural immersion.
- **CIVE 4777 / HONR 3309-A: Climate Hazards and Resilient Cities or Coastlines**
- **CIVE 4779 / HONR 3309-B: Climate Adaptation and Policy in an Emerging Economy**

Semester	**Location**	**Learning**	**Instructor**	**# Students**
Summer 2024	Thailand & Indonesia	3.6	3.2	33
Summer 2023	Nepal & India	5.0	5.0	14
Summer 2022	Tanzania	4.6	4.1	29
Summer 2020	Virtual	4.8	4.8	10*

Summer 2019	Nepal & India	4.1	3.3	22
Summer 2018	Brazil & Peru	4.8	5.0	28
Summer 2017	Indonesia & Singapore	4.7	4.1	25
Summer 2016	India	4.4	4.1	26
Summer 2015	India	5.0	5.0	26
Summer 2014	India	4.6	4.6	26

** The virtual session of Summer 2020 included 5 students from Northeastern University with 5 students from the Indian Institute of Technology Gandhinagar*

Note: The ratings for Dialogues use a different template: closest analogues are provided here

Sample Student Comments:

- "The things I learned in the coursework and outside of the classroom have changed me for the better – I am more confident, more open minded, and better prepared …"
- "I really liked how hectic this was … I would not change anything."
- "This was an eye-opening experience …"
- "We had a very solid understanding of climate science."
- "It really helped me get an idea of what kind of career I want and exposed me to a lot of different culture."
- "Professor Ganguly is an excellent professor and very helpful for all of his students."
- "Professor Ganguly was a very effective professor who always engaged us whether it was in or out of the classroom … he is really passionate about climate change and this dialogue, and that was really wonderful to have in an instructor."

- **CIVE 5363: Climate Science, Engineering Adaptation, and Policy**
  - Northeastern University: 4 credits, Undergraduate / Graduate

Semester	Learning	Instructor	# Students
Fall 2023	4.3	4.2	27
Fall 2021	4.2	3.8	13
Spring 2021	3.9	3.9	26
Spring 2019	3.3	3.3	35
Spring 2018	4.4	4.2	22

Sample Student Comments:

- "This course is one of the best courses I have ever had in my life."
- "Excellent topics and learning environment made this class extremely enjoyable!"

Undergraduate Courses: Taught by Ganguly at Northeastern University

- **CIVE 3464: Probability and Engineering Economy for Civil Engineers** (4 credits)

Semester	Learning	Instructor	# Students
Spring 2017	4.2	3.3	42
Spring 2016	4.1	4.1	65
Spring 2015	3.9	3.9	75
Fall 2013	3.7	3.7	57
Spring 2013	3.8	3.7	51
Spring 2012	2.6	2.5	56

Sample Student Comments:

- "Provided great real-life examples."
- "The classes [are] interdisciplinary nature but still keeping civil engineering projects at the forefront of probability and economics problems."
- "The course is very interesting but a little too broad ... Looking at three topics in a semester allows … briefly touch on each, and even though it's good I would have liked a little more."

Professional Teaching

- Climate Entrepreneurship: Interactive Panel Discussion at the Climate Center (Inter Disciplinary Program) of the Indian Institute of Technology Bombay (IIT-B) with Prof. Anu Narasimhan of the B-School of IIT-B, Mumbai, India, 2023
- Endowed Chair Activity: Charotar University of Science and Technology, Gujarat, India, 2018
- Guest Lecture Series on Data Sciences for Climate Change: Indian Institute of Technology Bombay, 2013
- Summer Course on Climate Change & Quantitative Methods: National Institute of Technology, Hamirpur, 2016

FUNDING AND GRANTS

Externally Funded Grants awarded to Northeastern University

Funded and Active

Proposal Title: **Soft target Engineering to Neutralize the Threat RealitY (SENTRY)**
Center Director: M. Silevitch, Northeastern University (lead organization)
Thrust Leads:
Thrust RA: D. Castanon (Boston U.)
Thrust RB: C. Rappaport (Northeastern): Center Deputy Director
Thrust RC: J. Zhuang (Buffalo)
Thrust RD: M. Laboy (Northeastern)
Project Leads:
Project RA.1: M. Sznaier (Northeastern), N. Siami (Northeastern), S. Marsella (Northeastern), D. Castanon (Boston U.), R. John (Southern California)
Project RA.2: E. Miller (Tufts)
Project RA.3: R. Radke (RPI), O. Camps (Northeastern), H. Medeiros (Florida)
Project RB.1: J. Oxley (Rhode Island), O. Gregory (Rhode Island), S. Hernandez (Puerto Rico Mayaguez)
Project RB.2: C. Rappaport (Northeastern), S. Howard (Notre Dame)
Project RC.1: **A. Ganguly** (Northeastern), S. Chatterjee (Northeastern / Joint with PNNL)
Project RC.2: J. Zhuang (Buffalo), R. John (Southern California)
Project RD.1: M. Laboy (Northeastern), Wiederspahn (Northeastern)
Project RD.2: J. Gong (Rutgers), M. Kapadia (Rutgers), J. Jin (Rutgers), F. Roberts (Rutgers)
Project RD.3: M. Kapadia (Rutgers), J. Gong (Rutgers), F. Roberts (Rutgers)
Agency/Solicitation: **Department of Homeland Security / Center of Excellence**
Requested Amount: **$36 Million over 10 years** ***(Ganguly project share: $150K/year+)***
Status: **Funded** (notification of award: November 2021; project start: January 2022)

Proposal Title: **Networked Infrastructures under Compound Extremes (NICE)**
PI: **A.R. Ganguly**, Northeastern University (lead organization)
Co-Is: R. Brigantic (PNNL), K. Burks-Copes (US Army Corps), S. Chatterjee (PNNL): co-lead, S. Chikkagoudar (Naval Research Lab), H. Das (Army Corps), S. Flynn (Northeastern), M. Gonzalez (UC Berkeley), M. Halappanavar (PNNL), I. Linkov (Army Corps), E. Russo (Army Corps), A. Tartakovsky (PNNL: now moved to Urbana), B. Trump (Army Corps), S. Wolters (Army Corps), R. Young (Army Corps)
Agency/Solicitation: **US Department of Defense / Strategic Environmental Research and Development Program (SERDP)**
Granted Amount: **$3 Million over 5 years**
Status: **Funded** (awarded in 2020, funding started in Spring 2021)

Proposal Title: **Advanced terrain analytics to support tactical scale planning and operations over varied environments in support of the U.S. Army Engineer Research and Development Center – Geospatial Research Laboratory**
PI: **A.R. Ganguly**, Northeastern University (lead organization)
Co-PIs: P.E. Hand (Northeastern), S. Ioannidis (Northeastern), K.R. Chowdhury (Northeastern), C. Dunne (Northeastern), H. Singh (Northeastern), X. Lin (Northeastern)
Senior Persons (SPs) / Partners: F. Hoffman (ORNL), Jitendra Kumar (ORNL)
Agency/Subcontract: **US Army Corps of Engineers via Kostas Research Institute (KRI) at NU**
Requested Amount: **$ 1,753,978 in the first year (possibility of long-term renewal)**
Status: **Funded**

Proposal Title: **UVDAT: Urban Visualization and Data Analysis Toolkit (Phase II)**
PI: A. Chaudhary (Kitware Inc.)
Co-PIs: A.R. Ganguly (Northeastern University)
Agency/Solicitation: **Department of Energy / SBIR (Phase II)**
Requested Amount: **$1,600,000** ***(Ganguly share: $475,000)***
Status: **Funded**

Proposal Title: **Novel multigraph theory with use cases in transportation sector resilience to compound hazards.**
PI: **A.R. Ganguly**, Northeastern University (lead organization): Sole PI
Agency/Origin: **Pacific Northwest National Laboratory / DHS CISA and NRMC**
Requested Amount: **$75,000 in the first year (subject to multi-year renewal)**
Total Amount to PNNL for sub-project: $2.5 Million
Status: **Funded**

(Note: This is potentially a long-term grant, renewable annually. Northeastern PhD students and UG students are supported by this grant directly by PNNL as interns. The funds shown is for PI time only).

Proposal Title: **Remote-sensing data driven Artificial Intelligence for precipitation-Nowcasting (RAIN)**
PI: **A.R. Ganguly**, Northeastern University (lead organization)
Development Partners (Unfunded): K. Duffy (Zeus AI), T. Vandal (Zeus AI)
Stakeholders Partners (Unfunded): N. Barber (Tennessee Valley Authority), D. Singh (Oak Ridge National Laboratory), K. van Werkhoven (RTI)
Agency/Solicitation: **National Aeronautics and Space Administration / A.34 Earth Science Applications: Water Resources (NNH21ZDA001N-WATER)**
Requested Amount: **$200,000 over 3 years.**
Status: **Funded**

Proposal Title: **Data Integration and Visualization for Enhanced Resilience and Sustainability in Hydropower (DIVERS-H)**
PI: A. Chaudhary (Kitware Inc.)
Co-PIs: A.R. Ganguly (Northeastern University)
Agency/Solicitation: **Department of Energy / SBIR (Phase I)**
Requested Amount: **$200,000** ***(Ganguly share: $67,000)***
Status: **Funded**

Proposal Title: **Weather Ensemble Analytics and Visualization Environment**
PI: A.R. Ganguly (Northeastern University)
Co-PIs: M. Correll (Northeastern University)
Agency/Solicitation: **Air Force Weather (via NU Kostas Research Institute)**
Requested Amount: **$1,000,000**
Status: **Under active consideration ("Statement of Work" stage)**

Proposal Title: **UVDAT: Urban Visualization and Data Analysis Toolkit (Phase I)**
PI: A. Chaudhary (Kitware Inc.)
Co-PIs: A.R. Ganguly (Northeastern University)
Senior Persons (SPs): X. Chen (PNNL), D. Lipsa (Kitware), D. Dwivedi (LBL).
Agency/Solicitation: **Department of Energy / SBIR (Phase I)**
Requested Amount: **$250,000** ***(Ganguly share: 100,000)***
Status: **Funded**

Funded and Completed

Principal Investigator:	**A.R. Ganguly (Lead PI for INTERN)**
Project Title:	*Deep Transfer Learning for Air Quality Monitoring with Translation to Policy*
Sponsor:	National Science Foundation (INTERN)
Duration:	Spring 2021-Fall 2021
Amount:	$55,000

Principal Investigator:	**A. R. Ganguly (Sole PI)**
Project title:	*Detection and Attribution of Carbon Cycle Extremes*
Sponsor:	ORNL (Oak Ridge National Lab.) GO (Graduate Opportunities) Program
Duration:	May 2018 – May 2022
Amount:	$150,000

Principal Investigator:	A.-L. Barabasi (PI, NU), **A.R. Ganguly (Co-PI)**, R.J. Sampson (Harvard), S. Flynn (Co-PI, NU), K. Coronges (Co-PI, NU)
Project title:	*CRISP Type 2: Interdependent Network-based Quantification of Infrastructure Resilience (INQUIRE)*
Sponsor:	National Science Foundation
Duration:	September 2017 – August 2022 (with no cost extension)
Amount:	$2,500,000

Principal Investigator:	J. Banner (PI), A. Stillwell (Co-PI), **A. Ganguly (Co-PI)**, S. Gray (Co-PI), K. Faust (Co-PI)
Project title:	*Conference: Challenges to and Opportunities for Resilience in Rapidly Developing Urban Corridors; Austin, Texas; August 14-16, 2019*
Sponsor:	National Science Foundation
Duration:	June 1, 2019 – May 31, 2020
Amount:	$49,925

Principal Investigator:	**A. R. Ganguly (Sole PI)**
Project title:	*Machine Learning in the Earth Systems Sciences and Engineering*
Sponsor:	NASA (National Aeronautics & Space Administration) Ames and BAERI
Duration:	January 2019 – December 2019
Amount:	$58,237

Principal Investigator:	**A.R. Ganguly (Sole PI from Northeastern for PNNL LDRD)**
Project title:	*Cyber-based contingency analysis of interdependent transportation and communication networks under uncertainty*
Sponsor:	PNNL (Pacific Northwest National Laboratory) LDRD Program (**PI: S. Chatterjee**)
Duration:	October 2018 – September 2020
Amount:	$460K ($40K as NU subcontract and multiple students' pipelines)

Principal Investigator:	**A. R. Ganguly (Sole PI)**
Project title:	*Advanced Remote Sensing Methods Using Machine Learning*
Sponsor:	ORNL (Oak Ridge National Laboratory) GO (Graduate Opportunities)
Duration:	May 2018 – May 2021
Amount:	$150,000

Principal Investigator:	**A. R. Ganguly (Sole PI)**
Project title:	*Deep Machine Learning in the Earth Sciences*
Sponsor:	NASA (National Aeronautics & Space Administration) Ames and BAERI
Duration:	January 2017 – December 2017
Amount:	$62,500

Principal Investigator:	S. Flynn (PI, NU), **A. R. Ganguly (Co-PI)**
Project title:	*Task Order: Critical Infrastructures Resilience*
Sponsor:	Department of Homeland Security
Duration:	August 2015 – July 2016
Amount:	$350,000

Principal Investigator:	A. Banerjee (Lead PI, UMN), **A. R. Ganguly (PI),** P. Ravikumar (PI, UT Austin)
Project title:	*BIGDATA: F: DKA: Collaborative Proposal: High-Dimensional Statistical Machine Learning for Spatio-Temporal Data, with Climate applications*
Sponsor:	National Science Foundation
Duration:	August 2015 – July 2018
Amount:	$1,071,864

Principal Investigator:	J. Dy (PI, NU), **A.R. Ganguly (Co-PI)**, T. Gouhier & A. Ding (Co-PIs, NU)
Project title:	*Spatiotemporal Extremes & Association: Marine Adaptation & Survivability under Climate change and rising Ocean Temperatures (SEA-MASCOT)*
Sponsor:	National Science Foundation (Cyber SEES)
Duration:	September 2014 – August 2018
Amount:	$1,200,000

Principal Investigator:	V. Kumar (PI, UMN), **A. R. Ganguly (Co-PI),** A. Banerjee (Co-PI, UMN), S. Chatterjee (Co-PI, UMN), S. Shekhar (Co-PI, UMN), P. Snyder (Co-PI, UMN), J. Foley (Co-PI, UMN), A. Chaudhary (Co-PI, NWU), N. Samatova (Co-PI, NCSU), F. Semazzi (Co-PI, NCSU), A. Homaifar (Co-PI, NCAT)
Project title:	*Expeditions in Computing: Understanding Climate Change: Data-driven Approach*
Sponsor:	National Science Foundation (CISE)
Duration:	August 2014 – July 2015 – July 2018 (3 years no cost extension)
Amount:	$10,200,000

Principal Investigator:	**A. R. Ganguly (PI)**
Project title:	*Data and Methods for Probabilistic Precipitation Modeling*
Sponsor:	Nuclear Regulatory Commission though U.S. Department of Energy
Duration:	October 2011 – October 2012
Amount:	$55,000 (funded by NRC via ORNL / U.S. DoE)

	A.R. Ganguly (PI)
Principal Investigator:	*Future U.S. Water Availability and Quality Study*
Project title:	
Sponsor:	Advanced Research Projects Agency-Energy (DOE)
Duration:	January 2014 – January 2015
Amount:	$85,000

Principal Investigator:	S. Flynn (PI, NU), **A. R. Ganguly (Co-PI)**, J. F. Hajjar (Co-PI, NU)
Project title:	*Disaster Resilience of Buildings, Infrastructure, and Communities*
Sponsor:	National Institute of Standards and Technology
Duration:	October 2013 – October 2014
Amount:	$300,000

Internally Funded Grants awarded at Northeastern University

Funded and Active

Principal Investigator:	**A.R. Ganguly** (Director)
Project Title:	Artificial Intelligence for Climate and Sustainability (AI4CaS) A focus area of the NU Institute of Experiential AI (IEAI)
Sponsor:	Northeastern University (Roux Institute and Office of the Provost)
Amount:	$1,700,000 (FY2023 and FY2024) Note: Extensible till FY 2028

Principal Investigator:	**A.R. Ganguly** and D. Aldrich (Co-Directors)
Project Title:	Global Resilience Institute 1.5
Sponsor:	Northeastern University (COE, CSSH, Office of the Provost)
Amount:	$200,000 (Spring 2023 to Fall 2023)

Principal Investigator:	G. Heefner and **A.R. Ganguly** (Joint PIs)
Project Title:	Historical Assessment of US DOD Installations
Sponsor:	Northeastern University (FY22 Tier 1)
Amount:	$50,000

Funded and Completed

Principal Investigator:	R. Yu, **A.R. Ganguly**
Project Title:	*Physics-Informed Deep Learning for High-Resolution Climate Extremes Modeling*
Sponsor:	Northeastern University (FY20 Tier 1)
Amount:	$50,000 (January 2020 to December 2020)

Principal Investigator:	A. Shrivastava, J. Stephens, D. O'Brien, **A.R. Ganguly**, B. Helmuth, M. Patterson
Project Title:	*Temperature Sensors for Urban Resilience & Public Health Impacts of Heat Waves*
Sponsor:	Northeastern University (FY17 Tier 1)
Amount:	$50,000 (July 2017 to September 2018)

Principal Investigator: D. Tiwari (PI), **A.R. Ganguly** (Co-PI), R. Sundaram (Co-PI)
Project Title: *A "network of networks" approach to critical infrastructure resilience*
Sponsor: Northeastern University (Global Resilience Institute Seed Funds)
Amount: $75,000 (June 2017 to May 2019)

Principal Investigator: **Joint PIs:** G. Shatkin, D. Lee, K. Goh, A. Renzi, **A.R. Ganguly**
Project title: *Cross-Disciplinary Approaches to Analyzing Flood Risk in Jakarta*
Sponsor: Northeastern University (FY17 Tier 1)
Amount: $50,000

Principal Investigator: T. Gouhier (Joint PI), **A. R. Ganguly (Joint PI)**
Project title: *Adaptive Management of Coastal Ecosystems under Climate Change*
Sponsor: Northeastern University (FY14 Tier 1)
Amount: $50,000

Principal Investigator: **A. R. Ganguly (PI)**
Project title: *Proposal Preparation and Completion of Key Research Elements*
Sponsor: Northeastern University (Tier 2: FY14-FY17)
Amount: $60,000

Principal Investigator: **A. R. Ganguly (PI), S. Flynn (Co-PI)**
Project title: *Critical Infrastructures Resilience: Curriculum Development*
Sponsor: Northeastern University (Office of the Provost: FY14)
Amount: $35,000

Principal Investigator: **A. R. Ganguly, S.** Rolland (NU)
Project title: *Regulatory Policy for Weather Extremes under Climate Change*
Sponsor: Northeastern University (FY13 Tier 1)
Amount: $50,000

Externally Funded Grants awarded at the Oak Ridge National Laboratory

Funded and Completed

Principal Investigator:	**A. R. Ganguly (PI)**, T. Wilbanks (ORNL, Co-PI), D. Erickson (Co-PI, ORNL)
Project title:	*Uncertainty Assessments & Reduction in Climate Extremes & Climate Impacts*
Sponsor:	Oak Ridge National Lab. (US DOE) Laboratory Directed Research & Development
Duration:	October 2009 – September 2011
Amount:	$819,000

Principal Investigator:	**A. R. Ganguly (Joint PI),** E. Begoli (Joint PI, ORNL)
Project title:	*Emergency Preparedness and Risk Analysis / Visualization*
Sponsor:	Department of Homeland Security (Office of Infrastructure Protection)
Duration:	January 2008 – December 2008
Amount:	$800,000

Principal Investigator:	**A. R. Ganguly (PI),** O. Omitaomu (Co-PI, ORNL)
Project title:	*Knowledge Discovery for Threat Cognizance in Transportation Security*
Sponsor:	Oak Ridge National Laboratory, Laboratory Directed Research and Development
Duration:	October 2006 – September 2008
Amount:	$790,000

Program Lead:	**A. R. Ganguly (PI and Science Lead),** B. Ross (Program Manager)
Project title:	*Climate Science Support for the 2010 Quadrennial Defense Review*
Sponsor:	Department of Defense (Office of the Secretary of Defense)
Duration:	March 2008 – June 2009
Amount:	$200,000

Program Lead:	**A. R. Ganguly (PI and Science Lead),** B. Ross (Program Manager)
Project title:	*Science Support for CNAS led Climate Change War Games*
Sponsor:	Oak Ridge National Laboratory, Center for a New American Security
Duration:	March 2007 – December 2008
Amount:	$250,000

Principal Investigator:	**A. R. Ganguly (PI),** D. Erickson (Co-PI, ORNL), G. Ostrouchov (Co-PI, ORNL)
Project title:	*Multivariate Dependence in Climate Extremes*
Sponsor:	Oak Ridge National Laboratory, SEED LDRD Funds
Duration:	October 2006 – September 2007
Amount:	$125,000

Principal Investigator:	M. Hadzikadic (PI, UNC, ORNL, GT), **A. R. Ganguly (Co-PI)**
Project title:	*ACSES: Actionable Capability for Social & Economic Systems*
Sponsor:	Defense Advanced Research Projects Agency (IPTO), U.S. Department of Defense
Duration:	February 2007 – December 2008
Amount:	$750,000

Principal Investigator:	T. Wilbanks (PI, ONRL), **A. R. Ganguly (Co-PI),** D. Erickson (Co-PI)
Project title:	*Climate Change Impacts on the Energy Sector*
Sponsor:	Oak Ridge National Laboratory, Laboratory Directed Research and Development
Duration:	October 2006 – September 2008
Amount:	$350,000

Principal Investigator:	A. King (PI, ORNL), **A. R. Ganguly (Co-PI),** D. Erickson (Co-PI, ORNL)
Project title:	*Climate Change Downscaling and Uncertainty*
Sponsor:	Oak Ridge National Laboratory, Laboratory Directed Research and Development
Duration:	January 2009 – June 2009
Amount:	$500,000

Principal Investigator:	B. Preston (PI, ORNL), T. Wilbanks (Co-PI, ORNL), **A. R. Ganguly (Sr. Person)**
Project title:	*Developing a Regional Integrated Assessment Model Framework*
Sponsor:	Department of Energy / Pacific Northwest National Laboratory
Duration:	July 1, 2010 – June 30, 2015
Amount:	$1,800,000 (A. R. Ganguly share: $100,000)

Principal Investigator:	S. Wullschleger (PI, ORNL), R. Graham (Program Manager, ORNL), **A. R. Ganguly** (Task Lead)
Project title:	*Data Mining and Networks for Carbon Sequestration in Terrestrial Ecosystem*
Sponsor:	Department of Energy (OS)
Duration:	October 1999 – September 2012
Amount:	$100,000 (A. R. Ganguly share)

Principal Investigator:	S. Fernandez (PI, ORNL), **A. R. Ganguly (Task Lead)**
Project title:	*Real-Time Outage Detection in Power Grids*
Sponsor:	Oak Ridge National Laboratory, Laboratory Directed Research and Development
Duration:	October 2011 – September 2012
Amount:	$500,000 (A. R. Ganguly share: $50,000)

Principal Investigator:	T. Wilbanks (PI, ORNL), **A. R. Ganguly (Task Lead)**
Project title:	*Possible Impacts of Relatively Severe Climate Change*
Sponsor:	Oak Ridge National Laboratory, Laboratory Directed Research and Development
Duration:	January 2009 – July 2009
Amount:	$50,000

Co- Investigator:	**A. R. Ganguly (PI and Science Lead)**, N. Cressie (Co-PI, OSU), T. Hsing (Co-PI, OSU), Nageswara Rao (Co-PI, ORNL)
Project title:	*Spatiotemporal Statistics for Analysis of Data from Sensor Networks*
Sponsor:	Office of Naval Research (U.S. DOD)
Duration:	September 2006 – July 2007
Amount:	$100,000

PUBLICATIONS AND PRODUCTS

Note: Direct current or former advisees, supervisees, and mentees are marked with an asterisk
Google Scholar: *https://scholar.google.com/citations?user=eNrAUJMAAAAJ&hl=en*

Interdisciplinary Journals

1. Salgado, A., He, Y., Radke, J., Ganguly, A.R. and Gonzalez, M.C. (2024): "Dimension reduction approach for understanding resource-flow resilience to climate change," **Communications Physics**, Nature Research, 7(1), 192. https://doi.org/10.1038/s42005-024-01664-z.

2. Giovannettone, J.P., Macey, G.P., AghaKouchak, A., Barbato, M., Capehart, W.J., Ganguly, A.R., Hall, M., Helgeson, J.F., Li, S.H., Wu, T. and Yan, G. (2024): "Equitable infrastructure: Achieving resilient systems and restorative justice through policy and research innovation," **PNAS Nexus**, 3(5), pgae157. https://doi.org/10.1093/pnasnexus/pgae157.

3. Bhatia, U.*, Dubey, S., Gouhier, T.C., and A.R. Ganguly (2023): "Network-based restoration strategies maximize ecosystem recovery," **Communications Biology**, Nature Research, 6, 1256. https://doi.org/10.1038/s42003-023-05622-3.

4. Yadav, N.*, Sorek-Hamer, M., Von Pohle, M., Asanjan, A.A., Sahasrabhojanee, A., Suel, E., Arku, R., Lingenfelter, V., Brauer, M., Ezzati, M., Oza, N., and A.R. Ganguly (2023): "Using Deep Transfer Learning and Satellite Imagery to Estimate Urban Air Quality in Data-Poor Regions," **Environmental Pollution**, 122914. https://doi.org/10.1016/j.envpol.2023.122914.

5. Ashfaq, M., Johnson, N., Kucharski, F., Diffenbaugh, N.S., Abid, M.A., Horan, M.F., Singh, D., Mahajan, S., Ghosh, S., Ganguly, A.R. and K.J. Evans (2023): "The influence of natural variability on extreme monsoons in Pakistan," **NPJ Climate and Atmospheric Science**, Nature Research, 6, 148. https://doi.org/10.1038/s41612-023-00462-8.

6. Liu, Y.*, Duffy, K.*, Dy, J.G., and A.R. Ganguly (2023): "Explainable deep learning for insights in El Niño and river flows," **Nature Communications**, 14, 339. https://doi.org/10.1038/s41467-023-35968-5.

7. Duffy, K.*, Gouhier, T.C. and A.R. Ganguly (2023): "Author Correction: Climate-mediated shifts in temperature fluctuations promote extinction risk," **Nature Climate Change**, 13(5): 491-491.

8. Duffy, K.*, Gouhier, T., and A.R. Ganguly (2022): "Climate-mediated shifts in temperature fluctuations promote extinction risk," **Nature Climate Change**, 12, 1037–1044. https://doi.org/10.1038/s41558-022-01490-7.

9. Duffy, K.*, Gouhier, T. and A.R. Ganguly (2022): "Research Briefing," **Nature Climate Change**, 12, 979–980. https://doi.org/10.1038/s41558-022-01494-3.

10. Yadav, N.*, Chatterjee, S. and Ganguly, A.R. (2020): "Resilience of urban transport network-of-networks under intense flood hazards exacerbated by targeted attacks," **Scientific Reports** (***Nature Research***), 10, 1050.

11. Kodra, E.*, Bhatia, U.*, Chatterjee, S., Chen, S. and Ganguly, A.R. (2020): "Physics-guided probabilistic modeling of extreme precipitation under climate change," **Scientific Reports** (***Nature Research***), 10, 10299.

12. Konduri, V.S.*, Vandal, T.J.*, Ganguly, S. and Ganguly, A.R. (2020): "Data Science for Weather Impacts on Crop Yield," **Frontiers in Sustainable Food Systems**, 4, p.52.

13. Konduri, V.S.*, Vandal, T.*, Ganguly, S. and Ganguly, A.R. (2020): Corrigendum: Data Science for Weather Impacts on Crop Yield. **Frontiers in Sustainable Food Systems**, 4, 178.

14. Bhatia, U.*, and A.R. Ganguly (2019): "Precipitation extremes and depth-duration-frequency under internal climate variability," **Scientific Reports** (***Nature Research)***, 9, 9112.

15. Ganguli, P.*, Kumar, D.*, and A.R. Ganguly (2017): "US power production at risk from water stress in a changing climate," **Scientific Reports** (***Nature Research)***, 7, 11983. (Cited in ***IPCC AR6*** WGII)

16. Ganguli, P.*, Kumar, D.*, and A.R. Ganguly (2018): "Author Correction: US power production at risk from water stress in a changing climate," **Scientific Reports** (***Nature Research)***, 8(1): 6426.

17. Wang, D.*, Gouhier, T.C., Menge, B., and A.R. Ganguly (2015): "Intensification and spatial homogenization of coastal upwelling under climate change," **Nature**, 518, 390-394. (News & Views: Di Lorenzo: "Climate science: The future of coastal ocean upwelling," ***Nature***, 518(7539), 310-311.) (Cited in ***US NCA4 Vol. 1***; Cited in ***IPCC AR6*** WGI and WGII).

18. Bhatia, U.*, Kumar, D.*, Kodra, E.*, A.R. Ganguly (2015): "Network science-based quantification of resilience demonstrated on the Indian Railways Network," **PLOS One**, 10(11), e0141890.

19. Kodra, E.*, and A.R. Ganguly (2014): "Asymmetry of projected increases in extreme temperature distributions," **Scientific Reports** (***Nature Research***), 4, 5884.

20. Ghosh, S.*, Das, D.*, Kao, S.-C.*, and A.R. Ganguly (2012): "Lack of uniform trends but increasing spatial variability in observed Indian rainfall extremes," **Nature Climate Change**, 2, 2, 86-91.

21. Ganguly, A.R., Steinhaeuser, K.*, Erickson, D.J., Branstetter, M. Parish*, Singh, N., Drake, J.B., and L. Buja (2009): "Higher trends but larger uncertainty and geographic variability in 21st century temperature and heat waves," **Proceedings of the National Academy of Sciences of the USA** (**PNAS**), 106(37), 15555-15559.

Disciplinary Journals: Climate Science and Engineering

22. Chandel, V.S., Bhatia, U.*, Ganguly, A.R. and Ghosh, S.* (2024): "State-of-the-art bias correction of climate models misrepresent climate science and misinform adaptation," **Environmental Research Letters**, 19, 094052. DOI 10.1088/1748-9326/ad6d82.

23. Sharma, B.*, Kumar, J., Ganguly, A.R. and F.M. Hoffman (2022): "Carbon Cycle Extremes Accelerate Weakening of the Land Carbon Sink in the Late 21st Century." **Biogeosciences**, 20, 10, 1829-1841, https://doi.org/10.5194/bg-20-1829-2023.

24. Sharma, B.*, Kumar, J., Collier, N., Ganguly, A.R. and Hoffman, F.M., 2022. "Quantifying carbon cycle extremes and attributing their causes under climate and land use and land cover change from 1850 to 2300." **Journal of Geophysical Research: Biogeosciences**, 127(6), p.e2021JG006738.

25. Konduri, V.S.*, Kumar, J., Hargrove, W.W., Hoffman, F.M. and Ganguly, A.R., 2020. "Mapping crops within the growing season across the United States," **Remote Sensing of Environment**, 251, p.112048.

26. Moss, R.H., Avery, S., Baja, K., Burkett, M., Chischilly, A.M., Dell, J., Fleming, P.A., Geil, K., Jacobs, K., Jones, A., Knowlton, K., Lemos, M.C., Melillo, J., Pandya, R., Richmond, T.C., Scarlett, L., Stults, M., Waple, A., Whitehead, J., Zarrilli, D., Fox, J., Ganguly, A., Joppa, L., Julius, S., Kirshen, P., Kreutter, R., McGovern, A., Meyer, R., Neumann, J., Solecki, W., Smith, J., Tissot, P., Yohe, G., R. Zimmerman (2019): "Evaluating Knowledge to Support Climate Action: A Framework for Sustained Assessment. Report of an Independent Advisory Committee on Applied Climate Assessment," **Weather, Climate, and Society**, July. 11(3): 465–487.

27. Moss, R.H., Avery, S., Baja, K., Burkett, M., Chischilly, A.M., Dell, J., Fleming, P.A., Geil, K., Jacobs, K., Jones, A., Knowlton, K., Lemos, M.C., Melillo, J., Pandya, R., Richmond, T.C., Scarlett, L., Stults, M., Waple, A., Whitehead, J., Zarrilli, D., Fox, J., Ganguly, A., Joppa, L., Julius, S., Kirshen, P., Kreutter, R., McGovern, A., Meyer, R., Neumann, J., Solecki, W., Smith, J., Tissot, P., Yohe, G., and R. Zimmerman (2019): "A Framework for Sustained Climate Assessment in the United States," **Bulletin of the American Meteorological Society**, May, 100(5): 897–907.

28. Vandal, T.*, Ganguly, A.R., and E. Kodra* (2019): "Intercomparison of machine learning methods for statistical downscaling: the case of daily and extreme precipitation," **Theoretical and Applied Climatology**, 137 (1–2), 557–570.

29. Kumar, D.* and A.R. Ganguly (2018): "Intercomparison of model response and internal variability across climate model ensembles," **Climate Dynamics**, 51(1–2): 207–219. (Cited in ***IPCC AR6*** WGI). Available online at: https://doi.org/10.1007/s00382-017-3914-4

30. Salvi, K., Ghosh, S.*, and A.R. Ganguly (2016): "Credibility of statistical downscaling under nonstationary climate," **Climate Dynamics**, 46(5-6), 1991-2023.

31. Mishra, V.*, Ganguly, A.R., Nijssen, B., and D.P. Lettenmaier (2015): "Changes in observed climate extremes in global urban areas," **Environmental Research Letters**, 10, 2, 024005. (Cited in ***IPCC AR6*** WGII)

32. Sahana, A.S., Ghosh, S., Ganguly, A.R., and Murtugudde, R. (2015): "Shift in Indian summer monsoon onset during 1976/1977," **Environmental Research Letters**, 10(5), 054006.

33. Kumar, D.*, Kodra, E.*, and A.R. Ganguly (2014): "Regional and Seasonal Intercomparison of CMIP3 and CMIP5 Climate Model Ensembles for Temperature and Precipitation," **Climate Dynamics**, 43 (9), 2491-2518. (Cited in ***US NCA4 Vol. 1***)

34. Ganguly, A.R., Kodra, E.*, Agrawal, A., Banerjee, A., Boriah, S., Chatterjee, Sn., Chatterjee, So., Choudhary, A., Das, D.*, Faghmous, J., Ganguli, P.*, Ghosh, S., Hayhoe, K., Hays, C., Hendrix, W., Fu, Q., Kawale, J., Kumar, D.*, Kumar, V., Liao, W., Liess, S., Mawalagedara, R.*, Mithal, V., Oglesby, R., Salvi, K., Snyder, P.K., Steinhaeuser, K.*, Wang, D.*, D. Wuebbles (2014): "Toward enhanced understanding & projections of climate extremes using physics-guided data mining," **Nonlinear Processes in Geophysics**, 21, 777-795.

35. Das, D.*, Dy, J., Ross, J., Obradovic, and Ganguly, A.R. (2014): "Non-parametric Bayesian Mixture of Sparse Regressions with Application Towards Feature Selection for Statistical Downscaling," **Nonlinear Processes in Geophysics**, 21 (6), 1145-1157.

36. Kumar, D.*, Mishra, V.*, and Ganguly, A.R. (2014): "Evaluating Wind Extremes in CMIP5 Climate Models," **Climate Dynamics**, 45 (1), 441-453. (Cited in ***IPCC AR6*** WGI and WGIII).

37. Liess, S., Kumar, A., Snyder, P. K., Kawale, J., Steinhaeuser, K., Semazzi, F., Ganguly, A., Samatova, N., and Kumar, V. (2014): "Different Modes of Variability over the Tasman Sea: Implications for Regional Climate," **Journal of Climate**, 27 (22), 8466-8486.

38. Mishra, V.*, Kumar, D.*, Ganguly, A.R., Sanjay, J., Mujumdar, M., Krishnan, R., Shah, R.D. (2014): "Reliability of Indian precipitation extremes from regional & global climate models," **J. Geophysical Research – Atmospheres**, 119 (15), 9301-9323. (Cited in ***IPCC AR6*** WGI).

39. Steinhaeuser, K.*, Ganguly, A.R., and N.V. Chawla, N. V. (2012). Multivariate and multiscale dependence in the global climate system revealed through complex networks. **Climate Dynamics**, 39(3-4), 889-895.

40. Kodra, E.*, Ghosh, S.*, and Ganguly, A.R. (2012): "Evaluation of Global Climate Models for Indian Monsoon Climatology," **Environmental Research Letters**, 7, 014012.

41. Kodra, E.*, Steinhaeuser, K.S.*, and A.R. Ganguly (2011): "Persisting cold spells in the 21st-century warming environment," **Geophysical Research Letters**, 38, L08705, 5 PP. (Cited in ***IPCC AR5***; Highlight: "Climate change: Cold spells in a warm world", ***Nature***, 472, 2011, 139.)

42. Kao, S.C.*, and A.R. Ganguly (2011): "Intensity, duration, and frequency of precipitation extremes under 21st-century warming scenarios," **Journal of Geophysical Research**, 116, D16119, 14 PP. (Cited in ***IPCC AR5***).

43. Kodra, E.*, Chatterjee, S., and Ganguly, A.R. (2011): "Exploring Granger Causality Between Global Average Observed Time Series of CO2 and Temperature," **Theoretical and Applied Climatology**, 104(3-4), 325-335.

44. Khan, S.*, Ganguly, A. R., Bandyopadhyay, S., Saigal, S., Erickson, D. J., Protopopescu, V., and Ostrouchov, G. (2006): "Nonlinear Statistics Reveals Stronger Ties between ENSO and the Tropical Hydrological Cycle," **Geophysical Research Letters**, 33, L24402.

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Disciplinary Journals: Water Science and Engineering

46. Watson, J.R.*, Eisenberg, D., Anderson, R., Bhatia, U., Chatterjee, S., Gonzalez, M.C., Mishra, A., Pal, A.K., Yadav, N., and Ganguly, A.R. (2024): "Editorial: Designing, Operating, and Rebuilding Infrastructures and Lifelines for Resilience to Extreme Flooding," **Frontiers in Water**, 6, 1438086.

47. Ganguly, A. R., van Breukelen, B. M., Evers, M., Hendricks Franssen, H. J., Illangasekare, T., Kumar, P., Steefel, C., and R.G. Taylor, R. G. (2022): "Editorial: Frontiers in water: Rising Stars 2021." **Frontiers in Water**, 4, [1033848]. https://doi.org/10.3389/frwa.2022.1033848.

48. Malakar, P., Mukherjee, A., Bhanja, S.N., Ganguly, A.R., Ray, R.K., Zahid, A., Sarkar, S., Saha, D. and Chattopadhyay, S. (2021). "Three decades of depth-dependent groundwater response to climate variability and human regime in the transboundary Indus-Ganges-Brahmaputra-Meghna mega river basin aquifers," **Advances in Water Resources**, p.103856.

49. Ganguly, A.R. and Cahill, R.L.* (2020) "Specialty Grand Challenge: Water and the Built Environment," **Frontiers in Water**, 2: 555104. DOI: 10.3389/frwa.

50. Ganguli, P.*, and A.R. Ganguly (2016): "Space-time Trends in U.S. Meteorological Droughts", **Journal of Hydrology: Regional Studies**, 8, 235-259.

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52. Zhang, J., Murch, R.R., Ross, M.A., Ganguly, A.R. and Nachabe M. (2008): "Evaluation of Statistical Rainfall Disaggregation Methods Using Rain-Gauge Information for West-Central Florida," **Journal of Hydrologic Engineering**, American Society of Civil Engineers, 13(12), 1158-1169.

53. Khan, S.*, Kuhn, G.*, Ganguly, A.R., Erickson, D.J., and Ostrouchov, G. (2007): "Spatio-Temporal Variability of Daily and weekly Precipitation Extremes in South America," **Water Resources Research**, 43, W11424.

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Disciplinary Journals: Data and Infrastructure Science and Engineering

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57. Collier, E., Mukhopadhyay, S., Duffy, K.*, Ganguly, S., Madanguit, G., Kalia, S., Shreekant, G., Nemani, R., Michaelis, A., Li, S., and Ganguly, A., 2021. "Semantic Segmentation of High-Resolution Satellite Imagery using Generative Adversarial Networks with Progressive Growing", **Remote Sensing Letters**, 12(5), 439-448.

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59. Duffy, K.*, Vandal, T.*, Li, S., Ganguly, S., Nemani, R., and A.R. Ganguly (2019): "DeepEmSat: Deep Emulation for Satellite Data Mining," **Frontiers in Big Data**, 2:42.

60. Clark, K.*, Bhatia, U.*, Kodra, E.*, and A.R. Ganguly (2018): "Resilience of the US National Airspace System Airport Network," **IEEE Transactions on Intelligent Transportation Systems**, 19(12), 3785-3794.

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157. **International Water Power and Dam Construction Magazine**:
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National and Global Assessments and Technical Reports: Interdisciplinary Topics

158. **United Nations Disaster Risk Reduction (UNDRR) Report (2023)**: Accelerating Implementation of Disaster Risk Reduction and Resilience in Infrastructure. International Coalition for Sustainable Infrastructure (ICSI). Contributors and Speakers include Auroop Ganguly.

Specific Contributions:

- Ganguly, A.R. (2023): "BOX 4 – A Perspective on Disaster Risk Reduction with Knowledge-Integrated Data Sciences. Contribution from Prof. Auroop Ganguly, Northeastern University."
- Das, P., Indrawati, D., Mawalagedara, R., and Ganguly, A.R. (2023): "Improving flood emergency management, Bangladesh and Indonesia. Contribution from Northeastern University."

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160. National Academies of Sciences, Engineering, and Medicine (2022): "Machine Learning and Artificial Intelligence to Advance Earth System Science: Opportunities and Challenges." Washington, DC: **The National Academies Press**. https://doi.org/10.17226/26566. ***Invited Panelist and Panel Speaker***, Workshop Report Contributor.

161. Bornman, J.F., Barnes, P.W. & Pandey, K. "Environmental effects of stratospheric ozone depletion, UV radiation, and interactions with climate change: 2022 Quadrennial Assessment." Photochemical & Photobiological Sciences (2023). **United Nations Environment Programme**. https://doi.org/10.1007/s43630-023-00374-9. ***Invited Review Panelist***. (Note: not an author, but in the review panel).

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165. National Academies of Sciences, Engineering, and Medicine (2019): "Enhancing Urban Sustainability with Data, Modeling, and Simulation: Proceedings of a Workshop." Washington, DC: **The National Academies Press**. https://doi.org/10.17226/25480.
Invited Keynote Speaker, Workshop and Report Contributor, and Reviewer

166. Ganguly, A.R., Joppa, L., Fleming, P., McGovern, A., and P. Tissot (2019): "Artificial intelligence section in applied climate science and assessment." Applied Climate Assessments, Independent Advisory Committee. Group spawned by members of the US National Climate Assessments. ***Originally:*** **Sustained National Climate Assessment** (INVITED).

167. Ganguly, A.R., Kodra, E.*, Bhatia, U.*, Warner, M.E.*, Duffy, K., Banerjee, A., and S. Ganguly (2018): "Understanding and interpreting data for climate adaptation and mitigation," (INVITED). **Climate 2020: Degrees of Devastation**, published November 2018 by Witan Media for the ***United Nations Association – UK***. https://www.climate2020.org.uk/data-driven-solutions/

168. United Nations Environment Programme (2018): "Environmental Effects and Interactions of Stratospheric Ozone Depletion, UV Radiation, and Climate Change: 2018 Assessment Report." **United Nations**. https://ozone.unep.org/sites/default/files/2019-04/EEAP_assessment-report-2018%20%282%29.pdf. ***Invited Review Panelist***. (Note: not an author, but in the review panel)

169. MIT J-WAFS (2018): "Climate Change, Agriculture, Water, and Food Security: What We Know and Don't Know." Abdul Latif Jameel Water and Food Systems Lab (J-WAFS), **Massachusetts Institute of Technology**. ***Invited Speaker and Workshop Report Contributor***. https://jwafs.mit.edu/sites/default/files/imce/publications/Climate_Ag_Report_New.pdf

170. Fard, B.J.*, Hassanzadeh, H.*, Warner, M.E.*, Bhatia, U.*, and A.R. Ganguly (2016): "Mitigation and Adaptation Strategies for Public Health Impacts of Heatwaves for the Town of Brookline, MA," Report submitted to the **Town of Brookline** under the aegis of the **Thriving Earth Exchange** of the American Geophysical Union.

171. Kodra, E.*, Ruth, M., and A.R. Ganguly (2016): Temperature Extremes Section (one of four sections and teams) in the Climate Ready Boston Report (December 2016), Prepared for the **City of Boston** under the aegis of the **Green Ribbon Commission** and managed by the University of Massachusetts. ***(Ganguly: Team Lead)***

172. Kodra, E.*, Das, D.*, A.R. Ganguly, Erickson, D.J., and M.R. Allen (2012): "Data and Methodology for Probabilistic Precipitation Modeling," Prepared for the **United States Nuclear Regulatory Commission**, Northeastern University Technical Report.

173. Ganguli, P.*, Kumar, D.*, and A.R. Ganguly (2016): Water Stress on US Power Production at Decadal Time Horizons," US DOE/ARPA-E Tech Report. http://arxiv.org.abs/1511.08449.

174. United Nations Environment Programme (2010): "Environmental Effects of Ozone Depletion and Interactions with Climate Change: 2010 Assessment." **United Nations**. https://wedocs.unep.org/bitstream/handle/20.500.11822/8708/eeap_report2010
Invited Review Panelist. (Note: not an author, but in the review panel)

175. Steinhaeuser, K.*, Parish, E.*, Sorokine, A., and Ganguly, A. R. (2009): "Projected State of the Arctic Sea Ice and Permafrost by 2030," Tech Manual, **ORNL/TM-2009/265**, Oak Ridge National Laboratory. (*Cited by the National Academies Press on climate change and national security*).

176. Ganguly, A.R., Whitmeyer, J.M., Omitaomu, O.A.*, Hadzikadic, M., Gilman, P., Brecke, P.K., Khouja, M.J., Fernandez, S.J., Eichelberger, C.N., McLean, A.L., Yu, J., Middleton, E.J., Carmichael, T.D., Saric, A. and Sun, M. (2008): "Towards a Characterization and Systematic Evaluation Framework for Theories and Models of Human, Social, Behavioral, and Cultural Processes," **ORNL/TM-2008/062**, Oak Ridge National Laboratory.

177. Fernandez, S. J., Brecke, P., Carmichael, T. D., Eichelberger, C. N., Ganguly, A. R., Hadzikadic, M., Jiao, Y., Khouja, M. J., McLean, A. L., Middleton, E. J., Omitaomu, O. A.*, Saric, A., Sun, M., Whitmeyer, J. M., Gilman, P., O'Maonaigh, H. C. (2008): "Actionable Capability for Social and Economic Systems (ACSES)," **ORNL/TM-2008/088**, Oak Ridge National Laboratory.

178. Sabesan, A.*, Abercrombie, K.*, Ganguly, A.R., Bhaduri, B.L., Bright, E.A., and Coleman, P. (2006): "Uncertainty in Population Estimates — A Comparison between GPW and LandScan Data Models," **ORNL/TM-2006/540**, Oak Ridge National Laboratory.

179. Gerdes, D.A.*, Khan, S.*, and Ganguly, A.R. (2006): "Nonlinear Dependence Measures with Application to Static Scale Data from the Watt Road Weigh Station," **ORNL/TM-2006/549**, Oak Ridge National Laboratory.

180. Fang, Y.*, and Ganguly, A. R. (2006): "Probabilistic Principal Component Analysis for Online Anomaly Detection with Application to Static Scale Data from the Watt Road Weigh Station," **ORNL/TM-2006/546**, Oak Ridge National Laboratory.

181. Gabriel, K.*, and Ganguly, A. R. (2006): "Geospatial-Temporal Dependence among the Usual and the extreme Values with Applications to Observed and Simulated Precipitation in South America," **ORNL/TM-2006/542**, Oak Ridge National Laboratory, 24 pp.

Books: Textbook and Edited Books

182. Ganguly, A.R., U. Bhatia*, and S. Flynn (2018): **Critical Infrastructures Resilience: Policy and Engineering Principles**. Routledge, Taylor & Francis, March 6th, 2018, 131 pages.
Editorial Reviews by Profs. Bruce Ellingwood, Lucio Soibelman, and Rafael Bras.

183. Gaber, M.M., Vatsavai, R.R., Omitaomu, O.A.*, Gama, J., Chawla, N.V., and Ganguly, A.R. (editors) (2010): **Knowledge Discovery from Sensor Data**. Laboratory Notes for Computer Science, Springer, Berlin (Germany), 227 pp.

184. Ganguly, A. R., Gama, J., Omitaomu, O.A.*, Gaber, M.M., and Vatsavai, R.R. (editors) (2009): **Knowledge Discovery from Sensor Data**. CRC Press, Taylor & Francis, New York, 216 pages. (*Cited in Wikipedia article on Data Stream Mining*).

Book Chapters: Peer Reviewed

185. Chikkagoudar, S., Chatterjee, S., Bharadwaj, R., Ganguly, A., Kompella, S. and Thorsen, D. (2023): "Assurance by Design for Cyber-physical Data-driven Systems." Chapter 11 and pp. 191-212 in Gremban, K., Swami, A., Douglass, R., and Gerali, S. (2023): **IoT for Defense and National Security**, John Wiley & Sons, IEEE Press, 528 pages.

186. Warner, M.*, Bhatia, U.*, and Ganguly, A.R. (2019): "From probabilistic risk analysis to resilience with network science: lessons from the literature and best practice," In **Handbook on Resilience of Socio-Technical Systems** (Ruth and Goessling-Reisemann, editors), Edward Elgar Publishing.

187. Bhatia, U.*, Kumar, D.*, Kodra, E.*, and Ganguly, A.R. (2017): "Water Complexity and Physics-Guided Data Mining," In **Contingent Complexity and Prospects for Water Diplomacy** (Islam and Madani, editors), Anthem.

188. Vandal, T.*, Bhatia, U.*, and Ganguly, A.R. (2016): "Statistical Downscaling in Climate with State-of-the-Art Scalable Machine Learning," In **Large Scale Machine Learning in the Earth Sciences** (Steinhaeuser, K., et al. editors), Taylor & Francis.

189. Bhatia, U.*, and Ganguly, A.R. (2016): "Network Science Perspectives on Engineering Adaptation to Climate Change and Weather Extremes," In **Large Scale Machine Learning in the Earth Sciences** (Steinhaeuser, K. et al. editors), Taylor & Francis.

190. Chandola, V., Vatsavai, R.R., Kumar, D.*, Ganguly, A.R. (2015): "Analyzing Big Spatial and Spatiotemporal Data: A Case Study of Methods & Applications," In **Handbook of Statistics**, 20, 239-258, Elsevier.

191. Ganguly, A.R., Kodra, E.*, Chatterjee, S., Banerjee, A., and Najm, H.N. (2013). "Computational Data Sciences for Actionable Insights on Climate Extremes and Uncertainty," In Ting Yu, Nitesh Chawla and Simeon Simoff (editors.), **Computational Intelligent Data Analysis for Sustainable Development**, Chapman and Hall / CRC, Chapter 5, 127-156 pp.

192. Monteleoni, C., Monteleoni, Schmidt, G. A., Alexander, F., Niculescu-Mizil, A., Steinhaeuser, K., Tippett, M., Banerjee, A., Blumenthal, M.B., Ganguly, A.R., Smerdon, J. E., and Tedesco, M. (2013): "Climate Informatics," In Ting Yu, Nitesh Chawla and Simeon Simoff (editors.), **Computational Intelligent Data Analysis for Sustainable Development**, Chapman and Hall / CRC, Chapter 4, 81-126 pp.

193. Ganguly, A.R., Whitmeyer, J., Omitaomu, O., Brecke, P., Hadžikadić, M., Gilman, P., Khouja, M., Fernandez, S., Eichelberger, C., McLean, T., Yu, C., Middleton, E., Carmichael, T., and Sun, M. (2013). "Towards a Characterization and Systematic Evaluation Framework for Theories and Models of Human, Social, Behavioral, and Cultural Processes within Agent-Based Models," **In Managing Complexity: Practical Considerations in the Development and Application of ABMs to Contemporary Policy Challenges,** Springer Berlin Heidelberg, (Based on a DARPA funded project), 93-136 pp.

194. Bhaduri, B., Shankar, M., Sorokine, A., and Ganguly, A.R. (2009): "Spatio-Temporal Visualization for Environmental Decision Support," In: Raffaele De Amicis, Radovan Stojanovic, Giuseppe Conti (editors.), **GeoVisual Analytics: Geographical Information Processing and Visual Analytics for Environmental Security**, NATO Science for Peace and Security Series - C: Environmental Security. Springer, 331-341 pp.

195. Gupta, A., Seshasai, S., Mukherji, S., and Ganguly, A.R. (2008): 'Offshoring: The Transition from Economic Drivers Toward Strategic Global Partnership and 24-Hour Knowledge Factory," In Gupta, A. (editor), **Outsourcing and Offshoring of Professional Services, Executive Highlight**, Chapter 1, 1-24 pp.

196. Ganguly, A.R., Gupta, A., and Khan, S.* (2007): "Data Mining and Decision Support for Business and Science," **Intelligent Information Technologies: Concepts, Methodologies, Tools and Applications**, Sugumaran, V. (editor), Idea Group Inc. (IGI), Chapter 6.1, 1798-1805 pp.

197. Ganguly, A.R., Fang, Y.*, Khan, S.*, Omitaomu, O. A.*, and Bhaduri, B. L. (2007): "Knowledge Discovery from Sensor Data for Scientific Applications," In: Gaber, M. and Gama, J. (editors.), **Learning from Data Streams – Processing Techniques in Sensor Networks**, Springer-Verlag, 205-229 pp.

198. Ganguly, A. R., Omitaomu, O.A.* and Walker, R.M. (2007): "Knowledge Discovery from Sensor Data for Security Applications," In: Gaber, M. and J. Gama (editors.), **Learning from Data Streams – Processing Techniques in Sensor Networks**, Springer-Verlag, 187-204 pp.

199. Khan, S.*, Ganguly, A.R., and Gupta, A. (2007): "Data Mining and Data Fusion for Enhanced Decision Support," **Handbook on Decision Support Systems I**, F. Burnstein and C.W. Holsapple (editors), Springer-Verlag, 581-608 pp.

200. Khan, S.*, Ganguly, A.R., and Gupta, A. (2005): "Creating Knowledge about the Future through Business Forecasting and Planning," **Encyclopedia of Knowledge Management**, D. Schwartz (ed.), Idea Grp., 81-89 pp.

201. Ganguly, A.R., Khan, S.*, and Gupta, A. (2005): "Data Mining and Decision Support for Business and Science," **Encyclopedia of Data Warehousing and Mining**,Wang, J. (ed.), Idea Group, Ch. 45, 233-238 pp.

202. Ganguly, A.R., and Gupta, A. (2005): "Framework for Strategic IT Decisions," **The Handbook of Business Strategy**, Coate, P. (editor), Emerald, 265-271 pp.

203. Ganguly, A.R. (2002): "Forecasting Rainfall and Floods – Advances and Way Forward," **Advances in Civil Engineering Volume I: Water Resources and Environmental Engineering** (Bandopadhyay and Kumar, editors), Allied Publishers India, 166-174 pp.

Encyclopedia Articles: Peer Reviewed *(joint with undergraduate students)*

204. Najjar, S.*, Bhatia, U.*, and Ganguly, A. R. (2016): "Introduction to Climate Adaptation," In Climate Change Adaptation (section), **Encyclopedia of GIS** 2nd Edition (Shekhar and Xioing, editors; Ganguly, A.R., Section Editor), Springer.

205. Henderson, H.*, Blumenfeld, L.*, Traylor, A.*, Bhatia, U.*, Kumar, D.*, Kodra, E*, and Ganguly, A.R. (2016): "Understanding Climate Extremes and Informing Adaptation," In Climate Change Adaptation (section), **Encyclopedia of GIS** 2nd Ed. (Shekhar and Xioing, editors; Ganguly, A.R., Section Editor), Springer.

206. Moskos, C.*, Henderson, H.*, Bressler, L.*, Bhatia, U.*, Kumar, D.*, Kodra, E*, and Ganguly, A. R. (2016): "Informing Climate Adaptation with Big Data and Bigger Models," In Data Science (section), **Encyclopedia of GIS** 2nd Edition (Shekhar and Xioing, editors; Chawla, S., Section Editor), Springer.

207. Blumenfeld, L.*, Hall, T.*, Henderson, H.*, Bressler, L.*, Moskos, C.*, Bhatia, U.*, Ganguli, P.*, Kumar, D.*, and Ganguly, A. R. (2016): "Climate and Human Stresses on the Water-Energy-Food Nexus," In Climate Change Adaptation (section), **Encyclopedia of GIS** 2nd Edition (Shekhar and Xioing, editors; Ganguly, A.R., Section Editor), Springer.

208. Bhatia, U.*, Traylor, A.*, Moskos, C.*, Blumenfeld, L.*, Bressler, L.*, Hall, T.*, Heiss, R.*, Clark, K., Deng, N., Kumar, D.*, Kodra, E.*, Hajjar, J.H., Flynn, S.E., Koutsopoulos, H., and Ganguly, A. R. (2016): "Climate Hazards and Critical Infrastructures Resilience," In Climate Change Adaptation (section), **Encyclopedia of GIS** 2nd Edition (Shekhar and Xioing, editors; Ganguly, A.R., Section Editor), Springer.

209. Bressler, L.*, Morgan, K.*, Traylor, A.*, Henderson, H.*, Fard, B.*, Kumar, D.*, Bhatia, U.*, Majumder, R., Mukherji, S., Roy, J., Ruth, M., and Ganguly, A. R. (2016): "Climate Change and Developmental Economics," In Climate Change Adaptation (section), **Encyclopedia of GIS** 2nd Edition (Shekhar and Xioing, editors; Ganguly, A.R., Section Editor), Springer.

CNAS Climate War Games: Led the ORNL Technical Team

210. CNAS (2008): "Clout and Climate Change War Game: Participant Briefing Book." **Center for a New American Security**. 99 pages.
https://s3.us-east-1.amazonaws.com/files.cnas.org/hero/documents/Clout-and-Climate-Change-Briefing-Book-For-Release.pdf
CNAS Website: https://www.cnas.org/events/war-game-clout-and-climate-change
Nature News: https://www.nature.com/articles/454673a
ES&T News: https://pubs.acs.org/doi/10.1021/es802320z

Ganguly Role: War Game Participant, Led ORNL team for climate analytics and visualization

Products: US Patents Granted

211. Kodra, E.* and Ganguly, A.R. (2019): "System for Multivariate Climate Change Forecasting with Uncertainty Quantification", Filed through Northeastern University, **US Patent # 10,488,556** (Granted by USPTO in 2019).

212. Bhatia, U.*, Kumar, D.*, Kodra, E.* and Ganguly, A.R. (2019): "Software System for Generating and Analyzing Quantitative Restoration and Recovery Strategies and Scenarios for Man-Made and Natural Complex Networks", Filed through Northeastern University, **US Patent # 10,361,907 B2** (Granted by USPTO in 2019).

Products: US Patents Submitted to NU CRI

213. Watson, J.*, Pal, A.*, Ganguly, A.R., Gonzalez, M., Salgado, A., and Chatterjee, S. (2024): "Multiplex network science and multiscale system dynamics: an approach to assessing the resilience of interdependent installations and infrastructure environments under compound extreme disruptions,", **Initial Filing to Northeastern University Center for Research Innovation**.

Products: Invention Disclosures

214. Ganguly, A.R., and O.A. Omitaomu* (2010): Anomaly Analysis for Security, Oak Ridge National Laboratory Invention Disclosure ("ORNL IDEA").

215. Ganguly, A.R., and G. Kuhn* (2007): Geospatial-Temporal Extremes Dependence, "ORNL IDEA".

216. Ganguly, A. R., and S. Khan* (2005): Automated estimation of Nonlinear Correlation, "ORNL IDEA".

Products: GitHub/Software Contributions by Ph.D. students (selected)

217. **Thomas J. Vandal** (Machine Learning for Earth Sciences): https://github.com/tjvandal/tjvandal.github.io/blob/master/projects.md

218. **Udit Bhatia** (Recovery Algorithms for Networked Infrastructures): https://github.com/udit1408/Recovery_algorithm

219. **Kate Duffy** (Climate Ecology and Deep Learning Emulator): https://github.com/KateDuffy

220. **Nishant Yadav** (Deep Learning and Earth Sciences): https://github.com/nisyad

Conference Papers and Presentations: Not Peer Reviewed (or light peer review)

(Please note: A few overlaps exist with invited talks)

221. Watson, J.*, and Ganguly, A.R. (2024): "Planning intercity rail transit expansions considering both efficiency and resilience to weather extremes," **Fall Meeting of the American Geophysical Union**, Washington, DC. (Upcoming).

222. Das, P.*, Posch, A.*, Barber, N., Duffy, K.*, Vandal, T.*, Hicks, M., Singh, D., von Werkhoven, K., and Ganguly, A.R. (2024): "Exploring uncertainties and post-processing for physics-embedded deep generative precipitation nowcasting," **Fall Meeting of the American Geophysical Union**, Washington, DC. (Upcoming).

223. Benavides, F.*, Aggarwal, K.*, Mawalagedara, R.*, Ray, A.*, and Ganguly, A.R. (2024): "Managing irreducible uncertainty in climate projections: A probabilistic approach for adaptation and resilience strategies," **Fall Meeting of the American Geophysical Union**, Washington, DC. (Upcoming).

224. Ghosh, A.*, Sundaram, R., and Ganguly, A.R. (2024): "Climate change may alter spread of vector-borne diseases: investigating the role of climate variability and weather extremes," **Fall Meeting of the American Geophysical Union**, Washington, DC. (Upcoming).

225. Aggarwal, K.*, Williams, C.A., Anderson, J., Wolff, N., Ellis, P., Cook-Patton, S., Hart, D.T, Hasler, N., and Ganguly, A.R. (2024): "Albedo Deductions to Climate Mitigation from Avoided Forest Conversion," **Fall Meeting of the American Geophysical Union**, Washington, DC. (Upcoming).

226. Dey, S.*, Ray, A.*, Posch, A.*, and Ganguly, A.R. (2024): "Detecting nonlinear dynamics from noisy chaotic signals with deep time series mining," **Fall Meeting of the American Geophysical Union**, Washington, DC. (Upcoming).

227. Ray, A.*, Banerjee, A., Mawalagedara, R.*, and Ganguly, A.R. (2024): "Network science disentangles internal climate variability in global spatialdependence structure," **Fall Meeting of the American Geophysical Union**, Washington, DC. (Upcoming).

228. Mansoor, D.*, Roy, S., Eldhose, E.*, Dixit, V., and Ganguly, A.R. (2024): "AI-Enhanced Forecasting of Extreme Precipitation Using Total Column Water Vapor: A Case Study Over India During the Indian Summer Monsoon," **Fall Meeting of the American Geophysical Union**, Washington, DC. (Upcoming).

229. Wang, S.*, Yadav, N.*, and Ganguly, A.R. (2024): "Sub-grid Parameterization Modeling Using a Transformer-based Deep Learning Framework," **Fall Meeting of the American Geophysical Union**, Washington, DC. (Upcoming).

230. Ganguly, A.R. (2024): "Artificial Intelligence in Watershed Science: Novel breakthrough or passing fad?" *Invited Talk*, **Fall Meeting of the American Geophysical Union**, Washington, DC. (Upcoming).

231. Posch, A.*, Watson, J.*, and Ganguly, A.R. (2024): "Machine learning-based climate model downscaling for extreme precipitation with uncertainty quantification," **Fall Meeting of the American Geophysical Union**, Washington, DC. (Upcoming).

232. Mawalagedara, R.*, Ray, A.*, Aggarwal, K.*, Das, P.*, Benavides, F.*, Pal, A.K.*, and Ganguly, A.R. (2024): "Integrating internal climate variability into impacts assessments for resilience cities and ecosystems," **Fall Meeting of the American Geophysical Union**, Washington, DC. (Upcoming).

233. Indrawati, D.*, Das, P.*, and Ganguly, A.R. (2024): "Interdependence and cascade of variability across regional projections from Earth System Models," **Fall Meeting of the American Geophysical Union**, Washington, DC. (Upcoming).

234. Mishra, A.*, Kodra, E.*, and Ganguly, A.R. (2024): "From Displacement to Adaptation: Policy Pathways for Managing Climate-Induced Migration," **Fall Meeting of the American Geophysical Union**, Washington, DC. (Upcoming).

235. Tsukamoto, Y.*, Chakraborty, A.*, Posch, A.*, Watson, J.*, and Ganguly, A.R. (2024): "Simulating resilience of urban rail networks: effects of structure, strategy and evaluation schemes," **Fall Meeting of the American Geophysical Union**, Washington, DC. (Upcoming). [Note: The first two authors contributed equally.]

236. Zingaretti, V.*, Ganguly, A.R., and Benavides, I.F.* (2024): "Predictive Models of Vegetation Regeneration in Post-Eruption River Corridorsusing Machine Learning Algorithms: A Study of the Nilahue River, Chile," **Fall Meeting of the American Geophysical Union**, Washington, DC. (Upcoming).

237. Das, P.*, Posch, A.*, Barber, N., Duffy, K.*, Vandal, T.*, Hicks, M., Singh, D., von Werkhoven, K., and Ganguly, A. (2024): "Predictive Insights in Hydrology with Hybrid Physics and Data Sciences for Climate Adaptation," Lightning Presentation and Poster, **1st Science Understanding through Data Science Conference** (SUDS 2024), **NASA JPL and California Institute of Technology**, Pasadena, CA.

238. Posch, A.*, Kumar, J., Hoffman, F., and Ganguly, A. (2024): "Remote Sensing-based In-season Crop Mapping: Connecting Machine Learning Algorithms to Phenological Uncertainty," Poster Presentation, **1st Science Understanding through Data Science Conference** (SUDS 2024), **NASA JPL and California Institute of Technology**, Pasadena, CA.

239. Watson, J.*, Chatterjee, S., and A.R. Ganguly (2023): "Modeling interdependent transit network resilience under future flooding scenarios," **SRA 2023**, **Society for Risk Analysis Annual Meeting**, Poster Presentation, Washington, DC, December 10-14.

240. Chatterjee, S., Sahastrabuddhe, R.*, Dey, S.*, and A.R. Ganguly (2023): "A Graph Neural Network approach for analyzing urban rail transit system threat deterrence," **SRA 2023**, **Society for Risk Analysis Annual Meeting**, Oral Presentation, Washington, DC, December 10-14.

241. Das, P.*, Vandal, T.*, Duffy, K.*, Ganguly, A.R., Barber, N.M., and D. Singh (2023): "H32B-07: Remote-sensing data driven Artificial Intelligence for precipitation-Nowcasting ("RAIN")," Oral Presentation, **Fall Meeting of the American Geophysical Union**, San Francisco, CA, and Virtual Everywhere, December 11-15.

242. Posch, A.*, Kumar, J., Hoffman, F.M., and A.R. Ganguly (2023): "GC51N-0809: Machine Learning Models for Remote Sensing-based Land Cover Classification: From Harmonized Landsat Sentinel to In-season Crop Maps," Poster Presentation, **Fall Meeting of the American Geophysical Union**, San Francisco, CA, and Virtual Everywhere, December 11-15.

243. Ganguly, A.R. (2023): "Artificial Intelligence for Climate and Sustainability," Birds of a Feather: High Performance Computing for Environmental and Earth Sciences, **SC23: The International Conference for High Performance Computing, Networking, Storage, and Analysis**, Denver, CO, and Virtual Everywhere, November 12-17.

244. Ganguly, A.R. (2023): "A network lens on the resilience of installations to climate and compound extremes," Track 5, Session 1, **ASCE INSPIRE 2023**, ASCE INSPIRE Conference on **Infrastructure Innovation & Adaptation for a Sustainable & Resilient World**, Arlington, Virginia, November 16-18.

245. Das, P.*, Barber, N.*, Vandal, T.J.*, Posch, A.*, Duffy, K.*, Singh, D., Hicks, M., van Werkhoven, K., and A.R. Ganguly (2023): "Hybrid Physics and Machine Learning for Precipitation Nowcasting," **STAHY 2023**, **13th International Workshop on Statistical Hydrology**, International Commission on Statistical Hydrology (ICSH) of the International Association of Hydrological Sciences (IAHS), Boston, MA, November 8–10.

246. Mawalagedara, R.*, Ray, A., Watson, J., Duffy, K.*, Bhatia, U.*, Aldrich, D., and A.R. Ganguly (2023): "Climate Resilience under Irreducible Uncertainty," **STAHY 2023**, **13th International Workshop on Statistical Hydrology**, International Commission on Statistical Hydrology (ICSH) of the International Association of Hydrological Sciences (IAHS), Boston, MA, November 8–10.

247. Ganguly, A.R. (2022): "Uncertainty Quantification in Artificial Intelligence for Earth Systems Sciences and Engineering", ***Invited Talk***, AI/ML Assurance: Applications in Geospatial Sciences, 2022 Fall Meeting, **American Geophysical Union**, Chicago, IL and online everywhere, 12-16 December 2022.

248. Das, P.*, Yadav, N.*, and Ganguly, A., 2022, December. Urbanization Impacts on Precipitation Extremes Statistics and Design Curves for Hydraulic Infrastructures. ***Oral Presentation***. 2022 Fall Meeting, **American Geophysical Union**.

249. Ganguly, A.R. (2022): "A convergence of complexities in climate systems and the role of high-performance computing", ***Invited Talk***, **Supercomputing 2022** (**SC22**), **The International Conference for High Performance Computing, Networking, Storage, and Analysis**, Dallas, TX, November 13-18, 2022.

250. Ganguly, A.R. (2022): "Climate science and resilience with physics-guided informatics on big and small data", ***Keynote Plenary***, **TIES 2022**, **2022 Annual Meeting of The International Environmetrics Society (TIES)**, Virtual, November 17-18, 2022.

251. Watson, J.R.*, Chatterjee, S., and Ganguly, A. (2022): "Resilience of multi-scale rail networks against compound floods and opportunistic failures." In 2022 Society of Risk Analysis (SRA) Annual Meeting. Talk by Watson. **Student Merit Award, Risk Analysis Specialty Group, Society of Risk Analysis**.

252. Ganguly, A.R. (2022): "Climate and AI: Science-Guided ML", ***Invited Talk***, **Indian Symposium on Machine Learning (IndoML)**, Indian Institute of Technology, Gandhinagar, India, December 13-15, 2022.

253. Watson, J.R.*, Chatterjee, S., and Ganguly, A. (2021): "Resilience of urban rail networks against compound floods and opportunistic failures." In 2021 Society of Risk Analysis (SRA) Annual Meeting. Talk by Watson. **Student Merit Award, Risk Analysis Specialty Group, Society of Risk Analysis**.

254. Pal, A.*, Yadav, N.*, and A.R. Ganguly (2021): "Network Science-Based Resilience Analysis of Urban Rail Transportation Systems." **Complex Networks 2021**. 10th International Conference on Complex Networks and their Applications (CNA), Madrid, Spain, November 30 to December 2, 2021.

255. Das, P.*, Vandal, T.*, Duffy, K.* and *Ganguly, A.R.*, 2021, December. "Uncertainty Aware Machine Learning based Quantitative Precipitation Estimation from Geostationary Satellites", In **AGU Fall Meeting** 2021. AGU.

256. Watson, J.* and Ganguly, A.R., 2021, December. "Networked Digital Earth for Digital Twins of Earth Systems", In **AGU Fall Meeting** 2021. AGU.

257. Yadav, N.*, Vandal, T.*, Duffy, K.* and *Ganguly, A.R.*, 2021, December. "Physics-Guided Deep Learning for Quantitative Precipitation Nowcasting", In **AGU Fall Meeting** 2021. AGU.

258. Sharma, B.*, Hoffman, F.M., Kumar, J. and Ganguly, A.R., 2021, December. "Investigating Variability in the Intensity, Direction, and Spatial Distribution of Carbon Cycle Extremes and Attribution to Climate Drivers Using Observations and CMIP6 Earth System Models", In **AGU Fall Meeting** 2021. AGU.

259. Sharma, B.*, Hoffman, F.M., Kumar, J. and Ganguly, A.R. (2020): "Detection and Attribution of Climate-Driven Extremes in Net Biome Productivity from 1850 through 2100," In **American Geophysical Union Fall Meeting**. December.

260. Skillin, A.*, Sathyamurthi, T.*, Duffy, K.* and Ganguly, A.R. (2020): "A Multimodel Superensemble Approach for Epidemiology with Application to COVID-19 in the United States," In **American Geophysical Union Fall Meeting**. December.

261. Duffy, K.*, Gouhier, T., and A.R. Ganguly (2020): "Climate change impacts on global ecology," In **100th American Meteorological Society Annual Meeting**, Boston, MA, January.

262. Yadav, N.*, Ganguly, A. and Chatterjee, S. (2020): "Machine intelligence approach to precipitation nowcasting for transportation network-of-networks resilience," In **100th American Meteorological Society Annual Meeting**, Boston, MA, January.

263. Konduri, V.S.*, Kumar, J., Hargrove, W., Hoffman, F.M., and A.R. Ganguly (2020): "In-season crop mapping for the continental United States," In **100th American Meteorological Society Annual Meeting**, Boston, MA.

264. Warner, M.*, Yadav, N.*, Skurka, D., Bhatia, U.*, Rao, V., Clark, K.*, Chatterjee, S., Gao, J., and A.R. Ganguly (2020): "Resilience of hierarchical network-of-lifeline-networks under compound weather extremes," In **100th American Meteorological Society Annual Meeting**, Boston, MA, January.

265. Sharma, B.*, Hoffman, F.M., Kumar, J., and A.R. Ganguly (2020): "Cumulative impacts of human-induced changes on carbon cycle extremes," **100th American Meteorological Society Annual Meeting**, Boston, MA.

266. Tye, M., Giovannettone, J., AghaKouchak, A., Barros, A.P., Beighley, R.E., Capehart, W.J., Douglas, E.M., Fehrenbacher, N., Fields, R.C., Ganguly, A.R. and J. Huang (2020): "Prioritizing Actions to Adapt America's Infrastructure for Climate Change-Overview," In **100th American Meteorological Society Annual Meeting**, Boston, MA, January.

267. Duffy, K.*, Vandal, T.*, Li, S., Nemani, R.R. and A.R. Ganguly (2019): "Deep Learning Emulation of Atmospheric Correction for Geostationary Sensors," Fall Meeting, **American Geophysical Union**, December.

268. Tye, M.R., Giovannettone, J.P., AghaKouchak, A., Barros, A.P., Beighley, E., Capehart, W.J., Douglas, E.M., Fehrenbacher, N., Fields, R.C., Ganguly, A.R. and J. Huang (2019): "Prioritizing Actions to Adapt America's Infrastructure for Climate Change," Fall Meeting, **American Geophysical Union**, December.

269. Malakar, P., Mukherjee, A., Bhanja, S., Ganguly, A., Saha, D., Ray, R., Sarkar, S., and A. Zahid (2019): "Groundwater-climate variability link in the transboundary aquifer system of south Asia," Geophysical Research Abstracts, **EGU General Assembly**, Vol. 21, EGU2019-9730.

270. Warner, M.E.*, and A.R. Ganguly (2018): "Evaluating future heatwave projections and predictive impacts to human health," Fall Meeting, **American Geophysical Union**, 10-14 December.

271. Bhatia, U.*, and A.R. Ganguly (2018): "Enhancing predictability of extreme precipitation events in changing climate using outputs of Large Ensemble Experiment," Fall Meeting, **American Geophysical Union**, Dec.

272. Gorooh, V.A., Ganguly, S., Kalia, S., Nemani, R.R., Nguyen, P., Li, S., Ganguly, A.R., Hayatbini, N., Michaelis, A., Shreekant, G., Hsu, K.-L., and S. Sorooshian (2018): "GEONEX: Application of Deep Neural Networks and CloudSat Data in Cloud Type Classification of GOES-16 Multispectral Images for Improving PERSIANN-CCS," Fall Meeting, **American Geophysical Union**, 10-14 December.

273. Vandal, T.*, Ganguly, S., Kodra, E.*, Dy, J., Michaelis, A., Nemani, R.R., and A.R. Ganguly (2018): "Image super-resolution and uncertainty quantification for earth science data on the NASA Earth Exchange AI platform," Fall Meeting, **American Geophysical Union**, 10-14 December.

274. Konduri, V.S.*, Kumar, J., Hargrove, W.W., Hoffman, F.M., and A.R. Ganguly (2018): "Early season mapping of Corn and Soybeans in the US Midwest," Fall Meeting, **American Geophysical Union**, 10-14 December.

275. Sharma, B.*, Hoffman, F.M., Kumar, J., Collier, N., and A.R. Ganguly (2018): "Impact of changes in anthropogenic forcing on the terrestrial carbon budget through the year 2300," Fall Meeting, **American Geophysical Union**, 10-14 December.

276. Vandal, T.*, and A.R. Ganguly (2018): "Super-Resolution and Deep Learning for Climate Downscaling," **98th Annual Meeting of the American Meteorological Society (98th-AM-AMS)**, Austin, TX, January 7-11.

277. Bhatia, U.*, Sela, L., and A.R. Ganguly (2018): "Non-Stationary Weather Extremes and the Resilience of Critical Lifeline Infrastructure Network-of-Networks," **98th-AM-AMS**, Austin, TX, January 7-11.

278. Ganguly, A.R. (2017): "Physics Guided Data Science in the Earth Sciences," (INVITED Oral Presentation) **Fall Meeting of the American Geophysical Union** (**AGU-FM-2017**), New Orleans, LA, December 11-15.

279. Duffy, K.*, Bhatia, U.*, Vandal, T.*, and A.R. Ganguly (2017): "The sensitivity of climate driven hydrologic models to statistical downscaling methods," (Oral Presentation) **AGU-FM-2017**, New Orleans, LA, Dec. 11-15.

280. Sharma, B.*, Hoffman, F., Jitendra, K., and A.R. Ganguly (2017): "Carbon Cycle Extremes in the 22nd and 23rd Century & Attribution to Climate Drivers," (Oral Presentation) **AGU-FM-2017**, New Orleans, Dec. 11-15.

281. Konduri, V.S.*, Jitendra, K., Hoffman, F., Ganguly, A.R., W.W. Hargrove (2017): "Spatiotemporal Analysis of Corn Phenoregions in the Continental United States," (Oral Presentation) **AGU-FM-2017**, NOLA, Dec. 11-15.

282. Warner, M.E.*, Ganguly, A.R., and U. Bhatia* (2017): "Acclimatization to extreme heat," (Poster Presentation) **AGU-FM-2017**, New Orleans, LA, December 11-15.

283. Warner, M.E.*, Bhatia, U.*, Sela, L., Wang, R., Kodra, E.*, and A.R. Ganguly (2017): "Prioritizing recovery of urban lifelines in the aftermath of hazards: Transportation in post-Harvey Houston," (Poster Presentation) **AGU-FM-2017**, New Orleans, LA, December 11-15.

284. Mage, M*, Ganguly, S., Vandal, T.*, Nemani, R.R., Li, S., Kalia, S., and A.R. Ganguly (2017): "Estimation of MODIS-like surface-spectral reflectance from geostationary satellites using deep neural networks," (Poster Presentation) **AGU-FM-2017**, New Orleans, LA, December 11-15.

285. Fard, B.J.*, Hassanzadeh, H.*, Warner, M.E.*, Bhatia, U.*, and A.R. Ganguly (2017): "Effective Mitigation and Adaptation Strategies for Public Health Impacts of Heatwaves for Brookline, MA," Spring 2017 Virtual Poster Showcase, **American Geophysical Union**. ***(First Place Winner Graduate Showcase Award)***.

286. Sela, L., Bhatia, U.*, Kodra, E.*, Zhuang, J., and A.R. Ganguly (2017): "Resilience strategies for interdependent multiscale lifeline infrastructure networks," **International Workshop on Computing in Civil Engineering** (**IWCCE2017**), Seattle, WA, June 25-26.

287. Bhatia, U.*, and Ganguly, A. R. (2015): "Engineering Adaptation of Critical Infrastructures to Climate Change and Weather Extremes," **Fall Meeting of the American Geophysical Union (FM AGU)**, SFO, CA, December.

288. Kumar, D.*, and Ganguly, A.R. (2014): "Uncertainty Characterization and Delineation of Nonstationarity in Intensity-Duration-Frequency Curves of Precipitation Relevant for Infrastructural Design," **FM AGU**, SFO, CA, December 2014.

289. Lettenmaier, D., Mishra, V., Ganguly, A.R., and Nijssen, B. (2014): "Observed Climate Extremes in Global Urban Areas," **EGU General Assembly Conference Abstracts**, 16, 14787.

290. Kumar, D.*, and Ganguly, A. R. (2014): "Uncertainty Characterization and Delineation of Nonstationarity in Intensity-Duration-Frequency Curves of Precipitation Relevant for Infrastructural Design," **XX International Conference on Computational Modeling in Water Resources**, Stuttgart, Germany, June 10-13, 2014.

291. Ganguli, P.*, and Ganguly A. R. (2013): "Severity-Duration-Frequency Curves of Meteorological Droughts over U.S," **Fall Meeting of the American Geophysical Union**, San Francisco, CA, December 9-13, 2013.

292. Kumar, D.*, Kodra, E.* and Ganguly, A. R. (2013): "Regional and Seasonal Mean Inter-Comparison across CMIP3 and CMIP5 Climate Model Ensembles," **93rd Annual Meeting of the American Meteorological Society**, Austin, TX, January 6-10, 2013.

293. Das, D.*, and Ganguly, A. R. (2013): "Towards Improving the State of the Art in Statistical Downscaling of Regional Precipitation and their Extremes with Emerging Developments in Machine Learning and Data Mining," **93rd Annual Meeting, American Meteorological Society**, Austin, TX, January 6-10, 2013.

294. Kawale, J., Liess, S., Kumar, A., Ormsby, D., Steinhaeuser, K., Steinbach, M., Ganguly, A.R., Chatterjee, S., Samatova, N., Semazzi, F., and Kumar, V. (2012): "Graph Based Analysis of Dynamic Teleconnections," **Fall Meeting of the American Geophysical Union**, San Francisco, CA, December 3-7, 2012.

295. Rowe, C.M., Oglesby, R.J., Hays, C., Mawalagedara, R.*, Maasch, K.A., Birkel, S.D., and Ganguly, A.R. (2012): "Effects of very high (4-12 km) resolution on the simulation of surface temperature and precipitation in regions of complex topography and heterogeneous land Use," **Fall Meeting of the American Geophysical Union**, San Francisco, CA, December 3-7, 2012.

296. Kodra, E.A.*, and Ganguly, A.R. (2012): "Changing Tails? Exploring CMIP5 Projections of Changes in Hot and Cold Extremes Intensity," **Fall Meeting, American Geophysical Union**, SFO, CA, December 3-7, 2012.

297. Kumar, D.*, Kodra, E.A.*, and Ganguly, A. R. (2012): "Limits to Regional and Seasonal Projections Suggested from the Latest Generation of Global Climate Models," **Fall Meeting, American Geophysical Union**, San Francisco, CA, December 3-7, 2012.

298. Mawalagedara, R.*, Oglesby, R.J., Hays, C., and Ganguly, A.R. (2012): "Climate Extremes in Sri Lanka: Changes in Response to Greenhouse Gas Forcing," **Fall Meeting of the American Geophysical Union**, San Francisco, CA, December 3-7, 2012.

299. Kodra, E.A., Chatterjee, S., and Ganguly, A.R. (2012): "Statistical Characterization of Relationships Between Precipitation Extremes and Atmospheric Covariates," **2012 Joint Statistical Meetings, American Statistical Association**, San Diego, CA, 7/28–8/2, 2012.

300. Das, D.*, Ganguly, A.R., Chatterjee, S., Kumar, V., and Obradovic, Z. (2012): "Spatially Penalized Regression for Dependence Analysis of Rare Events: A Study in Precipitation Extremes," **IGARSS 2012**, 1948-1951, **IEEE International Geoscience and Remote Sensing Symposium**, Munich, Germany, July 22-27, 2012.

301. Das, D.* and Ganguly, A.R. (2012): "Predictive Insights for Precipitation Extremes under Non-Stationary Climate," **XIX International Conference on Computational Modeling in Water Resources**, Urbana-Champaign, June 17-21, 2012.

302. Kumar, D.*, Kodra, E.A.*, and Ganguly, A.R. (2012): "Regional and Seasonal Mean Precipitation Intercomparison across CMIP3 and CMIP5 Climate Model Ensembles," **XIX International Conference on Computational Modeling in Water Resources**, Urbana-Champaign, June 17-21, 2012.

303. Ganguly, A.R., Steinhaeuser, K.*, Kao, S.-C.*, and Kodra, E.* (2010): "Evaluating Projected Changes in Mean Processes, Extreme Events, and their Spatio-Temporal Dependence Structures," 2010 **Fall Meeting of the American Geophysical Union**, San Francisco, CA, December 13-17, 2010.

304. Steinhaeuser, K.*, Chawla, N.V., and Ganguly, A.R. (2010): "Complex Networks reveal Persistent Global / Regional Structure and Predictive Information content in Climate Data," 2010 **Fall Meeting of the American Geophysical Union**, San Francisco, CA, December 13-17, 2010.

305. Kodra, E.A.*, Steinjaeuser, K.*, and Ganguly, A.R. (2010): "The Possibility of Persisting Cold Spells in a Warming Environment," **Fall Meeting, American Geophysical Union**, San Francisco, CA, December 13-17..

306. Kodra, E. A.*, Chatterjee, S., and Ganguly, A.R. (2010): "Classic Granger Causality may not be Appropriate for Diagnosing CO2-Temperature and other Noisy Relationships," 20th Conference on Probability and Statistics in the Atmospheric Sciences: **90th American Meteorological Society Annual Meeting**, Atlanta, GA, January 17-21.

307. Parish, E.S.*, and Ganguly, A.R. (2010): "Estimating Fresh Water Availability at Regional and decadal Scales based on Projected Changes in Climate and Population," 18th Conference on Applied Climatology: **90th American Meteorological Society Annual Meeting**, Atlanta, GA, January 17-21, 2010.

308. Ngnepieba, P.*, and Ganguly, A. R. (2010): "Towards Rigorous Mathematical Approaches for Forecast Generation and Uncertainty Characterization using Multi-Model Ensembles of Climate," **90th American Meteorological Society Annual Meeting**, Atlanta, GA, January 17-21, 2010.

309. Kao, S.-C.*, and Ganguly, A. R. (2009): "Intensification of Droughts in a Warming environment," 2009 **Fall Meeting, American Geophysical Union**, SFO, CA, Dec., 14-18, 2009.

310. Parish, E.S.*, and Ganguly, A. R. (2009): "Risk Formulations versus Comprehensive Uncertainty Characterizations for Climate Extremes and their Impacts," 2009 **Fall Meeting of the American Geophysical Union**, San Francisco, CA, December 14-18, 2009.

311. Walker, R.M., Kopsick, D.A., Gorman, B.L., Ganguly, A.R., Mitch, F., and Shankar, M. (2009): "Global Radiological Source Sorting, Tracking, and Monitoring (GRADSSTRAM) using Emerging RFID and Web 2.0 Technologies to Provide Total Asset and Information Visualization," **50th Annual INMM Conference**, Tucson, AZ, July 12-16, 2009.

312. Ganguly, A.R., Parish, E.S.*, Singh, N., Steinhaeuser, K.*, Erickson, D.J., Branstetter, M.L., King, A.W., and Middleton, E.J. (2009): "Regional and Decadal Analysis of Climate Change

Induced Extreme Hydro-Meteorological Stresses Informs Adaptation and Mitigation Policies," 21st Conference on Climate Variability and Change, **89th Annual Meeting of the American Meteorological Society**, Phoenix, AZ, January 11-15.

313. Steinhaeuser, K.*, Ganguly, A.R., and Chawla, N.V. (2009): "Complex Networks as a Tool of Choice for Improving the Science of Climate Extremes and Reducing Uncertainty in their Projections," 2009 **Fall Meeting of the American Geophysical Union**, San Francisco, CA, December 14-18, 2009.

314. Ganguly, A.R., Omitaomu, O.A., and Yu, J. (2009): "Information-Theoretic Approaches for Evaluating Complex Adaptive Social Simulation Systems," **Human Behavior-Computational Intelligence Modeling Conferenc**e, Oak Ridge, TN, June 23–24, 2009.

315. Li, H.*, Fernandez, S. and Ganguly, A.R. (2008): "Racial Segregation, Economic Growth, and Natural Disaster Resilience," **The North American Regional Science Council**, Annual Meeting, NY, November 19-22, 2008.

316. Ganguly, A.R., Branstetter, M.L., Steihaeuser, K.*, Erickson, D., Parish, E.S.*, and Singh, N. (2008): "Global Warming Impacts on Regional Hydrology and Water resources," **Eos Trans. AGU**, 89(53), Fall Meet. Suppl., Abstract H21E-0870, San Francisco, CA, December 30, 2008.

317. Lai, E.*, Steinhaeuser, K.* and Ganguly, A.R. (2008): "Trends in Mean and Extreme Rainfall in South Florida and their Correlations with Sea Surface Temperature Anomalies," **Eos Trans. AGU**, 89(53), Fall Meet. Suppl., Abstract H13D-0950, San Francisco, CA, December 30, 2008.

318. Ganguly, A. R. (2008): "Hydro-Meteorological Extreme events caused by Climate Variability or Change and their Impacts on Infrastructures," **Joint Assembly of the AGU**, Ft. Lauderdale, FL, May 27-30, 2008.

319. Erickson, D.J., Branstetter, M.L., Wilbanks, T.J., Ganguly, A.R., Hoffman, F.M., King, A.W., Buja, L., and Panwar, T.S. (2008): "Global Climate Simulations with the A1FI Scenario for 2000-2100: Meltwater, Temperature and River Flow Impacts in India," **Joint Assembly of the American Geophysical Union**, Fort Lauderdale, FL, May 27-30, 2008.

320. Fernandez, S., Li, H.* and Ganguly, A.R. (2008): "Racial Segregation, Economic Growth, and Resilience to Natural Disasters," **Joint Assembly of the American Geophysical Union**, Fort Lauderdale, FL, May 27-30.

321. Vatsavai, R.R., Ganguly, A.R., Omitaomu, O.A.*, and Bhaduri, B. (2008): "Geospatial-Temporal Data Mining for Infrastructures or Ecosystems under Stress From Severe Weather Events," **Joint Assembly of the American Geophysical Union**, Fort Lauderdale, FL, May 27-30, 2008.

322. Parish, E.S.*, Ganguly, A.R., Brunson, A., Shi, B., and Roadinger, E.* (2008): "Engaging High School Students in Climate Change Research: A Case Study," **Joint Assembly of the American Geophysical Union**, Fort Lauderdale, FL, May 27-30, 2008.

323. Ganguly, A. R. and Bhaduri, B.L. (2008): "Towards Secure Transportation Corridors: A GIS-based Framework for Knowledge Discovery," **GIS for Transportation Symposium**, Houston, TX, March 17-19, 2008.

324. Ganguly, A. R., Khan, S.*, Kuhn, G.*, Fang, Y.*, Erickson III, D. J., Branstetter, M., and Ostrouchov, G. (2008): "Climate Change, Rainfall Extremes, and Population at Risk," **American Meteorological Society, 88th Annual Meeting**, New Orleans, LA, January 20-24, 2008.

325. Ganguly, A.R., Parish, E.S.*, and Bhaduri, B.L. (2008): "Toward an Integrative computational Modeling and Analysis Framework for Climate Extremes and their Impacts," **American Association of Geographers**, 2008 Annual Meeting, Boston, MA, April 15-19, 2008.

326. Walker, R.M., Omitaomu, O.A.*, Ganguly, A.R., Abercrombie, R.K., and Sheldon, F.T. (2008): "Multimodal Integrated Safety, Security, and Environmental Program Strategy," **Transportation Research Board, 87th Annual Meeting**, Washington, DC, 08-2644, January 13-17, 2008.

327. Ganguly, A. R. (2007): "Multivariate Dependence Estimation in Geophysics," **Fall Meeting of the American Geophysical Union**, San Francisco, CA, December 10-14, 2007.

328. Ganguly, A.R., Omitaomu, O.A.*, Protopopescu, V., Patton, B., Walker, R., Fang, Y.*, Agovic, A., and Banerjee, A. (2007): "Anomaly Detection from Heterogeneous Sensor Data with Application to Transportation Security," **National Rural Intelligent Transportation Systems Conference**, Traverse City, MI, October 7-10.

329. Ganguly, A.R., and Bhaduri, B.L. (2006): "A Framework for Geospatial-Temporal Knowledge Discovery," **American Association of Geographers**, Annual Meeting, Chicago, IL, March 7-11, 2006.

330. Kuhn, G.*, Khan, S.*, and Ganguly, A.R. (2006): "New Approaches for Extreme Value Analysis in Large-Scale Geospatial-Temporal Data with Applications to Observed and Climate-Model Simulated Precipitation in South America," Session on Role of Observed Precipitation in Atmospheric and Land Surface Models I, **Fall Meeting of the American Geophysical Union**, San Francisco, CA, December 11-15, 2006.

331. Fuller, C.*, Sabesan, A.*, Khan, S.*, Kuhn. G.*, Ganguly, A.R., Erickson, D., and Ostrouchov, G. (2006): "Quantification and Visualization of the Human Impacts of Anticipated Precipitation Extremes in South America," Session on Catastrophic Risk from Natural Perils: Scientific, Engineering, and Financial Issues, **Fall Meeting of the AGU**, SFO, CA, December 11-15, 2006. (*Highlighted at the 2006 AGU Press Conference*).

332. Branstetter, M. L., Erickson, D. J., Ghan, S., Ganguly, A. R., and Khan, S.* (2006): "Hydrology in the IPCC Simulations," **CCSM3 (Climate Modeling) Workshop**, Breckenridge, CO, June 2006.

333. Ganguly, A. R. and Fang, Y.* (2006): "Online Alarm Generation in Sensor-Cyber Networks, Session on Sensor-Cyber Networks for Homeland Defense," **9th ONR/GTRI Workshop on Target Tracking in Sensor Fusion**, Analytical Predictions of Tracking Performance, Office of Naval Research (ONR) and Georgia Tech Research Institute, Gatlinburg, TN, June 22-23, 2006.

334. Huang, C., Hsing, T., Cressie, N., Ganguly, A.R., Protopopescu, V.A., and Rao, N.S. (2006): "Plume Model Identification Based on Statistical Analysis of Sensor Network Data," Session on Sensor-Cyber Networks for Homeland Defense, **9th ONR/GTRI Workshop on Target Tracking in Sensor Fusio**n, Analytical Predictions of Tracking Performance, ONR & GTRI, Gatlinburg, TN, June 22-23, 2006.

335. Abercrombie, K.*, Sabesan, A.*, and Ganguly, A.R. (2006): "Metrics for the Comparative analysis of Geospatial Datasets with Applications to High-Resolution Grid-Based Population data," **American Association of Geographers**, Annual Meeting, Chicago, IL, March 7-11, 2006.

336. Samatova, N., Branstetter, M., Ganguly, A.R., Hettich, R., Khan, S.*, Kora, G., Li, J., Ma, X., Pan, C., Shoshani, A., and Yoginath, S. (2006): "High Performance Statistical Computing with Parallel R: Applications to Biology and Climate," **U.S. DOE SciDAC PI Meeting**, Denver, Co, June 25-29, 2006.

337. Khan, S.*, Bandyopadhyay, S., and Ganguly, A.R. (2005): "Nonlinear Dependence among Multiple Time Series from Limited Observations and Noise," Session on Nonlinear Data Sciences for Finite Data with Noise & Periodicity, **Fall Meeting, American Geophysical Union**, San Francisco, CA, December 5-9, 2005.

338. Ganguly, A.R., Khan, S.*, and Saigal, S. (2005): "Impact of Noise and Seasonality on the Detection and Nonlinear Prediction of Chaos from Finite River-Flow Time Series," Session on Nonlinear Data Sciences for Finite Data with Noise and Periodicity, **Fall Meeting of the AGU**, San Francisco, CA, December 5-9, 2005.

339. Ganguly, A.R., Khan, S.*, Erickson, D.J., Katz, R. W., Ostrouchov, G., Protopopescu, V.A., Bandyopadhyay, S., and Saigal, S. (2005): "Multivariate Dependence in Complex Systems," **Fifth Symposium on Understanding Complex Systems**, Urbana, IL, May 16-19, 2005, University of Illinois at Urbana-Champaign.

340. Mukherji, S., and Ganguly, A. R. (2004): "Sustaining the Offshore Outsourcing Boom for Software Development: Transitioning from Low-Cost Service Providers to Strategic Partners for Information Systems," **9th International Symposium on Logistics (9th ISL)**, Bangalore, India, July 11-14, 2004.

341. Ganguly, A.R., and M. Aronowich (2003): "Advanced Analytics for Closed-Loop Enterprise Planning and Forecasting," **INFORMS Annual Meeting**, Atlanta, Georgia, October 19-22, 2003.

342. Ganguly, A.R. (2002): "Forecasting Systems and Frameworks in Disparate Complex Domains," **International Conference on Complex Systems**, Nashua, NH, June 9-14, 2002.

343. Ganguly, A.R., and Bras, R.L. (2002): "Quantitative Precipitation Forecasting using Radar and Numerical Weather Model Outputs," **American Geophysical Union Spring Meeting**, Washington, DC, May 28-31, 2002.

344. Ganguly, A.R., and Bras, R.L. (2002): "Artificial Neural Networks and Ensemble Methods for Forecasting Mean Rainfall Intensities and Confidence Bounds in Space and Time," **American Geophysical Union Spring Meeting**, Washington, DC, May 28-31, 2002.

345. Ganguly, A.R., and Gupta, A. (1998): "Inventory Optimization using Statistical and Artificial Neural Network Based Data Mining," **MIT Industry Liaison Research Directors' Conf.**, Cambridge, MA, May 6-7, 1998.

346. Ganguly, A.R., Garrotte, L., and Bras, R.L. (1997): "Application of a Physically Based Distributed Hydrologic Model to Large Basins," **13th Int'l Conf. Hydrology & 13th Int'l Conf. on IIPS, American Meteorological Society**, Long Beach, CA, February 2-7, 1997.