

Auroop R. Ganguly develops computational and data-driven sciences and engineering methods, specifically, in machine learning and nonlinear dynamics, to advance sustainability and security, particularly, the science of climate change and water sustainability, earth system sciences and engineering, as well as critical infrastructures resilience and transportation security. He has published and won best paper awards in top-tier conferences of machine learning and data mining, specifically ACM Knowledge Discovery and Data Mining (KDD: runner-up best paper in applied track in 2017), SIAM Data Mining (SDM: best student paper in 2012) and International Joint Conference on AI (IJCAI: Best papers in sister conferences track in 2018), organized workshops in ACM KDD (Sensor-KDD workshops from 2007-2012) and IEEE International Conference on Data Mining (ICDM: Climate-DM from 2009-2011), and published in computer science and engineering workshops (ACM KDD Fragile Earth; ACM KDD Sensor-KD; IEEE ICDM SSTDM, IEEE IGARSS, ACM SIGSPATIAL, among others). His peer-reviewed archival articles have appeared in interdisciplinary journals such as Nature, Nature Climate Change, Proceedings of the National Academy of Sciences, PLOS ONE and Nature's Scientific Reports, as well as in IEEE journals such as IEEE Transactions on Geoscience and Remote Sensing, IEEE Transactions on Intelligent Transportation Systems and IEEE Sensors, besides science and engineering disciplinary journals ranging from domains such as climate, geophysics, water resources and hydrology to infrastructures, sensors, operations research, and supply chain, as well as data mining, statistics and nonlinear dynamics or physics. He has been at the forefront of leading or co-leading new paradigms in computer or data science and computational thinking, such as "Physics-Guided Data Mining" (aka Theory-Guided Data Science or Physics-Guided Machine Learning) and the "Big Data – small data" challenge, while his research brings an interdisciplinary and problem-focused approach to data sciences, spanning, for example, machine learning and spatiotemporal data mining, nonlinear dynamics and network science, signal processing and econometrics, as well as statistics and signal processing. He has helped in bringing state of the art AI / ML tools and new adaptations to earth and environmental sciences as well as civil and environmental engineering, and he has helped bring new grand challenges and priorities to the AI / ML community and developed data science solutions that have subsequently generalized to other domains. Thus, his work has been cited by reports of world bodies (e.g., United Nations reports) and US national scale reports and he has been in both AI committees of scientific societies (such as AMS or AGU) and in science and engineering tracks within top computer or data science venues (e.g., he is a PC member of ACM KDD 2020 research track). Ganguly has authored a textbook by Taylor & Francis on Critical Infrastructures Resilience and an edited book on Knowledge Discovery from Sensor Data by the CRC Press. He has delivered keynotes at the US National Academy of Science workshop on urban sustainability, as well as at multiple conferences and workshops and international academic and research institutes and has been invited to panels of US national agencies and international organizations such as the United Nations. Ganguly has brought in, as lead or co-lead investigator, research funding worth about \$25M. His career over the last 21+ years span academia, government research laboratory (Oak Ridge National Laboratory) and the private sector (Oracle Corporation), with a strong focus in both computational sciences and engineering as well as in sustainability and resilience related areas. He is currently a Full Professor at Northeastern University in Boston, MA, where his home department is Civil and Environmental Engineering, and his courtesy appointments are with the Khoury College of Computer Science, Marine and Environmental Sciences, Public Policy and Urban Affairs, Political Science and Global Resilience Institute. He is a Co-Founder and the Chief Scientific adviser of risQ Corporation, a spinout from his Lab, and holds two US patents. Ganguly has a PhD from the Massachusetts Institute of Technology in Cambridge, MA, an MS from the University of Toledo, OH, and a B. Tech. (Hons.) from the Indian Institute of Technology Kharagpur. He has taught graduate and undergraduate courses in data sciences, climate sciences, hydrology, statistics and infrastructures, and has graduated multiple PhD students and postdocs who are employed in academia, government research institutes, and the private sector in the US and internationally. Ganguly is a Fellow of the American Society of Civil Engineers (ASCE) and a Senior Member of the IEEE.

Relevant websites:

Northeastern College of Engineering: <https://coe.northeastern.edu/people/ganguly-auroop/>

Northeastern Khoury College of Computer Science: <https://www.khoury.northeastern.edu/people/auroop-ganguly/>

ASCE Fellow: <https://news.asce.org/science-stalwart-ganguly-now-fellow/>

risQ Corporation: <https://www.risq.io/>

Google Scholar: <https://scholar.google.com/citations?user=eNrAUJMAAAAJ&hl=en&oi=ao>

Wikipedia: https://en.wikipedia.org/wiki/Auroop_Ratan_Ganguly