RESEARCH AREA

APPLIED WATER DATA SCIENCE & SENSING

Water information is fundamental to national and local economic well-being, protection of life and property, and effective management of the Nation’s water resources. Water data science research explores the development of new and use of existing methods such as machine learning, deep learning, and data visualization to harness the explosion of data being generated from new in situ and remote sensor platforms.

Study in the graduate program in applied water data science addresses a critical educational need at the intersection of Civil & Environmental Engineering (CEE) and data science allowing M.S. and Ph.D. students to hone modern data analysis skills that are critical for advancing research and other applications. Students pursuing data science research in the CEE program can have little or no background in data science, computer science or coding.

**Graduate Programs**

Ph.D. in Civil & Environmental Engineering

M.S. in Civil & Environmental Engineering - thesis, project, and coursework-only options available

Students also work with CEE faculty while pursuing graduate programs in Complex Systems and Data Science. Students will typically take a range of courses across engineering, statistics, computer science, complex systems, and natural resources. Highlighted courses:

- CE395 – Data Science for Environmental Characterization
- CE359 – Applied Artificial Neural Networks
- CE369 - Geostatistics
- CS254 – Machine Learning
- CS354 – Deep Learning
- STAT287 – Data Science I
- STAT387 - Data Science II
- CSYS352 - Evolutionary Computation
- NR243 - GIS Practicum

Nationally ranked graduate programs in Civil & Environmental Engineering

Engineering for the people and our planet

learn more at uvm.edu/cems/cee
The UVM CEE Water for the Future Initiative seeks to address grand challenges in water sciences including new technologies for treating of drinking water, recovery and treatment of wastewater, surface water management, characterizing groundwater and subsurface conditions, and harnessing the data revolution emerging across the water sciences. The ambitious challenge of leveraging engineering knowledge and systems thinking to understand how humanity can optimally change our infrastructure and lifestyles to respond to climate change is a driving force across our water research agenda.

We welcome researchers and students from a variety of backgrounds and disciplines to join us in this 21st century challenge.

Faculty

Kristen Underwood  Donna Rizzo  Scott Hamshaw  Appala Raju Badireddy  Luis Garcia

Research Funding and Partners

Research is funded by federal and state agencies including the National Science Foundation, Department of Energy, and U.S. Geological Survey. Research projects often include partnerships with local environmental research and consulting companies.

Student Research

Student Project #1

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Student Project #2

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