# LEHIGH UNIVERSITY

# CAWS
### COMPLEX ADAPTIVE WATER SYSTEMS

**Position Title** Graduate Research Assistant in Civil and Environmental Engineering

**Position Type** Graduate Research Assistant (GRA)

**Position Location** Bethlehem, Pennsylvania 18015, United States

**Project: HDBE: NSF-JST: An Inclusive Human-Centered Risk Management Modeling Framework for Flood Resilience**

**Summary**
The Department of Civil and Environmental Engineering at Lehigh University has a Ph.D. position available as early as Fall 2024 for the topic that focuses on a human-centered floor risk management modeling framework.

Modern flood risk is affected by the interactions of different natural systems (e.g., atmosphere and watershed) and human systems (e.g., infrastructure and economy). Therefore, different spatial scales, heterogeneity, and long-term flood impacts should all be explicitly represented in a model. Through collaboration among universities in the US and Japan, this NSF-JST project will advance our understanding of flood risk management by developing a human-centered, multi-scale, multi-agent System-of-Systems knowledge platform to quantify the interactions of these systems and to simulate the impacts of and recovery from floods while considering individual risk perceptions, especially in marginalized groups (e.g., low-income, minority, disabled, and elderly populations).

The successful candidate will be co-supervised by Professor Ethan Yang in the Department of Civil & Environmental Engineering and Professor David Casagrande in the Department of Sociology & Anthropology and gain experience in Protective Action Decision Model, Protection Motivation Theory, 2D inundation models, and agent-based models. The successful candidate will also interact with faculty, scientists, and graduate students with diverse backgrounds in computer science, applied mathematics, biostatistics, and economics in the Catastrophe Modeling Center at Lehigh.

**Desired Qualifications**

- Academic background in Civil and Environmental Engineering, Data Science, Environmental Science, Water Resources Management, Geography, Computer Science or similar fields;
- Coding experience in Python, R, Matlab, or C++;
- Basic understanding of climate change impact assessment;
- Any previous CatModel (e.g., Oasis) or flood modeling experience (e.g., HEC-RAS; TRITON) is a plus;
- Strong communication skills and can work effectively in a multidisciplinary team

**Contact**

Please kindly forward the message to interested candidates and have them send 1) their CV with a list of publications, 2) a representative paper, 3) proof of English proficiency (international applications only), and/or 4) questions to Professor Ethan Yang:  yey217@lehigh.edu.

Thanks!