Sebastian **Rowan**

PH.D CANDIDATE IN CIVIL AND ENVIRONMENTAL ENGINEERING

University of New Hampshire, Durham, NH

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I am Ph.D. candidate in civil and environmental engineering researching the impacts of flood events and climate change on people and communities. The goal of my research is to develop a more comprehensive understanding of the risks posed by floods to enable the development of mitigation efforts that prioritize long-term sustainability and community well-being.

🎓 Education

University of New Hampshire
Durham, New Hampshire

PH.D. CANDIDATE, CIVIL AND ENVIRONMENTAL ENGINEERING
2025 (Expected)

- Dissertation Title: Towards Sustainable Flood Risk Management: Incorporating Uncertainty and Environmental Impacts
- Developed model to estimate economic loss and greenhouse gas emissions from flood exposure to residential buildings using component-level fragility estimates in a **Python-based** Monte-Carlo simulation

University of New Hampshire
Durham, New Hampshire

B.S. ENVIRONMENTAL ENGINEERING
2016

💼 Experience

U.S. Army Corps of Engineers, Engineer Research Development Center
Vicksburg, MS (Remote)

ORISE GRADUATE RESEARCH FELLOW
Sep. 2020 - Present

- Implemented method to estimate greenhouse gas emissions from flood damage in USACE'S "go-consequences" flood consequence analysis tool
- Developed **Python** plugin for USACE's Generation II Coastal Resilience Model (G2CRM) to assess social vulnerability in project study areas
- Developed **Python** plugin for **QGIS** to import data from the National Structures Inventory

University of New Hampshire
Durham, NH

RESEARCH ASSISTANT: RESILIENT BRIDGE PLANNING IN MOZAMBIQUE - BRIDGE FAILURE RISK FROM FLOODING AND CLIMATE CHANGE
Fall 2018, Spring 2020

- Worked with stakeholders from the World Bank and the Mozambique National Roadway Agency to quantify flood risk posed to Mozamibique's national bridge portfolio under current and future climate projections using **R, Python, and ArcGIS**

University of New Hampshire
Durham, NH

TEACHING ASSISTANT
2019 - 2020

- CEE 705: Introduction to Sustainable Engineering (Fall 2019, Fall 2020)
- CEE 502: Project Engineering (Spring 2019)

New Hampshire Department of Transportation, Bureau of Planning and Community Assistance
Concord, NH

CIVIL ENGINEER I-II
2016 - 2018

- Developed automated QA/QC processes for data entered into the statewide culvert and closed drainage systems database using **ArcGIS/Python**
- Developed data analysis pipelines in **SQL and Python** to produce standard reports to support Department-wide operations and assess progress on key performance metrics

University of New Hampshire InterOperability Laboratory
Durham, NH

10 GIGABIT ETHERNET TECHNICIAN
2014-2017

New Hampshire Department of Environmental Services, Air Resources Division
Concord, NH

ENVIRONMENTAL TECHNICIAN
2015

🏆 Awards

UNH 3-MINUTE THESIS (3MT) COMPETITION
2025

- 3rd Place

🐙 Open Source Projects

SVIBUILDR
Active

- An R package that allows users to download or construct the CDC's Social Vulnerability Index as a tidyverse or simple features data frame.
- Enables greater flexibility in region selection for SVI analyses than is possible with state- or national-level datasets hosted by CDC.

NSI Data QGIS Plugin *Active*

- A QGIS plugin that downloads data from the USACE National Structures Inventory for a specified region and adds it to a map.

NSIPY *Active*

- A Python package to download data from the U.S. Army Corps of Engineers National Structures Inventory using the NSI API.

Skills

PROGRAMMING LANGUAGES

- Python, R, Go, SQL, MATLAB

SOFTWARE

- QGIS, ArcGIS, go-consequences, AutoRAPID, Vensim, NVivo, Excel