

# EDRIAN PAUL LIAO

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## EDUCATION

### Duke University, GPA: 3.91

**Expected: May 2025**

BSE Electrical and Computer Engineering, BS Computer Science (ML/AI Concentration)

Durham, NC

**Certificate:** Science and Society - Digital Intelligence Track

**Computing Coursework:** Deep Neural Nets (Graduate), Applied Probability for Statistical Learning, Elements of ML, Intro to AI Intro to Natural Language Processing, Advanced Multivariable Calculus, Linear Algebra (*for Math majors*), Probability

**Policy & Ethics Coursework:** Environmental Science and Policy; Computing and Ethics; Race, Gender, Class in Computing; Social Media-driven Social Movements

## RESEARCH INTERESTS

Geospatial machine learning for climate adaptation planning and disaster risk management, AI and Environmental Policy Frameworks in the Developing World, Data- and media-driven storytelling for environmental justice in cities and under-resourced communities

## RESEARCH EXPERIENCE

### Spatial causal inference model for mitigating urban heat

**Jan 2024 – Present**

ECE Senior Thesis @ Duke · Prof. David Carlson · [\[Paper\]](#)[\[Code\]](#)[\[Poster 1\]](#)[\[Poster 2\]](#)

Durham, NC

### Socioeconomic-physical vulnerability index for Angola's drought response system

**June 2024 – Aug 2024**

MIT Summer Research Program (MSRP) · Prof. Danielle Wood · Dr. Sharif Islam

Cambridge, MA

### Long-term earthquake prediction using time-series forecasting models

**May 2023 – Dec 2023**

Research Group @ Duke · Dr. Enmao Diao · [\[Code\]](#)

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### Tracking climate change causes and impacts with satellites and AI

**May – Jul 2022**

Duke Climate+ · Prof. Kyle Bradbury · Prof. Jordan Malof · [\[Website\]](#) [\[Code\]](#) [\[Poster\]](#)

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## ABSTRACTS/PUBLICATIONS

Islam, M.S., Kuwayama Y., Lu, C., **Liao, E.P.**, Entekhabi, D., Turner, K.M., Joao, Z., Pereira, V.F., Porto, O., Lupedia, L., Rodrigues, I., Wood, D. Assessing vulnerability to drought in Angola using multisource satellite Earth observations and socioeconomic data. *Manuscript submitted to the Global Environmental Change.*

Calhoun, Z., Jiang, G., **Liao, E.P.**, Bergin, M., Carlson, D. Towards precision urban climate: how causal inference can help us better quantify the effect of greenspace on neighborhood air temperature. *Abstract submitted at the Association of Environmental Engineering and Science Professors (AEESP) Research & Education Conference 2025.*

**Liao, E.P.**, Calhoun, Z., Carlson, D. Lowering urban heat: How spatial causal inference can predict the efficacy of heat-reducing interventions. *Abstract accepted at the American Geophysical Union 2024.*

**Liao, E.P.**, Calhoun, Z., Carlson, D. Urban heat mitigation: Predicting the efficacy of heat-reducing interventions using spatial causal inference. *Abstract accepted at the NC Breathe Conference 2024 and awarded Best Student Presenter.*

## ACADEMIC PRESENTATIONS

### American Geophysical Union (AGU) 2024 Annual Meeting

**Dec 2024**

Presented my urban heat island research with a poster to professors and fellow researchers

Washington D.C.

### Clean Aire NC Breathe Conference

**Oct 2024**

Chosen to deliver a 3-minute lightning talk to policymakers, faculty, and environmental justice workers

Durham, NC

## MIT Media Lab MSRP Presentations

Delivered a 10-minute talk about my research on Angola's Drought Response System

**Aug 2024**  
Cambridge, MA

## Duke Merit Scholars Symposium

Lectured and presented on the climate change experiences in the rural Philippines

**Oct 2023**  
Durham, NC

## SKILLS

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**Languages:** Python, C, Java, LaTeX, HTML/CSS, JavaScript, MATLAB, C++

**Libraries:** PyTorch, [\[Geospatial Python Libraries\]](#), Google Earth Engine, Google Firebase

**Devops:** Git, Linux, Bash, GitHub Projects, Agile Product Development

## SELECTED PROJECTS

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**PlanetTales: Climate change experiences in the rural Philippines and urban Europe**

Passion Project, Climate Justice Narratives · [\[Website\]](#) [\[Code\]](#) [\[Poster\]](#)

**Jul 2023 - present**  
Philippines, Europe

**DisasterGPT: Democratizing Local Relevant Climate Disaster Information**

Class Project, NLP · [\[Code\]](#)

**Fall 2024**  
Durham, NC

**HarvestNet 2.0: Compressed CNNs and Augmented Dataset for Harvest Pile Detection**

Graduate Class Project, Deep Neural Networks · [\[Paper\]](#)[\[Code\]](#)[\[Poster\]](#)

**Spr 2024**  
Durham, NC

**A Call for Better Cheap Labor Conditions within the AI Revolution**

Case Study, AI Ethics · [\[Paper\]](#)

**Spr 2024**  
Durham, NC

**Web Application for Project *Kayamanan***

Technify Initiative, Lead Software Engineer · [\[Code\]](#)

**Oct 2022 – Apr 2024**  
Durham, NC

## TEACHING EXPERIENCE

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**Teaching Assistant**, Signals and Systems

**Fall 2024**

**Teaching Assistant**, Intro to Artificial Intelligence

**Spr 2024**

**Teaching Assistant**, Fundamentals of Electrical and Computer Engineering

**Spr 2023, Fall 2023, Spr 2024**

**Teaching Assistant**, Calculus I and II

**Spr 2022, Fall 2022**

## HONORS & AWARDS

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**Karsh International Scholarship**, Duke University

**2021-2025**

- Full-ride merit-based scholarship + \$21k research funding for intellectually and civically engaged international students

**Tau Beta Pi**, Engineering Honor Society

**2024**

- Inducted to the oldest engineering honor society in the US for high academic standing and exemplary character

**HackDuke: Code for Good**, Winner

**2023**

- 1 of 4 track winners out of 200+ students and 37 hacks in a hackathon focused on building tech for social good

**Outstanding Teaching Assistant Citation**, Duke Electrical and Computer Engineering Dept.

**2023**

- Received the award "for exception dedication, clear communication, and attention to student learning."

**Dean's List with Distinction**, Duke University

**2021-2024**

- Earned a GPA (4 out of 7 semesters) that puts me on the Top 10% of students in the Pratt School of Engineering

## VOLUNTEER EXPERIENCES

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**Co-Founder**, Duke Pamilya: Filipino Students Association

**2022 - Present**

**Executive Member**, Technify: pro-bono tech consulting organization

**2022 - 2024**

**Mentor**, CAUSE Philippines: College apps mentorship program for low-income Filipinos

**2021 - Present**

**Co-Founder, Tutor**, Pi-oneers: STEM Education Non-profit

**2020 - 2022**

**Co-Organizer**, Project *Manantaw*: Initiative for typhoon victims in the Philippines

**2020**