

# Eric Greenlee (he/him)

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## Research Interests

I explore technology co-design for environmental sensing and sustainability. My work focuses on increasing access, reducing burden, and building partnerships around *in-situ* microclimate sensing and data collection systems for community-based climate change mitigation and interventions. I position myself at the intersection of Internet of Things (IoT) and Human-Computer Interactions (HCI).

## Awards and Honors

- 2024 Finalist: Georgia Tech Foley Scholar Award recognizing graduate students whose vision and research are shaping the future of how people interact with and value technology
- 2024 Georgia Tech CRIDC (Career, Research, and Innovation Development Conference) Poster Presentation Award
- 2024 Third place: Georgia Tech School of Computer Science and School of Cybersecurity and Privacy Graduate Student Association Poster Symposium- Junior Category
- 2023 — Georgia Tech Brook Byers Institute for Sustainable Systems Graduate Fellowship
- 2025
- 2023 & Verizon Connectivity Prize for Georgia Tech's Student IoT Innovation Capacity Building Challenge
- 2024
- 2023 Dartmouth College Postgraduate Project Fellowship
- 2022 — Georgia Institute of Technology President's Fellowship
- 2022 Tau Beta Pi Fellowship
- 2019-21 Special Achievement Cash Awards from the National Security Agency for custom antenna design, circuit board design, and VHDL development
- 2014-22 Top Secret/SCI clearance
- 2014-18 Stokes Undergraduate Scholarship Program through the National Security Agency

## Education

- Expected **Georgia Institute of Technology**, Atlanta, GA
- May 2027 Ph.D. in Computer Science
- Advisors: Ellen Zegura and Josiah Hester
  
- Dec 2020 **University of Maryland College Park**, College Park, MD
- M.Eng. in Electrical and Computer Engineering
- Specialization in Communications and Signal Processing
- GPA 4.0/4.0

Jun 2018 **Dartmouth College**, Hanover, NH  
 B.E. and B.A. in Electrical Engineering  
 Academic citations denoting “particularly favorable impressions on members of the faculty” in three engineering courses and one teacher’s assistantship  
 GPA 3.85/4.0

## Publications

### Journal articles

*In review* *A Workflow for Microclimate Sensor Networks: Integrating Geographic Tools, Statistics, and Local Knowledge*  
 David Klinges, Jonas Lembrechts, Stijn Van de Vondel, **Eric Greenlee**, Kian Hayles-Cotton, Rebecca Senior  
 Elsevier Journal on Ecological Indicators, 2025

J01 *“The Devil You Know”: Barriers and Opportunities for Co-Designing Microclimate Sensors, A Case Study of Manoomin*  
**Eric Greenlee\***, Blaine Rothrock\*, Hyeonwook Kim, Josiah Hester, and Ellen Zegura  
 ACM Journal of Computing and Sustainable Societies, 2024

### Conference articles

*In review* *Sustaining Workers Who Sustain the World: Asset-Based Design for Conservation Technologies in Madagascar*  
**Eric Greenlee**, David Klinges, Lalatiana Odile Randriamiharisoa, Kim Valenta, Jhoanny Rasojivola, Justorien Rabeloniaina, Nicolas Naina Rasolonjatovo, Georges Razafindramavo, Joel Ratsirarson, Zovelosoa Raharinalomanana, Edouard Ramahatratra, Abigail Ross, Thomas J Kelly, Jean Claude Rakotoarivelo, Tafitasoa Mijoro, Eric Tsiriniaina Rajoelison, Efitiria Efitiria, Josiah Hester, Ellen Zegura, and Alex Cabral  
 ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW), 2025

C01 *Makak: Co-designing Environmental Sensors to Protect Manoomin (Wild Rice)*  
 Blaine Rothrock, **Eric Greenlee**, Yaman Sangar, Josiah Hester, and Alex Cabral  
 Case Study, ACM CHI Conference on Human Factors in Computing Systems, 2025

### Other articles

R02 *Community-Driven Mobile and Ubiquitous Computing*  
 Blaine Rothrock, **Eric Greenlee**, and Josiah Hester  
 GetMobile: Mobile Computing and Communications, volume 27, issue 3 (Nov 2023)

R01 *Beyond Scientific Data: Expanding IoT’s Role in Community-driven Environmental Sensing*  
**Eric Greenlee**, Josiah Hester, and Ellen Zegura  
 CSCW Workshop on Data-Enabled Sustainability, Oct 2023

### Posters

P01 *Learning from Manoomin/Psij: A Community-Driven Sensor for Monitoring and Protection*  
**Eric Greenlee**, Blaine Rothrock, Ellen Zegura, and Josiah Hester  
 Manoomin·Psij Knowledge Symposium, Nov 2023

\*Denotes co-first authorship

## Funding

2024 **Battery-free Microclimate Sensor Development**  
 Great Lakes Indian Fish and Wildlife Commission (GLIFWC), \$15,866

## Employment

2018-22 **Radio Frequency Engineer, National Security Agency**  
 - Designed custom radio frequency communications systems, including modulation schema, embedded firmware, circuit boards, and miniaturized antennas, leveraging sophisticated simulation and fabrication tools.  
 - Evaluated these systems on metrics including power consumption, throughput, range, error rate, bandwidth, and noise figure.  
 - Installed and upgraded these systems with operational partners at remote field sites.  
 - Performed a cybersecurity vulnerability analysis on digital acoustic waveforms for a high-value asset.

## Talks and Panels

2024 **Guest Lecture**, Colby College CS 166: Computational Thinking  
 “Makak: A Co-designed Environmental Sensor for Tribal Sovereignty”

2024 **Speaker**, Seven Generations Inter-Tribal Leadership Summit  
 “Innovative Data Collection and Analysis on Tribal Lands: Access, Insights, and Techniques”

2024 **Speaker**, University of Cambridge Energy and Environment Group (EEG) seminar  
 “Partner-driven Environmental Sensing: Co-design with Indigenous Ojibwe Scientists and Malagasy Conservationists”

2024 **Speaker**, Madagascar Biodiversity Center seminar  
 “Merging Local Knowledge with Conservation Tech to Inform Climate Change Ecology and Restoration”

2024 **Panelist**, U.S. Indigenous Data Sovereignty & Governance Summit 2024 on  
 “STRONG: Data Sovereignty across the Natural, Computer, Engineering, and Social Sciences”

2024 **Lightning Talk Speaker** at Georgia Tech’s 2024 Sustainability Showcase on “Community-Driven Sensing for Manoomin (Wild Rice) Conservation”

2024 **Moderator** at Georgia Tech’s 2024 Sustainability Showcase panel on “Connecting for Sustainability: Collaborative Paths to Environmental Justice”

2023 **Presenter** at the Gidakiimanaaniwigamig STEM Youth Camp on environmental sensing for manoomin

2023-24 **Presenter** at the Great Lakes Indian Fish and Wildlife Commission Tribal Wild Rice Committee on environmental sensing for manoomin

2022 **Guest Lecturer** to Dartmouth College ENGS 28: Embedded Systems course

2021 **Presenter** on demystifying antennas to the Stokes Scholarship Program interns

## Student Mentoring

- 2024 **Sam Webster**, Undergraduate at Georgia Tech
- 2023 **Ish Mehta**, Master's student at Georgia Tech
- 2023 **William Dyches**, Undergraduate at Georgia Tech

## Teaching Experience

— at Georgia Tech

### **CS 6603/8803 SDG: Sustainability and Computing**

Head Teacher's Assistant and Lecturer, Fall 2023

— at Dartmouth College

### **ENGS 23: Distributed Systems and Fields**

Teacher's Assistant, Fall 2016, Fall 2017, Winter 2018

## Service

— As a journal reviewer

2024 — ACM Journal on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)

2023 — ACM Journal for Computing and Sustainable Societies (JCSS)

— Institutional

2022-24 Student organizer of the Georgia Tech Networking Community

## Technical Skills

Programming Python, C, GNU Radio, MATLAB, VHDL, C++, Lua, Javascript

Embedded Systems Arduino, Raspberry Pi, BeagleBone Black, FPGA

Simulation CST and HFSS Electromagnetic Field Simulation, ADS (Advanced Design System), OrCad, Cadence Design Suite, Multisim

Communication Protocols SPI, I2C, LoRa, 802.11, LVDS, UART

Circuit Board Design Altium, Eagle, EasyEDA

Lab Equipment Spectrum analyzer, network analyzer, oscilloscope, multimeter, mill, soldering

Language Spanish (Intermediate)