

# Zachary Englhardt

Curriculum Vitae - 1/20/2025

Paul G. Allen Center  
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## Education

- 2022 – **University of Washington**, *Paul G. Allen School of Computer Science & Engineering*,  
Ph.D. in Computer Science & Engineering (in progress)  
*Advisors: Vikram Iyer and Shwetak Patel*,  
M.S. in Computer Science & Engineering.
- 2017 – 2021 **Northwestern University**, *McCormick School of Engineering and Applied Science*,  
M.S. in Computer Engineering,  
B.S. in Computer Engineering.

## Research Experience

- Sep 2022 – **University of Washington**, *Ubiquitous Computing Lab*,  
*Advisors: Vikram Iyer and Shwetak Patel*.  
Much of my recent work has focused on leveraging generative AI to assist stakeholders in making sense of the unstructured, multi-modal data generated by modern sensing systems for applications in mobile health and environmental impact assessment. While working on these challenges, I have also made contributions in wireless and backscatter networking, low-power and battery-free sensing, and robotics systems.
- Feb 2021 – **Northwestern University**, *Ka Moamoa Laboratory*,  
Dec 2021 *Advisor: Josiah Hester*.  
Developed hardware and firmware for low-power health and sensing applications. I also implemented a system of flexible wearable stickers and RF transmitters to automate circadian rhythm experiments as part of the DARPA NTRAIN program.
- Sep 2019 – **Northwestern University**, *Rogers Research Group*,  
Mar 2020 *Advisor: John A. Rogers*.  
Developed implantable, passively-powered tissue oximetry devices and flexible millimeter-scale wireless circuits.

## Industry Experience

- Feb 2022 – **Applied Materials**, Electrical Engineering Intern.  
Aug 2022
- Aug 2020 – **Tesla**, Autopilot Hardware Intern.  
Dec 2020
- Jun 2019 – **Applied Materials**, Electrical Engineering Intern.  
Sep 2019
- Jul 2018 – **Roku**, CS Intern.  
Sep 2018

## Publications

- 2025 **To Appear: Incorporating Sustainability in Electronics Design: Obstacles and Opportunities**, Zachary Englhardt, Felix Hähnlein, Yuxuan Mei, Tong Lin, Connor Masahiro Sun, Zhihan Zhang, Shwetak Patel, Adriana Schulz, Vikram Iyer, *2025 CHI Conference on Human Factors in Computing Systems (CHI '25)*.
- 2024 **Computational Design of Dense Servers for Immersion Cooling**, Milin Kodnongbua, Zachary Englhardt, Ricardo Bianchini, Rodrigo Fonseca, Alvin Lebeck, Daniel S. Berger, Vikram Iyer, Fiodar Kazhamiaka, Adriana Schulz, *ACM Transactions on Graphics (SIGGRAPH ASIA '24)*.

### **Demonstration of Laser Power Delivery for Mobile Microrobots,**

Charles J. Carver, Toma Itagaki, Kechen Liu, Megan G. N. Manik, **Zachary Englhardt**, Vikram Iyer, Xia Zhou,

*Proceedings of the 10th Workshop on Micro Aerial Vehicle Networks, Systems, and Applications (DroNet '24).*

### **From Classification to Clinical Insights: Towards Analyzing and Reasoning About Mobile and Behavioral Health Data With Large Language Models,**

**Zachary Englhardt\***, Chengqian Ma\*, Margaret E. Morris, Xuhai "Orson" Xu, Chun-Cheng Chang, Lianhui Qin, Daniel McDuff, Xin Liu, Shwetak Patel, Vikram Iyer,

*Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, Volume 8, Issue 2 (Ubicomp '24).*

### **Exploring and Characterizing Large Language Models For Embedded System Development and Debugging,**

**Zachary Englhardt**, Richard Li, Dilini Nissanka, Zhihan Zhang, Girish Narayanswamy, Joseph Breda, Xin Liu, Shwetak Patel, Vikram Iyer,

*Extended Abstracts of the 2024 CHI Conference on Human Factors in Computing Systems (LBW '24).*

### **DeltaLCA: Comparative Life-Cycle Assessment for Electronics Design,**

Zhihan Zhang\*, Felix Hähnlein\*, Yuxuan Mei\*, **Zachary Englhardt**, Shwetak Patel, Adriana Schulz, Vikram Iyer,

*Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, Volume 8, Issue 1 (Ubicomp '24).*

### 2023 **MilliMobile: An Autonomous Battery-free Wireless Microrobot,**

Kyle Johnson\*, **Zachary Englhardt\***, Vicente Arroyos\*, Dennis Yin, Shwetak Patel, Vikram Iyer,

*Proceedings of the 29th Annual International Conference on Mobile Computing and Networking (MobiCom '23).*

### 2021 **FaceBit: Smart Face Masks Platform,**

Alexander Curtiss\*, Blaine Rothrock\*, Abu Bakar, Nivedita Arora, Jason Huang, **Zachary Englhardt**, Aaron-Patrick Empedrado, Chixiang Wang, Saad Ahmed, Yang Zhang, Nabil Alshurafa, Josiah Hester,

*Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, Volume 5, Issue 4 (Ubicomp '22).*

## **Fellowships and Awards**

Apr 2023 **NSF Graduate Research Fellowship Program (GRFP)**, *Honorable Mention*,  
Proposal: MilliMobile: Sub-Gram Robotic Sensor Swarms.

Apr 2023 **National Defense Science and Engineering Graduate (NDSEG) Fellowship**, *Honorable Mention*,  
Proposal: MilliMobile: Sub-Gram Autonomous IoT.

2022 – 2023 **Pastry-Powered T(o)uring Machine Endowed Fellowship**,  
*Research fellowship awarded to select incoming Ph.D. students in Computer Science & Engineering.*

2017 – 2021 **Frank Livermore Trust Scholarship**,  
*Merit-based scholarship awarded to two Eagle Scouts each year to support undergraduate studies.*

## **Volunteering / Service**

2024 – **Pre-Application Mentoring Program**, *Chair*,  
Leading a departmental program to provide 200+ prospective PhD applicants with one-on-one application mentorship from current PhD students in the Allen School, with a priority given to students from historically marginalized groups in Computer Science and those without access to mentorship at their undergraduate institutions.

2024 – **UW HCI Seminar**, *Coordinator*,  
Organizing a weekly seminar series consisting of invited talks and paper review sessions to discuss current topics in human-computer interaction research.

- 2023, 2024 **New Graduate Student Orientation**, *Organizer*,  
Planned information sessions, talks, and bonding activities for the two-day orientation for incoming PhD students in the School of Computer Science & Engineering.
- 2022 – 2024 **Ubiquitous Computing Lab**, *Demos Coordinator*,  
Schedule and run lab outreach events and demonstrations, such tours for industry affiliates, student groups, and K-12 students.
- 2022, 2023 **Pre-Application Mentoring Program**, *Peer Mentor*,  
Provided one-on-one mentoring to prospective PhD applicants, with a priority given to students from historically marginalized groups in Computer Science and those without access to mentorship at their undergraduate institutions.

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## References

**Available upon request.**