Zachary Englhardt

Curriculum Vitae - 6/16/2025

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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 – Present **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 – Dec 2021 **Northwestern University**, *Ka Moamoa Laboratory*,
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 – Mar 2020 **Northwestern University**, *Rogers Research Group*,
Advisor: John A. Rogers.
Developed implantable, passively-powered tissue oximetry devices and flexible millimeter-scale wireless circuits.

Industry Experience

Jun 2025 – Present **Google**, Student Researcher.

Feb 2022 – Aug 2022 **Applied Materials**, Electrical Engineering Intern.

Aug 2020 – Dec 2020 **Tesla**, Autopilot Hardware Intern.

Jun 2019 – Sep 2019 **Applied Materials**, Electrical Engineering Intern.

Jul 2018 – Sep 2018 **Roku**, Intern.

Publications

2025 **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.

References

Available upon request.