

EDUCATION

University of Washington – 4.0 GPA	09/24 – 06/26
MS Computer Science, Graduate Compilers Teaching Assistant, Guest Lecturer [T1, T6, T12], NeurIPS reviewer.	
University of Washington – 3.85 GPA, 3.97 in CS	09/22 – 06/25
BS Computer Science and Mathematics, UWSO First Violin Section, Accelerated Honors Math.	

RESEARCH EXPERIENCE

University of Washington – Advisor: Dr. Stefan Steinerberger	Sep. 2024 – Present
Practical algorithms for graph embedding. Graph Theory, Algorithms, Combinatorics. Link .	
<ul style="list-style-type: none">◦ Invented and implemented algorithm in <u>C</u> with visualization and verification in <u>Python</u>.◦ Started as independent research and then reached out to Professor Steinerberger and Brinkmann.	
Ubiquitous Computing Lab – Advisors: Dr. Shwetak Patel, Dr. Vikram Iyer	Jun. 2024 – Present
Battery-free flight-based sensor systems for monitoring and alerts. Embedded ML. Link .	
<ul style="list-style-type: none">◦ Co-first-authoring paper and leading trial deployment (animal monitoring to prevent crop destruction).◦ Developed a novel model compression framework for hardware constraints in MCU accelerators.	
Multi-modal automated lifecycle assessments of consumer electronics. ML for sustainability. Link .	
<ul style="list-style-type: none">◦ Co-authored study design and research papers [P2, P4] and designed the <u>Computer Vision</u> pipeline.	
ICTD Lab – Advisor: Dr. Richard Anderson	Sep. 2022 – May 2024
Digital phone directory for subsistence farmers in rural Tanzania. ICTD. Link .	
Goal: Study the economic impacts of digital agricultural information systems in Sub-Saharan Africa.	
<ul style="list-style-type: none">◦ Co-first-authored the paper [P5] accepted to ACM SIGCHI 2024. Presented talks [T1, T2, T3].◦ Led team of 4 developers for the USSD server and later also the Android App.	

PUBLICATIONS

[P5] – ACM SIGCHI, Co-first	HCI , ICTD
Ananditha Raghunath, Alexander Metzger , Hans Easton, XunMei Liu, Fanchong Wang, Yunqi Wang, Yunwei Zhao, Hosea Mpogole, and Richard Anderson. 2024. eKichabi v2: Designing and Scaling a Dual-Platform Agricultural Technology in Rural Tanzania.	
[P4] – ACM IMWUT, Third	ML for Sustainability , CV , HCI
Zhihan Zhang, Puvarin Thavikulwat, Alexander Metzger , Yuxuan Mei, Felix Hähnlein, Zachary Englhardt, Gregory D. Abowd, Shwetak Patel, Adriana Schulz, Tingyu Cheng, and Vikram Iyer. 2025. Living Sustainability: In-Context Interactive Environmental Impact Communication.	
[P3] – Pre-print, Co-first	Algorithms , Graph Combinatorics
Alexander Metzger and Austin Ultrigg. An Efficient Genus Algorithm Based on Graph Rotations.	
[P2] – Pre-print, Second	ML for Sustainability , CV , Agents
Zhihan Zhang, Alexander Metzger , Yuxuan Mei, Felix Hähnlein, Zachary Englhardt, Tingyu Cheng, Gregory D. Abowd, Shwetak Patel, Adriana Schulz, Vikram Iyer. Towards Autonomous Sustainability Assessment via Multimodal AI Agents.	
[P1] – University of Washington Student Research Paper, First	Topology , Graph Theory , Algorithms
Alexander Metzger. A Practical Algorithmic Approach to Graph Embedding. University of Washington. Department of Mathematics. Honors Thesis. https://hdl.handle.net/1773/53829 .	

TALKS

[T12] – <i>Embedded ML - Computer Vision Demo</i>	Oct. 2025
University of Washington Embedded Capstone, Seattle, WA [20 attendees]	
[T10&11] – <i>In-Context Interactive Environmental Impact Communication</i>	Oct. 2025
DUB Research Day, Seattle, WA Paul G. Allen's Annual Research Showcase, Seattle, WA [100s of attendees]	
[T9] – <i>Deploying Speech Technology at Scale</i>	Aug. 2025
Interspeech Conference, Rotterdam, Netherlands [2K attendees]	
[T7&8] – <i>Graph Embedding and Genus Speech Technology Built For Everyone, Everywhere</i>	May. 2025
University of Washington Research Symposium, Seattle, WA [60 attendees]	
[T6] – <i>Computational Linguistics for Machine Aided Pronunciation Learning</i>	Oct. 2024
University of Washington Computational Linguistics Group, Seattle, WA [30 PhD attendees]	
[T4&5] – <i>The Future of Language Learning</i>	Sep. & Dec. 2024
Mozilla Builders, New York, NY Mozilla Builders, San Francisco, CA [500 attendees]	
[T2&3] – <i>eKichabi v2: Designing and Scaling a Dual Platform Technology in Rural Tanzania</i>	May 2024
ACM SIGCHI Video Presentation, Remote Design Use Build's Para.chi Event, Seattle, WA [100s of attendees]	
[T1] – <i>Designing and Deploying Digital Information Systems in Sub-Saharan Africa</i>	Oct. 2023
University of Washington CHANGE Seminar, Seattle, WA [40 PhD attendees]	

WORK EXPERIENCE

Koel Labs – <i>Founder and CEO</i>	Aug. 2024 – Present
○ Raised \$100K in funding (Mozilla, Microsoft, Google, Nvidia) for computational linguistics research.	
○ Trained SoTA NLP models, cutting streaming latency by 60% and doubling accuracy.	
Gooey.AI – <i>Software Engineer</i>	Jun. 2023 – Sep. 2024
○ Led client communication and 4-member intern team, merging 70+ PRs across production ML pipelines.	
○ Deployed ML solutions to 10M+ farmers across 5+ countries, demoed to 193 world leaders at the UN.	
Akvelon, Inc. – <i>Software Development Intern</i>	Jun. 2023 – Aug. 2023
○ Led team of 4 to make 200K open-source contributions to 7 Microsoft repos across 27 pull requests [H1].	

LEADERSHIP

Seattle Tutoring Partners – <i>Founder and Research Mentor</i>	May 2022 – Present
○ Mentoring research projects for High Schoolers, and collaborating on internationally recognized projects.	
○ Developed software for 500+ youth musicians and antenna software for 10K+ aspiring scientists.	
Cascade Enrichment – <i>Technical Lead</i>	Sep. 2022 – Sep. 2024
○ Managing certification and curriculum for 30+ tutors; developed online platform for 100+ students.	
Design Build Fly – <i>Lead Computer Scientist</i>	Sep. 2023 – Sep. 2024
○ Coordinated optimization algorithms and data analysis for 30 engineers; placing 3rd nationally.	

AWARDS AND FUNDING

[H8] Google Research: Special Google TPU Research Cloud Access	2025
[H7] Nvidia Inception: Accepted Startup Founder, GPUs	2025
[H6] Meta+8VC Next Llama Stack Hackathon: 1st Place, \$1K Prize	2025
[H5] Microsoft Imagine Cup: Semifinalist, \$5K cloud credits	2025
[H4] Clean Energy Institute: TARs Research Grant	2025
[H3] CRA Outstanding Undergraduate Researcher Award: Honorable Mention	2025
[H2] Mozilla Builders Accelerator: \$39K research grant, \$35K cloud credits	2024
[H1] Akvelon Mentor's Choice: Outstanding Leadership	2023