

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](#).

- **Invented and implemented** algorithm in `C` with visualization and verification in `Python`.
- **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](#).

- **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](#).

- **Co-authored** study design and research papers [P2, P4] and designed the [Computer Vision](#) 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.

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

WORK EXPERIENCE

Koel Labs – Founder and CEO	Aug. 2024 – Present
<ul style="list-style-type: none">o Raised \$100K in funding (Mozilla, Microsoft, Google, Nvidia) for computational linguistics research.o Trained SoTA NLP models, cutting streaming latency by 60% and doubling accuracy.	
Gooley.AI – Software Engineer	Jun. 2023 – Sep. 2024
<ul style="list-style-type: none">o Led client communication and 4-member intern team, merging 70+ PRs across production ML pipelines.o Deployed ML solutions to 10M+ farmers across 5+ countries, demoed to 193 world leaders at the UN.	
Akvelon, Inc. – Software Development Intern	Jun. 2023 – Aug. 2023
<ul style="list-style-type: none">o Led team of 4 to make 200K open-source contributions to 7 Microsoft repos across 27 pull requests [H1].	

LEADERSHIP

Seattle Tutoring Partners – Founder and Research Mentor	May 2022 – Present
<ul style="list-style-type: none">o Mentoring research projects for High Schoolers, and collaborating on internationally recognized projects.o Developed software for 500+ youth musicians and antenna software for 10K+ aspiring scientists.	
Cascade Enrichment – Technical Lead	Sep. 2022 – Sep. 2024
<ul style="list-style-type: none">o Managing certification and curriculum for 30+ tutors; developed online platform for 100+ students.	
Design Build Fly – Lead Computer Scientist	Sep. 2023 – Sep. 2024
<ul style="list-style-type: none">o 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