

Ethan Davis

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Research Interests

Scalable probabilistic ML; uncertainty quantification & calibration; out of distribution (OOD) robustness; ML systems (MLSys) & high performance computing.

Education

M.S., Computer Science <i>University of Washington Bothell</i> — Bothell, WA	2024–2026
B.S., Computer Science <i>Oregon State University</i> — Corvallis, OR	2020–2022
B.S., Mathematics <i>University of Portland</i> — Portland, OR	2011–2015

Research Experience

Graduate Researcher <i>Smart Neurorehabilitation Ecosystem</i> — University of Washington Bothell	2024–present
<ul style="list-style-type: none">• Researching uncertainty-aware deep learning for safety-critical AI systems.• Designing and implementing a PyTorch/Pyro framework to evaluate Bayesian learning benefits and enable uncertainty quantification in real-time MI-EEG brain–computer interfaces (BCIs).• Contributed software engineering expertise to guide project direction, lead lab meetings, and maintain milestone progress.• Authored comprehensive documentation to onboard new team members and improve reproducibility across EEG/BCI research pipelines.	

Technical Reports

- [1] Ethan Davis. *Data Structures and Algorithms*. Zenodo, Oct. 2025. URL: <https://doi.org/10.5281/zenodo.17297422>.
- [2] Ethan Davis. *Exploration-Exploitation-Evaluation (EEE): A Framework for Metaheuristic Algorithms in Combinatorial Optimization*. 2025. arXiv: [2510.05027 \[cs.NE\]](https://arxiv.org/abs/2510.05027). URL: <https://arxiv.org/abs/2510.05027>.
- [3] Ethan Davis. *High Performance Matrix Multiplication*. 2025. arXiv: [2509.04594 \[cs.PF\]](https://arxiv.org/abs/2509.04594). URL: <https://arxiv.org/abs/2509.04594>.
- [4] Ethan Davis. *Linear Algebra for Image Compression*. Mar. 2025. URL: <https://doi.org/10.5281/zenodo.17180358>.

Software & Reproducibility

- [1] Ethan Davis. *davisethan/aco: Badge release*. Version v1.0.2. Oct. 2025. URL: <https://doi.org/10.5281/zenodo.17274214>.

- [2] Ethan Davis. *davisethan/data_structures_algorithms*: DOI release. Version v1.0.2. Oct. 2025. URL: <https://doi.org/10.5281/zenodo.17289626>.
- [3] Ethan Davis. *davisethan/eigenface*: DOI release. Version v1.0.1. Oct. 2025. URL: <https://doi.org/10.5281/zenodo.17299529>.
- [4] Ethan Davis. *davisethan/gemm*: DOI release. Version v1.0.1. Oct. 2025. URL: <https://doi.org/10.5281/zenodo.17299758>.
- [5] Ethan Davis. *davisethan/triangle_counting*: DOI release. Version v1.0.1. Oct. 2025. URL: <https://doi.org/10.5281/zenodo.17299086>.

Teaching & Mentoring

Teaching Assistant

Computer Science Courses — University of Washington Bothell

2025–present

- Assisting Prof. Erika Parsons in updating the course Mathematics for Machine Learning, including curriculum design, textbook selection, and assignment development and grading.

Research Mentor

Smart Neurorehabilitation Ecosystem — University of Washington Bothell

2025–present

- Curated and documented MI-EEG BCI methods and reproducibility (MOABB, Riemannian pipelines, GNNs) aligning the team and accelerating studies.

Selected Industry Experience

Software Engineer

SeekOut — Bellevue, WA

2022–2024

- Built ETL pipelines with Azure Functions, Blob Storage, Queue Storage, and Cosmos DB.
- Redesigned legacy pipelines using UML, OOD, and SOLID principles, improving maintainability.
- Applied Apache Spark/Databricks to scale data processing for larger datasets.

Software Engineer

Independent Project — Seattle, WA

2017–2020

- Built image-sharing web app using Java, Spring Boot, Node.js, and AWS Lambda.
- Applied distributed systems principles with AWS, Kubernetes, and microservices.

Software Engineer

StackBrew — Redmond, WA

2015–2017

- Built AST interpreter for JavaScript in Node.js, extended as C++ addon to improve speed.
- Developed backend microservices in Node.js/Go with MongoDB, deployed on GCP.

Conference Posters

- “Bayesian Deep Learning for Electroencephalogram Signal Recognition,” *PUMPS+AI ACM Europe Summer School*, Barcelona, ES, July 2025. [Poster](#)

Certifications

PUMPS+AI ACM Europe Summer School

Statement of Accomplishment in CUDA workshops — [Verify](#)

July 2025