

Caeden Kidd

Michigan Technological University

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Education

Michigan Technological University, B.S. Computer Science, Math Minor Aug 2024 – Present
GPA: 3.80/4.00; Dean’s List. Coursework: Data Mining, Formal Models of Computation, Concurrent Computing, Database Systems, Linear Algebra, PDEs.

Technical Skills

Machine Learning & Computer Vision: Developing and researching deep learning models from scratch, novel architecture design, diffusion models, transformers, medical image segmentation, object detection, image classification, frequency-domain learning, attention mechanisms, representation learning, geometric feature fusion, domain adaptation, model benchmarking & ablation studies.
Agentic AI & LLM Systems: Tool-using agents, multi-step reasoning & search, multi-agent workflows, MCP servers, RAG, adaptive planning, structured LLM pipelines, local LLM deployment & inference.
Frameworks & Libraries: PyTorch, CUDA, OpenCV, NumPy, pandas.
Programming: Python, C, C++, Java, JavaScript, TypeScript, C#, SQL, HTML/CSS.
Developer Tools: Git, Linux, Docker, DigitalOcean, Blender, 3D printing.
Languages: English (native), Mandarin Chinese (conversational), Spanish (intermediate).

Experience

Undergraduate ML Researcher, Dr. Weihua Zhou’s Lab, Michigan Technological University Nov 2024 – Aug 2026

- Developed and researched novel Fourier-domain approaches for coronary artery segmentation and stenosis localization, including learnable frequency-attention mechanisms and frequency-informed architectures for invasive coronary angiography.
- Designed and evaluated Fourier-attention, Mamba-based, transformer, and CNN architectures, with systematic studies of spatial, channel, temporal, and frequency-domain attention mechanisms.
- Designed a novel meta-learned Fourier loss for diffusion-based low-dose CT reconstruction, including a physically meaningful fan-beam frequency transform derived with the Fourier shift theorem and NUDFT; optimized frequency weights against downstream CT reconstruction quality without interpolation that would smear Poisson noise.

Learning Center Coach, Computer Science, Michigan Technological University Jan 2026 – Apr 2026

- Tutored undergraduates in data structures, algorithms, systems programming, debugging, and problem-solving through one-on-one and small-group sessions.
- Taught high school students agentic engineering and AI-assisted development workflows.

Projects

Maizu: Self-Scaling Mandarin Learning App · Major League Hacking Awarded Best Use of DigitalOcean, UWB Hacks, University of Washington Bothell (460+ participants) [\[Devpost\]](#) 2026 – Present

- Built a closed-loop Mandarin learning platform where user-added vocabulary is automatically scheduled with FSRS-6 spaced repetition and incorporated into a learner-state model that selects the next optimal content.
- Designed a deterministic recommendation engine that estimates marginal recall gain, clusters vocabulary by embedding similarity, and selects content under a daily vocabulary budget without requiring LLM inference.
- Engineered a formal grammar DSL with rule validation and corpus-recall testing, and architected an MCP server that exposes learner state to external AI agents, enabling third-party practice modules without modifying the core scheduler.

Polymarket Insider Trading Detector · 1st Place, JacHacks 2026 (60+ teams), University of Michigan [\[Devpost\]](#) [\[Demo Video\]](#) [\[GitHub\]](#) Apr 4–5, 2026

- Built an agentic LLM investigation system using tree-of-thought reasoning and DFS across on-chain wallet history, trade timing, and correlated positions.
- Integrated live Polymarket API and blockchain data to produce written, evidence-based verdicts rather than a score.

Better Call Cell: Leukemia Diagnosis AI · HOSA Medical Innovation: 3rd in Michigan, 12th internationally; competed against ~5,000 teams [\[Demo Video\]](#) 2023

- Engineered a \$30 reusable, phone-based leukemia screening device, designing a custom 3D-printed microscope with a 0.5 mm ball lens, spring-loaded blood-smearing mechanism, and knob-driven 3-axis translation stage.
- Built a four-stage computer vision pipeline using YOLOv5, U-Net, CycleGAN, and InceptionV4 to detect, segment, domain-adapt, and classify leukocytes from Giemsa-stained blood smears.
- Developed CycleGAN-based unpaired domain adaptation between images from the custom ball-lens microscope and lab-grade microscopes, and corrected spherical aberration with a custom image-dewarping algorithm.

Honors & Awards

- 1st Place, JacHacks 2026**, University of Michigan (60+ teams)
- Major League Hacking Awarded Best Use of DigitalOcean**, UWB Hacks (460+ participants)
- URIP Research Scholarship**, Michigan Tech (2025)
- WXYZ Best & Brightest Scholarship**, ranked #1 in graduating high school class against roughly 400 graduating seniors (2024)
- HOSA Medical Innovation International Finalist**, 12th internationally; competed against roughly 5,000 teams (2023)