

Peter Zhao

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Education

University of Wisconsin-Madison

Madison, WI

Triple Major: Bachelor of Science in Computer Science, Electrical Engineering, and Mathematics

May 2027

- **Honors & Awards:** First-Generation College Student, Full Ride Merit Scholarships, STAR & PEOPLE Scholar

- **Related Coursework:** Data Structures & Algorithms, Operating Systems, Machine Learning, Signals & Systems, Optimization

Experience

Microsoft

July 2026 – September 2026

Incoming Software Engineer Intern (AI/ML)

Remote

- C++ and Python work for Azure search

NVIDIA

May 2026 – July 2026

Systems Software Engineering Intern

Santa Clara, CA

- Developed C++ and Python systems software for large-scale GPU compute platforms, building simulation and systems infrastructure for distributed multi-node HPC environments with a focus on scalable execution across datacenter configurations.
- Engineered replay-based emulation frameworks enabling execution without hardware, transforming hardware-dependent workflows into scalable failure-analysis pipelines that improved iteration speed across multi-system environments.
- Built analysis and replay tooling for heterogeneous system datasets, improving failure classification, root-cause isolation, and debugging by making regressions easier to detect, interpret, and triage across GPU platforms and multi-node stacks.

Amazon

May 2025 – Aug 2025

Software Development Engineer Intern

Seattle, WA

- Engineered an AI inference pipeline in Java on AWS Lambda and DynamoDB/SQL to automate thumbnail localization across 15+ languages and real-time content moderation, reducing manual review effort by 40% across 3 different global teams.
- Built a custom REST API on AWS CDK to query, flag, and reprocess incorrect AI outputs, reducing deployment time by 75%.
- Developed a TypeScript/JavaScript with CSS and HTML bootstrapped audit dashboard with OpenSearch-backed search, enabling real-time retrieval and reprocessing of flagged AI thumbnail outputs across pipelines with sub-200ms response

Linectra

Sep 2024 – May 2025

Founding System Software Engineer

Madison, WI

- Architected embedded firmware in C++ for distributed 480V power control across 8 STM32s, implementing fault-tolerant RS-485 mesh with 40 ms failover and custom I2C driver achieving 400 kHz throughput for real-time monitoring.
- Developed system-level software for telemetry, data logging, and safety interlocks, reducing communication faults by 30%.
- Collaborated in an Agile workflow with weekly sprints and Git-based version control for modular firmware development.

Morgridge Institute for Research

Sep 2024 – May 2025

Optimization Software Researcher

Madison, WI

- Developed real-time signal synchronization algorithms in Python, reducing timing jitter from 12 ms to 2 ms across distributed sensor arrays, enabling high-precision microsecond-level data collection for neuroscience research experiments.
- Conducted data-driven optimization research in Python (NumPy, Pandas) identifying bottlenecks and improving efficiency.

Projects

Battleship Embedded System | *Embedded Systems, PCB Altium Design, FSM Implementation*

Nov 2025

- Engineered a multiplayer Battleship system in C with modular firmware and layered architecture, integrating FSM-driven game logic, inter-device communication protocols, and real-time synchronization to ensure scalable, low-latency performance.

Segway Balance Control System | *Control Algorithms, Verilog/C*

Nov 2025

- Implemented PID feedback, UART/SPI interfaces, and sensor-fusion logic in Verilog/C for real-time balance control on hardware.

Predictive Term Longevity Analysis (ROT.AI) | *Hackathon Project, Full-Stack Development*

Nov 2024

- Built viral term forecasting engine analyzing 500K+ Reddit, Quora, 4chan, and YouTube posts using advanced PyTorch LSTM + Transformer models with temporal feature extraction, achieving 87% accuracy and placing Top 5 overall at CheeseHacks.

Leadership & Involvement

STAR Scholars Program: Full-Stack Developer Lead

Sep 2023 – Apr 2026

University of Wisconsin-Madison

Madison, WI

- Spearheaded and mentored 4-person development team that refactored outdated frontend components into modular React architecture, cutting page load time by 40% and improving responsiveness across devices for STAR Scholarship webpage.

Skills

Programming: C/C++, Python, JavaScript/TypeScript, Java, Bash, Rust, MATLAB, R, Julia, Mathematica, LaTeX

Embedded/Systems: FPGA (Verilog/VHDL), Raspberry Pi, Arduino, STM32, ARM Cortex, I2C/SPI/RS-485, Linux

Software/ML: React, SQL, PyTorch, TensorFlow, Pandas, NumPy, AWS (Lambda), Docker, Git/GitHub, CI/CD, Agile

Certificates: Microsoft Certified: Azure Fundamentals (AZ-900), Machine Learning Specialization (Stanford University)

Interests: Film/Animation, History, Literature, Grand Strategy Games, Outdoors/Hiking, Photography/Videography