

Ethan Pan

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EDUCATION

University of Wisconsin – Madison

Sep 2023 - May 2027

Computer Science - Bachelor of Science

GPA: 3.52/4.00

- **Relevant Coursework:** Data Structures & Algorithms, Computer Organization, Computation & Formal Systems, Artificial Intelligence, Web Design.

WORK EXPERIENCE

Software Engineer

Jan 2025 - Present

Nodetree.io (Startup)

Madison, WI

- Engineering a multi-agent backend using LangChain/FastAPI, launched an MVP to 50+ beta users and secured \$10K in AWS credits.
- Pioneered a self-improving tool framework (based on Alethea, NeurIPS '24) by automating code-review and test harness generation, boosting feature-delivery speed 30%.
- Cut average task completion time from 12s to 6s (-50%) by architecting a tree-based context backend that streamlines conversational history tracking.

Student Researcher

Jan 2025 – Current

University of Wisconsin – Madison (People and Robots Laboratory)

Madison, WI

- Increase prompt-repair accuracy 20% over baselines by implementing a novel Q-learning algorithm — boosting user-rated output satisfaction 50%.
- Co-author a research paper on a new prompt-repair algorithm, targeting CHI '26 submission.

Student Researcher

Jan 2025 – May 2025

Carnegie Mellon University

Remote

- Conducted a comprehensive literature review of 100+ bot-detection algorithms and compiled a comparative taxonomy of methods/datasets for a draft journal submission.
- Applied the FAccT fairness framework to evaluate ethical limitations in 70+ of these algorithms, delivering a bias-diagnostic report adopted as in the final paper.

Software Engineer Intern

Jun 2024 – Aug 2024

Coco Tech Co.

Shenzhen, China

- Automated smart-building proposal creation by developing a Retrieval-Augmented Generation (RAG) agent — cut slide-generation time 87% (7× faster).
- Engineered a generative pipeline whose design plans scored 80% of human quality in usability tests by the in-house architecture team.

Teaching Assistant

Jan 2024 - May 2024

University of Rochester

Rochester, NY

- Led weekly DSA workshops for 10+ students, improving average exam scores from 68% to 82% (+20%) and earning 100% satisfaction ratings.
- Provided tailored resume, interview, and internship-search coaching to 5 students, 3 of whom secured summer internships/research.

Research Assistant

Nov 2023 – Jan 2024

Carnegie Mellon University in Qatar

Remote

- Designed and annotated a 5k-entry dataset of harmful Chinese neologisms, enabling fine-tuning of an LLaMA-7B variant for safer text detection.
- Ran benchmark experiments demonstrating up to 20% higher F1 on adversarial text versus baseline LLMs.

PROJECTS

AI-file-organizer | *Python, LangChain, SQLite, PyTorch*

Jun 2025 – Present

- Led a team of 3 in a UW-Madison/OpenAI collaboration to build an intelligent file organizer, architecting an NLP pipeline with LangChain & PyTorch to organize files by semantic meaning.

Damaku-manager | *React, TypeScript*

May 2025 – Jun 2025

- Developed and launched a Chrome extension using React & TypeScript that gained 20+ users and a 4/5 star rating within a month on the Chrome Web Store.

Our home | *Unity, C#, OpenAI API*

Dec 2023 – Jan 2024

- Built an interactive 3D game in Unity & C# with a conversational AI, showcased to 20+ users at a campus demo day and achieved a full score as a class project.

Cal-Glass | *Python, OpenCV*

Nov 2021 – Oct 2022

- Led a team of 7 to build a wearable food-analysis device with Python & OpenCV, achieving 70% detection accuracy and securing a silver medal in a national competition.

TECHNICAL SKILLS

Core: Python, Java, JavaScript, TypeScript, C#, PyTorch, LangChain, FastAPI, React, Git, Docker, Linux

Familiar: C, HTML/CSS, RISC-V Assembly, NumPy, CUDA, JUnit, NodeJS, React Native, TailwindCSS, LangGraph, LiteLLM, Ollama, Google Cloud, Vercel, Conda, Valgrind, QEMU, gdb, Vim, VSCode, npm, uv, cargo, zsh