

Yeji Lee

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Portfolio (website): <https://yejilee2305.github.io/>

EDUCATION

Michigan State University

Bachelor of Science in Computer Science, Minor in Business

East Lansing, Michigan

Expected Dec 2025

- Dean's List
- Relevant coursework: Introduction to Programming I & II (python, C++), Computer Organization & Architecture, Algorithms & Data Structures, Software Design, Algorithm Engineering, Artificial Intelligence, Database Systems, Mobile App Development, Big Data Analysis

EXPERIENCE

Vectra AI (via Michigan State University Capstone)

Software Engineer

East Lansing, Michigan

August 2025 – Present

- Built a complete orchestration pipeline using FastAPI microservices for RFC discovery, YAML extraction, PCAP generation, and multi-stage validation tasks, that decreased the time for manual assembly of all these steps by 45%.
- Developed a dashboard using React for visualizing metrics in real time with FastAPI endpoints serving live data from SQLite and file-based job tasking.
- Engineered an LLM-powered semantic validation process powered by LLM which compares Vectra AI metadata with user intent, generating 5–8 context-aware validation checks per PCAP with configurable caching for deterministic results.
- Created a web crawler that scraped and normalized over 35 RFCs from multiple mirrors providing automated protocol discovery and dataset creation, including freshness checks as part of the process.
- Created multi-packet flow and TCP variant generators capable of generating between 3 and 12 packets exchanged back and forth over an IP connection, which were validated against Wireshark dissectors to ensure conformity to the respective protocols.

Formula SAE, Michigan State University

Mechanical / Software Design Member

East Lansing, Michigan

August 2022 - May 2023

- Designed and built a custom tire rack for the race car that improved pit garage space by 20% for pit stops.
- Collaborated with 10+ engineers to develop CAD models, manufacture parts, and assemble everything together.
- Implemented a simulation and validation process to check for proper weight distribution and stability of design for durability.

Panera Bread

Team Lead

East Lansing, Michigan

May 2024 – November 2025

- Successfully always managed a team of 6-8 employees while maintaining over 100 transactions per hour and 98% order accuracy.
- Established a rotation system for tasks that decreased the amount of time customers waited in line by 2 minutes and increased efficiency in workflow by 15%.
- Accrued an impressive record of zero incidents in terms of safety situations throughout all of the shifts I supervised.

PROJECTS

Packet Forge: AI Network Protocol Engine

- Developed a Natural Language Intent-Based Packet Capture Generating System (PCAP) that translates natural language requirements into RFC compatible packet flow representations and generated 50+ verified test PCAPs.
- Developed a Command Line Interface (CLI) application which represented 3 RFC mirror representations and normalized 80+ protocol alias/representations and mapped/represented 35+ Network Protocols (RFC) to their respective RFC documents.
- Developed an Automated Multi-Packet Flow Generator to produce 5–12 Stateful Packet Flows for each Session and to validate packet flow contents using Wireshark's Dissector tools.
- Developed 3 Generators of TCP Packet Transport Variant based on generating hundreds of test variants to test the Robustness of Protocol Implementation.

Automated Meeting Notes System

- Built AI-powered app processing 60+ minute audio/video files, reducing manual note-taking time by 90%.
- Integrated OpenAI Whisper (95% transcription accuracy) and GPT-4 to extract 10-15 action items per meeting with automated priority tagging.
- Developed FastAPI backend with PostgreSQL database handling 500+ meeting records and real-time Slack/email notifications to 20+ users.

Aquarium Simulation

- Developed an Interactive Aquarium Simulator that Represents Inheritance and Polymorphism in Object-Oriented Programming Design.
- Developed 5 fish behavioral motions (Swim, Chase, Eat, Flee) with the capability of being added or removed at Run-Time, representing 15+ Dynamic Objects and User Interaction simulation.
- Optimized Rendering Loop to improve the Frame Rate of the Simulation by approximately 20%. Following Usability Testing resulted in 90% of Test Subject Participants showing improvement with their Understanding of Object-Oriented Programming.

SKILLS

Programming: Python, C++, Java, SQL, JSON, JavaScript, TypeScript

Frameworks / Tools: React, Node.js, FastAPI, Uvicorn, Docker, Kubernetes, GitHub, GitLab, VS Code, CLion, PuTTY, Postman

Cloud / DevOps: AWS, Linux, Bash scripting, CI/CD pipelines

Data / AI: TensorFlow, scikit-learn, Pandas, NumPy, Power BI, Excel

Networking / Security: Wireshark, PCAP/PCAPNG analysis, ABNF parsing, Network simulation

Concept / Practices: API design/testing, OOP (Inheritance, Polymorphism), Agile, Scrum, Version Control (Git)

