# Yeji Lee

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

## EDUCATION

**Michigan State University** **East Lansing, Michigan**
*Bachelor of Science in Computer Science, Minor in Business* *2022 - 2025*

- Dean's List
- Relevant Coursework: Algorithms & Data Structures, Computer Architecture, Software Design, Artificial Intelligence, Database Systems, Mobile App Development

## EXPERIENCE

**Vectra AI (via Michigan State University Capstone)** **East Lansing, Michigan**
*Software Engineer* *August 2025 – Dec 2025*

- Built a distributed FastAPI orchestration pipeline for RFC discovery, YAML extraction, PCAP generation, and multi-stage validation, reducing manual integration time by 45%.
- Developed a React dashboard with FastAPI endpoints to visualize real-time system metrics backed by SQLite and file-based job orchestration.
- Designed an LLM-powered semantic validation pipeline that compares user intent with Vectra AI metadata, generating 5-8 deterministic validation checks per PCAP.
- Implemented an RFC web crawler that scraped and normalized 35+ RFCs across multiple mirrors, enabling automated protocol discovery with freshness validation.
- Designed multi-packet flow and TCP variant generators producing 3–12 packet exchanges per session, validated against Wireshark dissectors for protocol conformance.

**Formula SAE, Michigan State University** **East Lansing, Michigan**
*Mechanical / Software Design Member* *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 design CAD models, manufacture components, and assemble race-ready systems.
- Implemented a simulation and validation process to check for proper weight distribution and stability of design for durability.

**Panera Bread** **East Lansing, Michigan**
*Team Lead (Part-Time)* *May 2024 – November 2025*

- Led and trained teams of 6-8 employees while sustaining 100+ transactions/hour with 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%.
- Maintained a zero-incident safety record across all supervised shifts by enforcing cleanliness and safety protocols.

## PROJECTS

**Packet Forge: AI Network Protocol Engine**

- Built a natural-language-driven PCAP generation system, translating user intent into RFC-compliant packet flows.
- Built a CLI tool integrating three RFC mirror sources, normalizing 80+ protocol aliases and mapping 35+ network protocols to their official RFCs.
- Developed an automated multi-packet flow generator producing 5–12 stateful packet flows per session, validated using Wireshark dissectors.
- Implemented three TCP transport variant generators to produce hundreds of test cases for protocol robustness testing.

**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**

- Built an interactive aquarium simulator demonstrating inheritance and polymorphism in object-oriented design.
- Optimized the rendering loop, improving frame rate by ~20% and increasing concept comprehension in usability testing.

## SKILLS

**Programming:** Python, C++, Java, JavaScript, TypeScript, SQL
**Frameworks & Backend:** FastAPI, React, Node.js, REST APIs
**Systems / Networking:** PCAP Analysis, Wireshark, Network Protocols, RFC Parsing
**Cloud & DevOps:** AWS, Docker, Kubernetes, Linux, Git, CI/CD