

Wei Shun (Eugene) Tye

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WORK AND LEADERSHIP EXPERIENCE

Software Engineer, *Revision Autonomy*

January 2024 – Current

- Spearheaded the development of LDIS, a machine learning-based perception software for lane detection in adverse weather, shaping technical and architectural decisions which enabled successful autonomous field trials and customer demonstrations
- Bridged engineering and business functions by translating complex technical capabilities into customer-facing demos and marketing materials, which brought in over **\$685k in federal and state funding** for the company
- Thrived in a fast-paced startup environment by balancing hands-on development with team leadership, mentoring 3+ interns across domains, resolving blockers, and delivering projects on time with strong ownership and quality
- Engineered a full-stack visualization tool for real-time 3D visualization of LiDAR and camera data from an autonomous shuttle, integrating ROS pipelines for fused lane and object detection, streamlining field test workflows by **over 50%**

Teaching Assistant - Data Structures and Algorithms, *Western Michigan University*

August 2023 – December 2023

- Supervised 15+ weekly review sessions, resulting in a 20% increase in students' ability to solve complex algorithmic problems
- Addressed 100% of student concerns and provided constructive feedback on assignments and exams within 48 hours
- Supported in delivering 10+ lectures on Data Structures and Algorithms, aiding in the education of 40+ students

Undergraduate Researcher, *Western Michigan University*

August 2023 – December 2023

- Collaborated closely with a team of six researchers to develop an innovative AI literacy curriculum aimed at integrating Secure, Safe, Reliable (SSR) Computing principles into the educational curriculum
- Conducted research into AI-related misbehaviors, biases, and uncertainties, with a focus on how these issues can be mitigated through SSR computing techniques

EDUCATION

Western Michigan University (WMU) *Kalamazoo, MI*

December 2023

- Bachelor of Science, Computer Science Major, GPA: 3.91/4.0
- Relevant Coursework: Data Structures and Algorithms, Machine Learning, Network Fundamentals, Database Systems
- Activities: WMU Malaysian Students Association, Lee Honors College, Alpha Lambda Delta Honor Society

PROJECTS

BroncoNav

[Website Link](#)

- Architected a full-stack ride scheduling platform for students with disabilities at Western Michigan University, enabling 100+ students to book rides and 5+ drivers to manage assignments
- Built robust, scalable web architecture using **React**, **TypeScript**, and **Vite** on the frontend, with **FastAPI**, **Supabase**, and **PostgreSQL** on the backend, integrating secure authentication, real-time dashboards, and automated notifications
- Integrated role-based access controls, admin analytics, and system monitoring (**Cloudflare**, **UptimeRobot**), ensuring high reliability, accessibility, and data-driven operations for campus transportation

Lane Detection in Snow Web Demo Platform

[Website Link](#)

- Created a customer-facing web app using **Next.js** and **React** for potential automaker customers to upload snowy-road images and run real-time lane detection via a **PyTorch** model, achieving an inference speed of 30+ frames per second
- Implemented a scalable, serverless backend with **FastAPI**, **Docker**, **AWS Lambda**, and **API Gateway**; converted the model to **ONNX** for 2× faster inference with **ONNX Runtime** and **OpenCV**
- Designed a CI/CD pipeline with **GitHub Actions** to automate **Docker** builds, push to **AWS ECR**, and update **AWS Lambda**, reducing deployment time by 80% with zero downtime

AI-Powered Personalized News Aggregator

[Website Link](#)

- Developed a suite of **Go**-based microservices for daily RSS content scraping, aggregation, and AI-powered summarization (via **OpenAI GPT-4o**), leveraging **Docker** for containerization and **Redis** as a high-performance in-memory database
- Deployed the API on **Google Cloud Run** for autoscaling, while orchestrating microservices on **Google Kubernetes Engine (GKE)** with **Kubernetes CronJobs**, exposing RESTful APIs for web and **Alexa Flash Briefing** integrations
- Automated infrastructure provisioning and deployment pipelines with **Terraform**, ensuring reproducible, scalable, and version-controlled cloud environments, and enabling modular, independently scalable platform components

TECHNICAL SKILLS

Programming Languages: Python, JavaScript, Typescript, Go, C/C++, SQL, PHP, R, HTML, CSS

Libraries: PyTorch, ONNX Runtime, Pandas, NumPy, TensorFlow, Scikit-learn, Keras, OpenCV

Frameworks: React, Node.js, Express, Next.js, React Native, FastAPI, Tailwind CSS

Tools: AWS, GCP, Docker, Kubernetes, Terraform, Redis, MongoDB, Supabase, PostgreSQL, Git, Firebase, Postman, Linux, ROS, CUDA