Dr. Wai Yan Nyein Naing

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Summary

Senior AI Innovation Expert & Applied Research Scientist (Ph.D.) with 8+ years of experience building and deploying production-grade agentic AI systems in safety- and compliance-critical environments. Led large-scale AI platforms including Bosch Super Technician, Ask Bosch, and enterprise risk intelligence systems. Expert in LLMs, multi-agent systems, multimodal AI, and computer vision, with a proven record of taking ideas from concept to global deployment and delivering multi-million-dollar business impact. Recognized innovator with 10+ patents and 10+ publications, experienced in designing robust AI architectures and mentoring teams.

Experiences

Senior Artificial Intelligence Engineer

Robert Bosch LLC, Chicago, USA (Nov 2022 – Present)

Project 1: Super Technician (Agentic ADAS (Advanced Driver-Assistance Systems))

- Built an **agentic GenAI system** with multimodal understanding (text, voice, on-screen actions) that reasons and takes actions to automate complex vehicle camera calibration workflows end-to-end.
- Launched a solution pilot for Toyota vehicle camera calibration (2024) and **demonstrated the system at CES 2025**; enabled ~50% task automation for North America rollout.
- Lead inventor on two U.S. patents in AI-driven remote diagnostics and automated vehicle calibration, with projected USD 30M cost savings.

*Skills: [React (Reasoning Action Agent), GenAI powered Knowledge Graph, AI personalization, Tech Lead]

Project 2: Ask Bosch (Bring Your Own Data)

- Led architecture of an **enterprise LLM-powered RAG solution** for search across legal, manufacturing, SAP, and HR systems, used by **400k+ employees**.
- Integrated state-of-the-art LLMs with private cloud and enterprise access controls, implementing **AI safety guardrails** (PII protection, role-based access).
- Scaled the solution into a **reusable GenAI platform**, enabling rapid assistant development and measurable productivity gains across business units.

*Skills: [Agentic RAG, Azure AI Search, Vertex AI, MCP (Model Context Protocol), Agentic Framework]

Project 3: TTL – Enterprise Risk Intelligence System

- Led a **multi-agent, knowledge-graph-driven AI platform** to assess product-launch readiness and risk from enterprise data, delivering daily risk insights for manufacturing leadership.
- Piloted in North America with projected ~USD 2M/year savings; **U.S. patent filed** covering the core multi-agent AI architecture.

*Skills: [Collaborative Agentic Reasoning, Graph RAG, Gemini LLM/search, A2A (Agent to Agent Protocol)]

Senior Research Scientist
Robert Bosch Pte Ltd, Singapore (Dec 2018 – Oct 2022)

Project 4: AI Sensor Fusion–Based Robotic Waste Sorting System

- Designed a **sensor-fusion deep learning system** combining RGB cameras and terahertz sensing to classify recyclable waste, overcoming accuracy limits of vision-only approaches.
- Integrated the AI model with **robotic plastic sorting systems**, achieving ~20% accuracy improvement and enabling more reliable automated recycling; **inventor on six patents** covering terahertz-based sorting and system design.

*Skills: [Deep CNN, Object Recognition, Tracking, Segmentation, Representation Learning]

Project 5: AI Vision–Based Shrimp Size Estimation (Aqua Easy)

- Developed an **early disease detection system for shrimp aquaculture** and a **mobile computer vision solution** to estimate shrimp size and weight using distance estimation, detection, and segmentation.
- **Co-inventor on EP patent** EP2021/053025 ("System, method, and computer executable code for organism quantification," filed Feb 9, 2021); technology **commercialized as Bosch-invested startup Aqua Easy**.

*Skills: [Signal Processing, 2D/3D Image Segmentation, Depth Estimation, Deep CNN+RNNs]

Project 6: Long-Range AI-Based Airport Runway FOD Detection System

- Developed **and deployed an AI-based long-range vision system** to detect ~5 cm foreign objects at **250–300 m** on Bosch cameras, overcoming long-range small-object detection limits using **GAN-based super-resolution**.
- Achieved **~10× cost savings** compared to radar-based systems; **lead inventor on a patent for AI-based foreign object debris detection.**

*Skills: [Deep Convolutional Neural Networks (CNN), GANs, Super Resolution, Synthetic Image Generation]

Education

- **Ph.D., Engineering (Artificial Intelligence)**, IIUM, Malaysia – 2019

(Thesis: Federated deep learning for intelligent glass-break detection systems.)

- **M.Sc., Mechatronic Engineering (Artificial Intelligence)**, IIUM, Malaysia – 2015

(Thesis: Pulmonary Nodule Detection from Chest-Xray using Histogram of Gradient Descriptor with Auto-encoder)

Selected Publications & Patents

Publications (Selected)

- **Real-Time End-to-End Intelligent Glass-Break Detection Using Deep Learning,** International Journal of Advanced and Applied Sciences, 2019.
- **Glass-Break Detection Using Deep Neural Networks and Acoustic Features**, 2019.
- Additional publications in **fault diagnosis** and **time-series forecasting**.
- **Google Scholar:** https://scholar.google.com/citations?user=KwlI1BwAAAAJ&hl=en

Patents (Selected)

- **AI-driven remote diagnostics and vehicle calibration:** US applications R418941, R418942.
- **Multi-agent AI with knowledge graphs:** US application 19/373,898.
- **AI-based airport runway foreign object detection:** patent filed Aug 3, 2021.
- **AI-based organism quantification (aquaculture):** patent filed Feb 9, 2021.
- **Terahertz-based waste sorting and monitoring:** multiple patent families filed 2022 (EU, PCT, and Germany). *Full publication and patent lists available upon request.*