

GOH KUN MING

Applied AI and Analytics | AI Research, Machine Learning and Intelligent Systems

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PROFILE

Applied AI and Analytics student at Singapore Polytechnic, School of Computing (SoC), with a 3.95/4.00 GPA and an arXiv preprint. Research experience spans multimodal perception, sensor fusion, geospatial AI, RAG, generative modelling and responsible AI. Skilled in experimental design, reproducible evaluation, error analysis, data and model pipelines, and documentation across defence, education and consumer applications. Seeking research internships and assistantships focused on rigorous evaluation and deployable AI systems.

EDUCATION

Diploma in Applied AI and Analytics (DAAA)

Expected 2027

Singapore Polytechnic, School of Computing (SoC)

- GPA: 3.95/4.00, including three consecutive 4.00/4.00 semesters.
- Earned Distinction in 9 modules (top 5%) and A grades in 15 modules. Distinctions include Deep Learning, Statistics for Data Science, Mathematics for AI and DevOps for AI.

PUBLICATION

Goh, K. M. (2025). Quantum-Enhanced Generative Adversarial Networks: Comparative Analysis of Classical and Hybrid Quantum-Classical Generative Adversarial Networks. [arXiv:2508.09209](https://arxiv.org/abs/2508.09209). [Code](#) and reproducibility artefacts.

- Benchmarked a classical GAN against HQCGAN variants using 3, 5 and 7 qubits on binary MNIST, noisy Qiskit simulations and FID/KID evaluation. Reported the stronger classical baseline as a negative result and released a 9-page preprint with experiment configurations, CI and a 21-test validation suite.

EXPERIENCE

AI Research Intern (AETHER)

Apr 2026 - Aug 2026

RSAF Agile Innovation Digital (RAiD)

- Designed and executed a controlled replay evaluation of 14 RGB, thermal and LiDAR sensor-fusion strategies across 1,442 synchronised frames, 7 sensor subsets and 9 environmental conditions. LiDAR + Thermal Agentic Fusion scored 0.4511 versus 0.4493 for conditional fusion, a 0.0018 gain too small to support a claim of clear superiority.
- Curated approximately 500 GB of geospatial data from 15 sources for downstream modelling, identifying 2,139 image-label pairing issues before producing 13,487 segmentation samples and 56,096 classification records.
- Trained and compared neuromorphic-camera drone detectors on 90,000 training tiles. The selected model achieved 0.760 recall, 0.3049 false positives per frame and 22.18 FPS on an official held-out test set, reducing false positives by 72% versus the higher mAP alternative.
- Helped coordinate an 8-person team across AI, hardware, command-and-control and systems integration, and worked with 5 partner institutions spanning universities and polytechnics on sensing and digital-twin workstreams.

AI and Data Solutions Researcher

Mar 2026

Singapore Polytechnic, Department of Communications (COMMS)

- Developed a proof-of-concept departmental platform intended for ACER, covering membership, events, attendance, finance and learning journeys across 4 user roles, 11 workflow areas and 32 application routes.
- Designed an explainable 0 to 100 candidate-matching model using 8 operational signals and selection constraints to balance audience fit, reliability, experience and opportunity allocation.
- Created a GPT-4.1 visitor information chatbot for 4 audience groups, grounded in 14 documents, 1 institutional website and 9 curated Q&A entries. Evaluated it with 30 students and additional staff.
- Designed a Supabase backend with 39 relational tables and 175 row-level security policies, then verified core workflows through 238 automated tests, 31 browser scenarios and 4 CI/CD workflows.

EXPERIENCE, CONTINUED

Student Developer

Sep 2025 - Mar 2026

Singapore Polytechnic, School of Computing (SoC)

- Developed and evaluated a retrieval-augmented knowledge assistant for institutional information using Claude 3 Haiku and Cohere embeddings through Amazon Bedrock, pgvector, BM25, reciprocal rank fusion and LLM reranking. Responses used a median of 4 sources and 8 contextual records.
- Delivered the full-stack application through 53 FastAPI endpoints and 7 Next.js pages, integrating Amazon S3 and Textract ingestion, encrypted data pipelines, persistent conversational memory and 183 structured institutional records.
- Analysed 4,056 logged responses. Overall, 93.6% returned without a clarification, knowledge gap or safety fallback. Among 519 RAG responses, 94.8% avoided a knowledge gap fallback, with no empty answers.
- Validated retrieval, authentication and safety-critical workflows with 312 pytest definitions and 11 browser scenarios, supported a 3-day pilot with 287 responses across 72 conversations, and produced a 30-page handover guide for Work Plan Seminar 2026.

ENTREPRENEURIAL EXPERIENCE

Data Governance & Technical Advisor (Volunteer); Former Co-Founder

May 2026 - Present

Wagglo SG | AI-powered dog compatibility and social matching platform

- Currently volunteer as Data Governance & Technical Advisor, advising on privacy governance and responsible data stewardship; previously co-founded and launched Wagglo on the App Store and Google Play from Feb to Mar 2026. Wagglo was later featured in The Straits Times.
- Analysed 104 survey responses using weighting, resampling and bootstrap estimation to correct a 3:1 age imbalance, identifying compatibility (73.5%) and safety (72.5%) as users' leading concerns.
- Designed an interpretable matching and recommendation system using 9 preference dimensions, Top-K retrieval and evidence-gated personalisation across 8 behaviour types.

Founder and Project Lead

Mar 2025 - Mar 2026

Gentle Care Messenger (GCM) | Responsible AI research prototype

- Led a 4-person team and presented GCM at the NUS HumanITy Challenge, defining a non-diagnostic system aligned with UN SDG 3.4, mandatory human escalation and no autonomous clinical intervention.
- Created a transparent risk engine using 18 distress phrases, 6 contextual indicators and deterministic 0 to 100 scoring across 4 risk categories, paired with human review across 4 priority levels and 5 review states.
- Architected a research prototype spanning 4 application surfaces, 6 shared packages, 12 API routes and 15 relational models, with role-based consent, review and audit workflows supported by 27 security and operational documents and 10 passing tests.

AWARDS & LEADERSHIP

- Awards: National Youth Achievement Award (NYAA) Gold Award, 2026; Singapore Polytechnic Director's Honour Roll (AY2025/2026); Boys' Brigade Founder's Award and SP Chua Medal (Best Boy), 2023.
- Cadet Lieutenant, The Boys' Brigade in Singapore (2024 - 2026): mentored 30+ youths aged 13 to 17, taught Python fundamentals and supported camps, leadership lessons and character programmes.

TECHNICAL SKILLS

Programming	Python, SQL, JavaScript and TypeScript
Research Areas	Computer vision, sensor fusion, LiDAR and thermal sensing, neuromorphic and RF sensing, geospatial AI, GANs, quantum ML and recommender systems
Research Methods	Experimental design, baseline comparison, held-out evaluation, calibration, error analysis, reproducibility, technical documentation and responsible AI governance
ML and AI Libraries	PyTorch, TensorFlow/Keras, scikit-learn, Qiskit and OpenCV
Generative AI	Amazon Bedrock, OpenAI API, Claude, Cohere, LangChain, RAG, embeddings, PostgreSQL with pgvector, BM25 and LLM reranking
Data and Applications	Pandas, NumPy, SciPy, FastAPI, React, Next.js, PostgreSQL, Supabase, Plotly, Power BI and Tableau
Cloud and Engineering	AWS, Docker, Terraform, Git/GitHub, CI/CD, pytest, Playwright, Linux, REST APIs