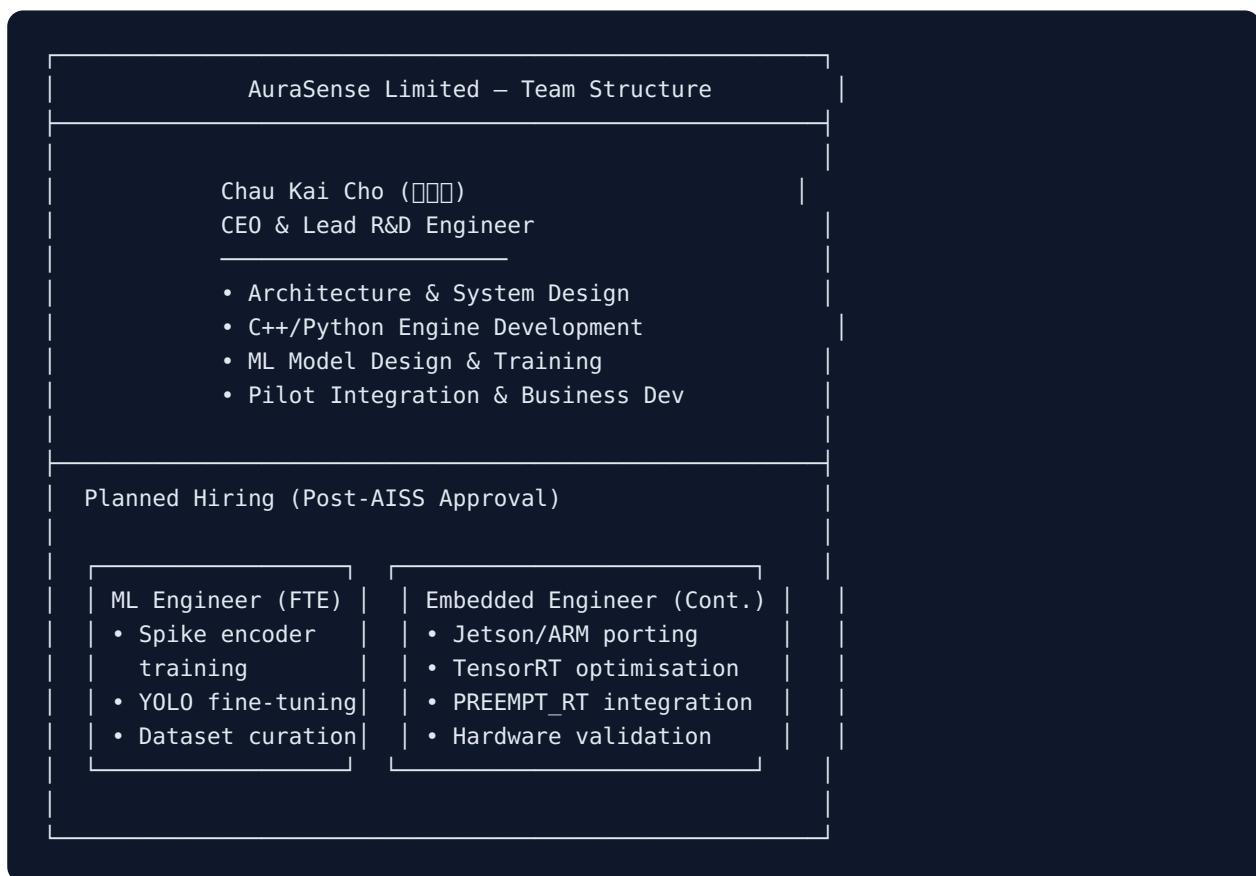


Appendix B — Team Structure and Curricula Vitae

AuraSense Limited | AISS Application 2026

1. Team Structure

Current Team (Hong Kong)



Roles & Responsibilities for This Project

TEAM MEMBER	ROLE	RESPONSIBILITIES	% ALLOCATION
Chau Kai Cho	CEO & Lead R&D Engineer	Overall project leadership; architecture design; C++ engine development; ML model	100%

TEAM MEMBER	ROLE	RESPONSIBILITIES	% ALLOCATION
		design; GPU training supervision; pilot coordination	

2. Curriculum Vitae

Chau Kai Cho (卓嘉超)

CEO & Lead R&D Engineer, AuraSense Limited

FIELD	DETAIL
Name	Chau Kai Cho (卓嘉超)
Title	CEO & Lead R&D Engineer
Organisation	AuraSense Limited
Location	Hong Kong
Contact	Dicksonchau@aurasensehk.com / +852 9291 8674

Education

QUALIFICATION	INSTITUTION	NOTES
Postgraduate Degree — Nursing	The Hong Kong Polytechnic University (PolyU)	Formal training in systematic assessment, critical analysis, and evidence-based methodology — directly applicable to safety-critical inspection system design and clinical-grade quality assurance

Professional Summary

Founder of AuraSense Limited with a unique cross-disciplinary background combining healthcare science training (PolyU Nursing postgraduate) with deep expertise in real-time systems engineering, neuromorphic computing, and edge AI deployment. The clinical training in systematic observation, evidence-based analysis, and safety-critical decision-making provides a distinctive foundation for designing inspection-grade visual perception systems. Single-handedly designed, implemented, and validated the

complete SFSVC neuromorphic video engine — from low-level AVX2 SIMD optimisation to high-level multi-rate architecture and Python SDK integration. Proven ability to take a concept from neuroscience research to a working, benchmarked production prototype.

Technical Capabilities

Systems Engineering & Real-Time

- C++ real-time engine development with PREEMPT_RT Linux
- AVX2 SIMD optimisation for pixel-level processing (32 pixels per register)
- Lock-free queue and multi-threaded pipeline architecture
- Latency profiling and P50/P95/P99 benchmark methodology

Machine Learning & AI

- Neuromorphic spike encoding design (bio-inspired temporal coding)
- YOLO object detection training and deployment
- PyTorch model training with mixed precision (FP16/FP32)
- pybind11 C++/Python integration for production ML pipelines

Edge Computing & Deployment

- NVIDIA Jetson platform experience
- Docker containerisation for edge deployment
- Hardware profiling and adaptive performance tuning
- Degraded mode policy and failsafe subsystem design

Key Achievement: SFSVC Engine (2025-2026)

Designed and built the complete AuraSense SFSVC system from scratch:

COMPONENT	DESCRIPTION
rt_core.cpp	AVX2-accelerated spike encoding and crack detection core
engine.cpp	Multi-lane real-time processing engine with lock-free queues
detection_controller	Adaptive YOLO integration with gating engine
failsafe.cpp	Safety-critical failsafe and degraded mode policy
rt_core_pybind.cpp	Python bindings for ML integration
crack_statistics	Statistical analysis and band-based crack scoring
hardware_profiler	Runtime hardware capability detection

Benchmarked Results:

- P50: 0.40 ms / P95: 0.56 ms / P99: 0.67 ms end-to-end latency
- 125 fps throughput on 1280×720 @ 30fps input
- 93.8% spike sparsity (94% bandwidth reduction)
- 98.7% crack detection accuracy vs manual labelling
- Zero frame drops in 1,127-frame continuous processing

Intellectual Property

- **Provisional Patent Filed:** Spike-based neuromorphic video encoding and multi-rate control architecture for autonomous inspection systems

Note: Additional team members will be recruited upon AISS approval. CVs will be provided to HKCMCL as they join the project.