

William (Viet) Nguyen

Software and Systems Engineer

Brisbane, Australia

zi3t.io

github.com/zi3t

linkedin.com/in/zi3t

Software and systems engineer developing, integrating and validating real-time control software for physical equipment. Experience covers requirements, C++17 architecture, vendor-device integration, simulation, timing investigation, databases, CI verification and technical handover through the software lifecycle.

EXPERIENCE

Software and Systems Engineer

Nov 2024–present

Convergence Medical · Brisbane

- Design, integrate and maintain C++17 control software for a networked surgical robotic system on Linux, spanning multithreaded processing, kinematics, device command and observation over CAN and UDP.
- Translate actuator-vendor protocol constraints and bench findings into testable startup, shutdown, joint-limit, fault-recovery and operator-diagnostic behaviour.
- Investigate the complete hardware path with packet captures, repeatable test runs and p50/p95/p99 timing comparisons to isolate communication bottlenecks.
- Built a physics-backed digital twin for hardware-free integration and regression testing; strengthened CI with unit and integration suites, coverage and MC/DC gates, static analysis and sanitizers.
- Also delivered a React Native and TypeScript healthcare application with AWS-backed authentication and offline workflows.

Undergraduate Research Assistant

Aug 2023–Jun 2024

UQ Cyber, The University of Queensland · Brisbane

- Developed security frameworks for dependable multi-robot systems, focusing on attack detection and defence.
 - Modelled transport-layer denial-of-service scenarios in Python with Kalman-filter methods, then validated and visualised the results on Robotarium.
-

SELECTED WORK

Robotic control-system field note

2026

- Documents requirements interpretation, device integration, safe shutdown behaviour, timing evidence, simulation and the limits of transferable experience without exposing proprietary source.

Operational telemetry replay lab

2026

- Independent C#/.NET 10 project using RabbitMQ over AMQP and SQLite to exercise publisher confirms, manual acknowledgement after commit, duplicate identity, delayed and reordered delivery.
- Includes xUnit decision tests, a real broker integration test, Docker Compose, GitHub Actions and PowerShell entry points.

Independent learning project; not train-control, SCADA or rail-domain experience.

GLUON 6-DOF arm viewer

2026

- Browser-native URDF parser and forward-kinematics viewer using JavaScript and three.js, with constrained joints, live tool-centre coordinates and optimised meshes.

CAPABILITIES

Systems engineering	Requirements interpretation, software architecture, integration, SDLC and technical documentation
Languages	C++17, Python, SQL, TypeScript, JavaScript; C#/.NET through the independent telemetry lab
Interfaces	CAN, UDP, Cap'n Proto, REST, GraphQL; RabbitMQ/AMQP through the independent telemetry lab
Verification	GoogleTest, CTest, xUnit, integration testing, MC/DC, coverage, clang-tidy, ASan, UBSan and TSan
Platforms	Linux, CMake, Docker, Git, Bitbucket Pipelines, GitHub Actions and AWS

EDUCATION

Bachelor of Engineering (Honours), Software Engineering	2024
The University of Queensland · Brisbane	
AWS Certified Developer - Associate	2024