

CLEMENT TOH

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EDUCATION

National University of Singapore (NUS)

- Bachelor of Engineering (Mechanical Engineering) with Honours
- Relevant Coursework: Thermodynamics, Circuit Analysis, Additive Manufacturing

Singapore
Expected May 2028
GPA: 4.19 / 5.00

Singapore Polytechnic (SP)

- Diploma in Mechanical Engineering (with Merit)

April 2023
GPA: 3.86 / 4.00

TECHNICAL SKILLS

- Software, Networking & Scripting:** C++, Python (Data Pipelines, Test Automation), EPL (Ethernet POWERLINK) Network Analysis, Platform.io, InfluxDB, Grafana, MATLAB, GitLab
- Embedded Systems & IIoT:** Arduino, PLCs, NI DAQ (NI-9236), Edge-Computing Telemetry, Sensor Routing
- Characterization & Integration:** Electro-Mechanical Troubleshooting, Hardware-Software Integration, Precision Kinematics, System-Level Debugging
- CAD & Architecture:** SolidWorks, Autodesk Inventor, Siemens NX, Fusion 360

PROFESSIONAL EXPERIENCE

JD Union Pte. Ltd.

Mechatronics Engineering Intern

Singapore
June 2026 – Present

- Executed rigorous quality control and engineering validation testing (EVT) on Class 4 laser (LUXINAR CO2); utilized microscopy to inspect Quartz Block Head (QBH) fiber optics to prevent window failure.
- Engineered and commissioned a heavy-duty mobile industrial test infrastructure (>250kg capacity) using SolidWorks, bridging the gap between mechanical chassis design and physical hardware integration.
- Integrated sensitive laser control components, including an IPG Ytterbium Fibre Laser and NANIO Air Power Supply, optimizing complex cable routing and thermal dissipation to support vision systems.

Advanced Remanufacturing and Technology Centre (A*STAR)

Systems Integration & Development Engineering Intern

Singapore
September 2022 – April 2023

- Programmed Python scripts to execute EPL network packet-sniffing by hardware-tapping the Industrial PC, validating electro-mechanical interactions via synchronized in-situ spectrometer with recoater blade.
- Engineered an embedded firmware architecture using an M5Stack edge-device (C++/Platform.io), querying an InfluxDB database via custom Flux scripts to automate real-time alerts.
- Designed and built hardware-software test setups, safely routing a 12-channel NI DAQ and acoustic emission sensors to characterize process parameters.

Singapore Armed Forces (Armour Simulation Wing)

Systems Operator (National Service)

Singapore
May 2023 – May 2025

- Operated and maintained military simulation hardware across a synchronized network of training cabins.
- Collaborated with defense engineering firm to debug hardware-software systems to operation stability.

TECHNICAL PROJECT

3D Printer Thermal & Hardware Optimization (Ender 3 V3 SE)

June 2024

- Engineered a custom print-head shroud (Fusion 360) and integrated high-performance blower fans to optimize laminar airflow, resolving thermal inconsistencies and mitigating part warpage.

LEADERSHIP & COMMUNITY INVOLVEMENT

Boon Lay Youth Network

Grassroots Leader

Singapore
May 2021 – April 2023

- Organized and directed online academic support programs for underprivileged students, coordinating 20 volunteer educators and supervising over 20 concurrent breakout tutoring sessions.