

## ROGER NG ZI LIANG

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### Professional Summary

Robotics Systems Engineering graduate and Digital Transformation Analyst with hands-on experience developing AI-assisted workflows, full-stack web applications, and end-to-end business automation. Combines a strong foundation in systems engineering principles (INCOSE SEBOK) and root cause analysis with modern development tools like n8n, Django, and React to deliver scalable, user-centric digital solutions that optimize organizational efficiency.

### Technical Skills

- **AI & Automation:** n8n, Unsloth, LM Studio
- **Web & Databases:** Django, React, PostgreSQL
- **Programming:** Python, C
- **Project & Process Management:** Gantt Charts, BOMs, QA/QC, INCOSE SEBOK, systems lifecycle, Lean principles, Six Sigma fundamentals, Root Cause Analysis, Process mapping
- **CAD & Design:** SolidWorks (Sketching, Assembly, DFM/DFA, GD&T)
- **Prototyping & Testing:** 3D Printing, Validation, Pneumatics (Sysmac Studio)
- **Languages:** Bilingual (Fluent in English and Chinese)

### Professional Experience

#### Digital Transformation Analyst

*Winner Engineering Pte Ltd · Full-Time · May 2026 – Present*

- **Full-Stack Development:** Developed user-centric web applications using React for dynamic frontends and Django for robust backends, integrated with PostgreSQL databases to digitize internal business processes.
- **Automation & AI Orchestration:** Designed and implemented AI-assisted automation workflows utilizing n8n, connecting custom-built web interfaces with automated logic to optimize operational efficiency.
- **Lifecycle Management:** Applied the Discover-Design-Deploy-Iterate methodology to translate stakeholder business needs into scalable digital solutions, managing the full software development lifecycle (SDLC).
- **Infrastructure & Governance:** Managed and monitored self-hosted systems and digital infrastructure, ensuring operational reliability and strict compliance with PDPA, Responsible AI, and cybersecurity standards.
- **Deployment & Testing:** Facilitated end-to-end testing, validation, and deployment of digital applications, providing technical documentation and training to support organizational adoption.

#### Assistant Engineer

*WEInnovate Pte Ltd · Internship · Jan 2025 – Dec 2025*

- **Mechanical Design & CAD:** Designed 5+ engineered systems and contributed to 10+ cross-disciplinary projects, from concept development to fabrication support, applying GD&T and DFM/DFA to ensure manufacturability and design accuracy
- **Assembly & Technical Testing:** Executed full mechanical assembly and testing for machines/jigs, working with PLCs, pneumatic systems, sensors, and actuators to resolve functional issues using Sysmac Studio
- **Project Documentation & Procurement:** Produced and maintained comprehensive engineering project documentation, including BOMs, Gantt charts, technical drawings, and machine manuals, while managing end-to-end procurement and RFQ tracks for 100+ components
- **Stakeholder Coordination & Support:** Conducted on-site machine setup and installation support at customer locations, while facilitating interdepartmental coordination, recorded meeting minutes, and aligned team action items

## Process Improvement Analyst

*Destination Services & Intercruises · Internship · Apr 2019 – Jul 2019*

- **Workflow Automation:** Streamlined internal workflows and conducted independent R&D on emerging automation tools using Excel VBA and Microsoft Access, successfully reducing operational lead times by 70%.
- **Continuous Process Improvement:** Applied root cause analysis to process inefficiencies to implement measurable reliability and stability upgrades across cross-functional teams, earning a Certificate of Appreciation.
- **Standardization & Onboarding:** Authored and developed standardized training documentation to improve onboarding consistency and systematically reduce operational process variability.

## Technical Projects

- **Enterprise Digital Stamping & Verification Portal** (React, Django, PostgreSQL, Cryptography): Engineered a full-stack web application with SSO integration to digitize contract workflows, building an orientation-aware UI and embedding cryptographic tracking keys for signature verification.
- **Digital Engineering & Assembly Tracking Portal** (n8n Webhooks, RBAC, Relational Databases): Developed a centralized, role-gated platform using relational pointer schemas to track component lifecycles across separate trades, integrating n8n webhooks for automated alerts and secure OTP onboarding.
- **AI-Accelerated Web Deployment** (Cursor / Composer, AI Prompting, Vibe Coding): Designed and deployed a responsive, accessible static portfolio site by leveraging advanced LLMs as context-aware pair programmers, drastically compressing standard frontend development lifecycles.

## Education

### Bachelor of Engineering (Hons), Robotics Systems Engineering

*Singapore Institute of Technology · Apr 2022 – Apr 2026*

- Key Modules: Project Management, AI Robotics, Control Systems
- Tools: SolidWorks, Python, C/C++, MATLAB Simulink, ROS, SEBOK, SysML, Capella

### Diploma in Business Process & Systems Engineering

*Temasek Polytechnic · Apr 2017 – Apr 2020*

- **Core Focus:** Engineering Analytics, Supply Chain Management, Marketing Research
- **Key Distinction:** Major Project & Internship (Achieved Grade A)

## Additional Experience

### Sea Terminal Operator

*Singapore Armed Forces · National Service · Mar 2020 – Mar 2022*

- **Process Management:** Coordinated high-stakes port logistics and supply chain asset staging, building a strong foundational understanding of physical operational workflows.

### Multiple Organizations

*Various Operational & Service Roles · Part-Time · 2016 – 2025*

- **Operational Empathy:** Navigated ground-level logistics, retail, and F&B environments, leveraging firsthand understanding of physical workflows to design highly user-friendly digital transformations.