Derick Lee

Location: Singapore
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Summary

Software engineer with 4+ years of hands-on experience building full-stack applications, APIs and data-driven systems across commercial, research and public-sector projects. Skilled at translating user and business requirements into maintainable software. Experience spans client-facing web applications, published automotive research, embedded systems and IoT integration. Available for a 12-month internship from May 2027 to April 2028.

Skills

Languages	:	C, C++, TypeScript, Kotlin, Swift, Python, Java, SQL
Frameworks	:	Next.js, React, Node.js, TensorFlow
Data & Cloud	:	MongoDB, PostgreSQL, Google Cloud, AWS
Dev Tools	:	Git, GitHub Actions, Docker, Linux/WSL, CI/CD
Robotics & IoT	:	ROS, CARLA, MQTT
Others	:	Breakdancing, Headspins

Education

Singapore Institute of Technology — Singapore
Bachelor of Engineering with Honours in ICT (Software Engineering) — *Sep 2024 – Present*

University of Tartu — Tartu, Estonia
Summer School in Self-Driving Cars (156 hours) — *Jul – Aug 2026*

- Worked with perception, planning and control modules for a modular autonomous driving stack in ROS

Experience

Full Stack Developer — May 2022 – Present
Freelance — *Singapore*

- Built and launched websites and e-commerce platforms for **5+ clients**, including Yeo's, SIT and Pandano, managing the full development lifecycle from requirements gathering to deployment and ongoing maintenance
- Provided technical consulting on technology selection, architecture and hosting, recommending solutions across Next.js, React, Shopify and WordPress based on each client's budget, team and goals
- Co-founded and developed the website for Dreamfellas, a digital publication showcasing Asia's dance, style and music scene to a global audience, featuring **hundreds of articles** from local writers

Web Developer (Part-time) — Nov 2024 – Dec 2025
Singapore Institute of Technology (SIT) — *Singapore*

- Consolidated information from **6 labs** into a centralised showcase on the SIT website, bringing together **100+ research projects** and improving their discoverability
- Cleaned, standardised and migrated project data into Drupal, enabling staff to manage content without developer support

Data & Tech Engineer Intern — Jun – Sep 2024, Apr – Jul 2022
Ministry of Social and Family Development (Child Protective Service) — *Singapore*

- Built and deployed ML models to support screening decisions on incoming cases, pre-labelling risk levels so officers could focus their time on high-risk cases
- Served as a business analyst during a CRM migration, translating operational requirements into system specifications and user stories
- Reviewed use cases and proposed changes with developers, clarifying requirements and identifying gaps between stakeholder needs and the implementation

Coding Instructor (Part-time) — Apr 2021 – Jun 2022
Kodecoon Academy — *Singapore*

- Taught programming and software design to students aged 6–16, turning technical concepts into accessible, hands-on projects for different learning levels

Network Infrastructure Engineer Intern Apr – Dec 2021
CapitaLand *Singapore*

- Automated repetitive business processes with Selenium and conducted coding workshops to help non-technical staff identify opportunities for workflow automation and process improvement

Projects

TakeoverBench *Python, Flask, CARLA, Kotlin, Jetpack Compose, MQTT* Demo | Code

- Built a benchmarking platform for takeover requests in L3 automated vehicles, connecting the CARLA simulator, a Flask dashboard and a customisable Android HMI over MQTT
- Automated experiment workflows from vehicle spawning and autopilot activation to TTC-triggered takeover alerts and telemetry logging
- Computed **41 takeover metrics grouped into 9 performance categories**, with auto-generated PDF session reports for easy comparison of experiments

Embedded Protocol Sniffer & Fuzzer *C, RP2040 (Pico W), PIO, UART, I^2C, SPI* Code

- Developed a handheld tool that auto-identifies the protocol and pinout of unknown UART, I^2C and SPI devices via passive sniffing or active fuzzing
- Led system integration and built the sniffing, fuzzing and real-time decoding modules, translating live bus traffic into hex/ASCII logs

Publications

TakeoverBench: A Benchmarking Platform for Takeover Requests (TOR) in Conditionally Automated Vehicles
*AutoUI Adjunct 2026 · **Derick C.Z. Lee**, Uwais Alqarni Bin Abdul Rahman, Yu-Xuan Tan, Yi-Zhen Cheng, Benjamin Kwok, Kan Chen, Jeannie S.A. Lee*
Read paper

Towards Low-Cost Driver Supervision: Evaluating a Smartphone Interface for Driver Inattention Monitoring in Simulated Driving
*AutoUI Adjunct 2026 · Yi-Zhen Cheng, Yu-Xuan Tan, Uwais Alqarni Bin Abdul Rahman, **Derick C.Z. Lee**, Kan Chen, Jeannie S.A. Lee*
Read paper

Volunteering

Impart Jan 2025 – Present
Volunteer Tutor *Singapore*

- Provide weekly academic guidance to youths facing adversity, helping them build confidence and progress toward their educational goals
- Led the e-learning component of volunteer training, coordinating incoming volunteers and resolving operational issues to prepare them for youth-facing roles
- Developed a digital volunteer training system, automating training workflows and supporting the onboarding of **nearly 100 volunteers** per biannual cycle

Beyond Social Services Nov 2021 – Jun 2022
Volunteer Tutor *Singapore*

- Provided weekly academic guidance to youths facing adversity, helping them build confidence and progress toward their educational goals