

Thomas Lin

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Engineering Experience

Embedded Software Developer & Avionics Software Team Lead (SpaceRyde) Nov. '21 – Feb. '23

- Led the design of flight vehicle avionics software, involving requirements formulation, component sourcing & validation, architectural design & layout, and integration & iterative testing
- Developed a suite of Linux-based embedded drivers for a ROS2-based avionics software stack, interfacing with peripherals (e.g. IMU, GPS, cameras, ADC, etc.) over UART, CAN, I2C, and TCP/IP
- Designed a networking solution for a multi-stage vehicle stack, as well as a mobile groundstation for tracking, telemetry, and command (TT&C)

Cloud Infrastructure Developer & SysAdmin (SAVI Network) May '12 – Oct. '21

- Designed and implemented a cloud (IaaS) control & management back-end system based on software-defined infrastructure; unified systems telemetry & alerting using open-source software (OSS)
- Extended OpenStack services to support virtualized GPUs, FPGAs, SDRs, and Wi-Fi resources
- Built and operated the distributed SAVI cloud testbed: administered server & storage clusters, maintained back-end services, configured & programmed network devices, and designed network & power wiring
- Supported researchers in designing and implementing experiments involving cloud orchestration, software-defined networking, network function virtualization, security, and 5G slicing

Network Software Developer (StreamWorx.AI) May '21 – Sept. '21

- Led initial client requirements analysis, and performed exploratory research on client's tech stack to determine solutions for deep-packet inspection (DPI)
- Developed a multi-layer (physical, virtual, application) network & compute telemetry framework, for a client's customer premise edge (CPE) networking product
- Developed & deployed data ingestion processors for real-time data pipelines and analytic dashboards

Multimedia Software Engineering Intern (Qualcomm Canada) May '09 – Aug. '10

- Developed the user-space layers of a video processing driver for BREW OS and Windows Embedded CE
 - Implemented a flexible OMX-based test case generator for unit, integration, and regression testing
 - Tracked and debugged integrated driver builds, responsible for packaging code releases
 - PoC for out-of-country teams, support for issues relating to the latest video driver release
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Technical Skills

Programming and Scripting

- Frequently used: C/C++, Python, Go, Bash
- Past projects: Node.js, Java, CUDA-C
- Tools: gdb, valgrind, gperf, clang-tidy, cppcheck

Other CLI Systems and Languages

- Routers & switches: Cisco IOS, Dell NOS, Ciena SAOS & D-NFVI, Juniper SRX
- Databases: SQL (and derivatives), PromQL

Operating Systems

- Debian and CentOS-based Linux, Windows

Communication Standards

- TCP/IP, I2C, UART via RS-232 & 422, CAN

Web Development

- HTML5, JavaScript, Flask framework

Open-Source Cloud Frameworks & Technologies

- OpenStack, Kubernetes, Docker, lxc, KVM, P4, OpenFlow, Open vSwitch (OVS), Prometheus, Loki, Grafana, Envoy, HELK, srsLTE, Open5GS
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Education

University of Toronto

Ph.D. (Electrical & Computer Engineering) Sept. '14 – Sept. '21

- Client-centric resource orchestration; cloud monitoring; decentralized self-healing apps & architectures

M.A.Sc. (Electrical & Computer Engineering) Sept. '11 – Dec. '14

- Software-defined infrastructure & networking; network function virtualization; multi-tier cloud management

B.A.Sc. (Computer Engineering) Sept. '06 – Jun. '11

- Software and communication networks