Thomas Lin

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Engineering Experience

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)

Infrastructure Testbed Developer & SysAdmin (SAVI Network)   *May '12 – Oct. '21*
- Developed a cloud infrastructure (IaaS) control and management framework based on software-defined infrastructure; unified heterogeneous infrastructure telemetry & alerting via open-source software (OSS)
- Extended OpenStack to support virtualized GPUs, FPGAs, SDRs, and Wi-Fi resources
- Built and operated the distributed SAVI cloud testbed: administered server clusters, bring-up of software services, configured & programmed network devices, and designed network & power wiring
- Supported students and researchers in designing and implementing novel 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, using open-source tools
- 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

Technical Skills

Programming and Scripting
- Frequently used: C/C++, Python, Go, Bash
- Past projects: Node.js, Java, CUDA-C

Web Development
- HTML5, JavaScript, Flask framework

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

Operating Systems
- Debian and CentOS-based Linux, Windows

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

Open-Source Cloud Frameworks & Technologies
- OpenStack, Kubernetes, Docker, lxc, KVM, Prometheus, Loki, Grafana, Envoy, Open vSwitch (OVS), OpenFlow, P4, HELK, srsLTE, Open5GS

Education

University of Toronto
Ph.D. (Electrical & Computer Engineering)   *Sept. '14 – Sept. '21*
- Thesis: *Client-Centric Orchestration and Management of Distributed Applications in Multi-Tier Clouds*

M.A.Sc. (Electrical & Computer Engineering)   *Sept. '11 – Dec. '14*
- Thesis: *Implementation and Evaluation of an SDN Management System on the SAVI Testbed*

B.A.Sc. (Computer Engineering)   *Sept. '06 – Jun. '11*
- Capstone: *An iPad Application in Vehicular Networks*