



Daniel Lawrence Lu

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WORK	Main Street Autonomy , San Jose, CA <i>Software Engineer</i> <ul style="list-style-type: none">Visual-lidar-inertial odometry, mapping, and calibration.	2023-10 – PRESENT C++, Python
	Tesla , Palo Alto, CA <i>Senior Software Engineer – Autopilot</i> <ul style="list-style-type: none">Visual-inertial odometry (vIO); large-scale vision-only multi-trip 3D surface reconstruction;Automatic alignment of clips to map data for autolabelling.	2021-10 – 2023-10 C++, Python
	Tempus Ex Machina , San Francisco, CA <i>Staff Software Engineer – Computer Vision</i> <ul style="list-style-type: none">Automatic single-shot monocular camera to sports field calibration;Real time deep learning multi-object tracking and human pose estimation.	2020-09 – 2021-10 Python, Rust, TypeScript
	Ouster , San Francisco, CA <i>Lead Software Engineer – 3D Mapping</i> <ul style="list-style-type: none">Architected and implemented core algorithms as the first software engineer;Real time multi-lidar 6DoF SLAM with: <1% drift, loop closure, robust GPS georeferencing, superpoint lidar feature extraction; spline-based continuous-time SE(3) trajectory optimizer;Extrinsic calibration; ground segmentation; OpenGL and WebGL visualisers.	2016-09 – 2020-09 C++, Python, OpenGL
INTERN/RA	Facebook , <i>Save for later team</i> Full stack development for Save For Later functionality.	2015-05 – 2015-08 hack/PHP
	CMU , <i>Autonomous Yamaha Viking</i> Real time visual-inertial-lidar SLAM for autonomous off-road vehicle.	2014-08 – 2016-08 C++11
	Facebook , <i>People, places and things team</i> Collaborative filtering and data pipelines to recommend Facebook pages.	2014-05 – 2014-08 C++, HiveQL, Hack/PHP
	UBC , <i>Ultrasound volumetric image registration</i> GPU-accelerated registration of ultrasound and CAT scans for epidural administration.	2011-05 – 2011-12 C++, CUDA
	UBC , <i>Bat multilateration and classification</i> Tracking and classifying bat species such as <i>Myotis lucifugus</i> with microphone array.	2010-01 – 2010-04 MATLAB
SCHOOL	Carnegie Mellon University , Master of Science in Robotics Robotics Institute, Advisor: George Kantor Thesis: <i>Vision-Enhanced Lidar Odometry and Mapping</i>	2014-08 – 2016-08 GPA: 3.76
	University of British Columbia , Bachelor of Applied Science Engineering Physics	2008-09 – 2014-05 GPA: 82.1% (A-)
SKILLS	Languages: C++20, JavaScript/TypeScript, Python, Rust Canadian citizen, USA Green Card holder. Fluent in English and Mandarin.	

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