

DL LU Daniel Lawrence Lu

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SAN FRANCISCO

WORK	Ouster , San Francisco CA <i>Mapping Lead</i> 2016-08 – PRESENT C++14, ROS, Python, OpenGL <ul style="list-style-type: none">Architected and implemented core algorithms as the first software engineer, including:<ul style="list-style-type: none">Real time multi-lidar 6DoF SLAM with < 1% drift per 800 m distance travelled;Efficient on-manifold Lie group optimisation backend for continuous-time pose graphs;Automatic loop closure detection;Robust georeferencing of multiple trajectories using noisy consumer-grade GPS;Automatic extrinsic calibration between multiple lidars and inertial measurement units;Geometric real time ground segmentation of unordered point clouds;High-performance OpenGL point cloud visualisations and evaluation tools;WebGL point cloud visualisation;CPU-based ray tracing simulator for Ouster lidars;Detailed documentation explaining all mathematical derivations.Hired and mentored direct reports.
	Carnegie Mellon University , Pittsburgh PA <i>Graduate Student Researcher</i> 2015-08 – 2016-08 C++11, ROS <ul style="list-style-type: none">Real time visual-inertial-lidar 6DoF SLAM for autonomous off-road vehicle.
	Facebook , Seattle WA <i>Software Engineering Intern</i> 2015-05 – 2015-08 Hack/PHP <ul style="list-style-type: none">Full stack development for the Save For Later functionality.
	Facebook , Seattle WA <i>Software Engineering Intern</i> 2014-05 – 2014-08 C++, HiveQL, Hack/PHP <ul style="list-style-type: none">Collaborative filtering algorithms for recommending Facebook Pages;Data processing to aggregate features from multiple sources.
	University of British Columbia , Vancouver BC <i>Research Assistant</i> 2011-05 – 2011-12 C++, CUDA <ul style="list-style-type: none">GPU-accelerated real time registration of ultrasound and CAT scans for epidural administration.
SCHOOL	Carnegie Mellon University , Master of Science 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++14, CUDA, Javascript, MATLAB, Python, Rust Operating system: GNU/Linux Canadian citizen, USA Green Card holder. Fluent in English and Mandarin.

UPDATED 2020-07-02