

Summary of Qualifications

- Proficient in C++ and Python
 - Proven experience with Robotics and Motion Planning
 - Bachelor of Science in Computer Science. UBC, 2017
 - Experience with team management roles
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Experience

NIO, Senior Autonomous Controls Engineer (August 2017 - Present) <http://nio.com>

- Developed an efficient, real-time-safe robotics software framework and middleware that replaced ROS in the L4 system. Created rich developer-facing tooling for real-time diagnostics as well as data recording, replay, processing, and visualization, enabling teams to iterate at a rapid pace
- Architected and implemented many of the core L4 stack libraries
- Acted as the de facto software engineering/C++ expert for all AD/AI SW teams
- Optimized algorithm designs and implementations across the full AD stack
- Designed and implemented the base object fusion solution (multi-modal, multi-target)
- Established and co-managed the L4 SW testing release process

Google, Software Developer Intern (May – August 2016) <http://google.com>

- Contributed to improving Chrome Autofill for 100M+ users
- Created an automated integration testing suite for Autofill in Chrome
 - Removed the need for tedious manual reliability/website compatibility testing
- Experimental investigation of future directions for Autofill
 - Prototyped a next-gen automated checkout solution during an internal two-day hackathon

Tesla Motors, Software Engineering Intern (January – April 2016) <http://tesla.com>

- Co-developed a new CAN requirement spec. format for company-wide usage w/ Model 3
 - Replacement for DBC, designed for data de-duplication, flexibility, and auto-optimization
- Created a fully-featured JCAN editor application (Canode), used by all firmware teams
 - Natively multi-platform, fully asynchronous, loosely coupled and highly cohesive
 - Provides instantaneous bus analysis results and input feedback for improved workflow
- Advised on and enabled data driven decision-making for Model 3 CAN architecture
- First week: built and deployed a release artifact service with LDAP authenticated web app

UBC Sailbot, Software Lead (Sept 2013 – Aug 2017) Autonomous Sailboat <http://ubcsailbot.org>

- Record for the furthest fully autonomous boat crossing of the Atlantic Ocean
- Won the International Robotic Sailing Regatta in 2014, 2013, and 2012
- Optimal real-time motion planning with dynamic obstacles in the complex sailing domain
- Efficient, optimal global path planning considering weather data for performance and risk
- Created a novel marine obstacle detection system using thermal imaging & CV
- Developed a fully redundant sensor system with intelligent failure-resistant firmware
- Managed a 17-person software team with Agile methods (Scrum)

Vparq, Founder, CTO (May 2015 – Present) Digital replacement for parking passes <http://vparq.com>

- Designed a distributed stack consisting of Angular.js, Node.js, PostgreSQL, Redis
- Created a responsive real-time single page application using Angular.js and Socket.io
- Allowed for scalable deployment with a stateless RESTful API backend using JWT auth

Vikom Media, Lead Developer & Founder (Sept 2011 – Present) <http://vikom.io>

- Reached 2.5 million unique users in 5 months with an MVC web app (AdCraft.co 2011)
- Created and deployed a fast, scalable and responsive image sharing website
- PostgreSQL & MongoDB optimization and management
- Long-term software consulting to Water Wall Turbine Inc. (Web Development / Graphics)

Education

The University of British Columbia, Vancouver, BC, 2013 – 2017
Bachelor of Science (Computer Science)

Coursera (Stanford), Summer 2015
Intro to Machine Learning – Andrew Ng

Udacity (Georgia Tech), Summer 2014
Artificial Intelligence for Robotics – Sebastian Thrun

Scholarships and Awards

3x You Rock Award – NIO

Top Oral Presentation – UBC Multidisciplinary Undergraduate Research Conference, 2015
Dean's Honors List – UBC, 2014

Lions Bay Community Foundation Scholarship, 2013
Rotary Sunrise Scholarship – Rotary West Vancouver, 2013

Outstanding Youth Team Award – West Vancouver District, 2012 & 2013
Recognized for 350+ hours of total school service, 2013

Technical Skills

Programming:	C++, Node.js, Python, Java, Haskell, CUDA System architecture, embedded firmware, data structures, algorithms Proven experience with implementing AI, ML, CV in real-time systems
Data & Statistics:	R, statistical analysis, particle filters, Kalman filters
Networking:	TCP/IP, AVB/TSN, CAN, RS232, WebSocket, routing
Markup:	HTML, CSS, Markdown
Databases:	PostgreSQL, MongoDB, database schema design
Other:	Proficiency with UNIX shell
Graphical Design:	Extensive experience with UI/UX design principles & Adobe CC

Other Relevant Experience

Hackathons

- Google Code Jam 2014 - Passed Qualification Round, travel prevented further progression
 - EA Code Wars 2014 - Developed a simple Android game in 12 hours
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Management Skills

Project management:	Effective communicator, highly organized and detail-oriented Experience with hands-on management of large teams Inspiring teams to be scrappy in implementing ambitious visions Mentoring researchers and junior engineers into software experts Constructing teams of exceptional engineers Negotiating sponsorships and partnerships Long-term project planning
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