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EDUCATION

Self Driving Car Nanodegree, Udacity

2017-2018

Completed coursework and projects in artificial intelligence, machine learning, computer vision, sensor fusion, localization, control, path planning, and robotics.

Capstone Project: Worked within a small team to implement route planning and control of a Lincoln MKZ using ROS framework in **C++** and **Python**. Retrained a single shot ResNet50 based traffic light classifier to deal with variable lighting conditions and developed adaptive zooming algorithm to enable correct classification at greater distances. Developed algorithms to calculate minimum stopping distance based on current speed and acceleration and allowable acceleration and jerk.

Professional Engineering Accreditation, Professional Engineers Ontario

1994-1997

P.Eng. designation for Geological Engineering via coursework and accreditation examination program.

Honours Bachelor Of Science, University Of Waterloo

1984-1989

Concentration in hydrogeology & geophysics. Coursework in computer science, math, physics, digital signal processing.

EXPERIENCE

SR&ED Technical Consultant

Self-Employed – Consultant To Boutique Tax Firm

Dec 2006 – Present

- Work with small, medium, and large enterprise clients to successfully make scientific research & experimental development (SR&ED) tax credit claims reaching to millions of dollars per claim.
- Craft descriptions to clarify and highlight how work fulfilled the requirements for CRA SR&ED investment tax credits.
- Specialize in claims for Cluster Computing, Computer Vision, Optics, and Cleantech.

Lead Software Developer

[Vocomo](#) (acquired by Innovada in 2004)

Jun 1997 – Dec 2006

- Progressed from Developer to Lead Developer responsible for telephony chat and dateline systems used by key players in industry (Quest, LiveLinks, Nightline).
- Coding was completed primarily in **C** and **Perl** on DOS, Windows, and Linux Platforms.
- The main IVR engine used state machines, and event-based triggering of asynchronous commands. We initially had to code the real time application to run in a constrained environment (DOS) within 1 MB memory limitation.
- Continuously improved the capabilities and densities of the IVRs. In 1997, systems were restricted to 72 analog lines on DOS. By 2004 we had increased capacity to 700 lines on ISDN PRI, enabled multiple products to run simultaneously, and integrated the system with backend customer service software.
- Developed loosely linked message passing facility to enable integration of systems linked by hybrid network of VPNs, and frame-relay connections.
- Developed 400-line SIP based IVR using Intel Host Media Platform. Completed Interop testing with Level3 and Global Crossing.
- Built a Perl based SMPP SMSC client/server to enable SMS message aggregation system and micropayment platform connected directly to all the major Canadian mobile carriers and via [TeleNor](#) to U.S. based carriers.
- Managed development of Mobilehookup, an SMS based dating program, using various novel approaches to decipher user communications, to locate nearby users, and enable anonymous voice connections between mobile users.
- Managed staff of up to 10 Developers. Responsible for hiring decisions, employee performance reviews, and mentoring/skills upgrading of staff.

Engineering/Environmental Geologist [Peto MacCallum Ltd.](#), Adamas Environmental Inc.

Jun 1989 – Jun 1997

- Conducted geotechnical and environmental site assessments and site remediation projects in Canada and the USA.

SKILLS

- C, C++, Python, Perl, SQL
- OpenCV, ROS, Jupyter, Matplotlib, Tensorflow
- Visual Studio, Visual Studio Code, CMake, Git
- TCP/IP, SIP, SMPP
- Windows, Linux, Docker, Cisco CLI