



Somesh Daga

Master of Applied Science (MASc.)

Software

C++/Python 10+ yrs

Robot Operating System (ROS) 6+ yrs

Docker 6+ yrs

Amazon Web Services (AWS) 4+ yrs

Continuous Integration/Delivery (CI/CD) 4+ yrs

Computer Vision 3+ yrs

PyTorch/Tensorflow 3+ yrs

MongoDB 3+ yrs

Reinforcement Learning 2+ yrs

Java/Visual C#/Node JS/SQL 1+ yrs

Simulation

Matlab 10+ yrs

Gazebo 4+ yrs

MuJoCo/PyBullet 2+ yrs

Biography

A seasoned software engineer with an exceptional academic record, and over 6 years of experience in creating core and supporting systems for artificial intelligence applications. Demonstrated ability in leading teams to deliver products for the real world. Possesses a strong blend of practical software development and research experience, and well-versed in classical and data-driven approaches to machine learning. Seeking opportunities to contribute to emerging artificial intelligence advances with large business and social impacts.

Education

Master of Applied Science

Sep 2019 - Aug 2021

University of Waterloo - Waterloo, ON
Mechanical and Mechatronics Engineering
Advanced Robotics Lab

Dean Entrance Award ▪ *President's Graduate Scholarship* ▪ *Engineering Excellence Fellowship* ▪ *NSERC CGS-M*

Thesis: [Reinforcement Learning for Sequential Robotic Tasks](#)

Supervisors: Drs. Soo Jeon and William Melek

Research focus in sample efficient and explainable behaviour learning for robotic manipulation. Development of novel approach based on task-level decomposition and Hierarchical Reinforcement Learning

Cumulative Percentage Grade: 96.0%

Bachelor of Applied Science

Sep 2012 - May 2017

University of British Columbia - Vancouver, BC
Engineering Physics (Mechatronics Specialization)

APEG Achievement Award ▪ *Trek Excellence Awards 2013-2016* ▪ *Engineering Physics 50th Anniversary Scholarship* ▪ *Jimmar Memorial Scholarship* ▪ *Captain C Y Wu Scholarship* ▪ *Chancellor's Scholar*

Credits Earned: 198 ▪ **Cumulative Percentage Grade: 92.6%**

Work Experience

Robotics Engineer II (SLAM)

Nov 2022 - Oct 2023

Zebra Technologies - Mississauga, ON

Developed multi-modal localization solutions for warehouse fulfillment AMRs. Notable contributions include:

- Particle Filter improvements for integrated, multi-modal localization
- Detection, tracking, mapping and localization using vision-based features with demonstrated success at a challenging customer site
- Test infrastructure using simulated and real-world localization data

Senior Software Engineer

Sep 2021 - Nov 2022

A&K Robotics - Vancouver, BC

Led a team of software developers to create autonomous self-driving vehicles for airports. Significant independent contributions include creation of feature-rich human-robot interfaces using Qt, instrumenting robots with IoT technologies for web-based fleet management and development of path planning algorithms to support socially compliant navigation. Leadership responsibilities comprise of heading architecture design/review and sprint meetings, 1-on-1 check-ins with team members and leading mission-critical pilots to large airport groups.

Skills

- ▶ Solidworks
- ▶ 3D Printing
- ▶ Hand/Machine Tools
- ▶ Laser/Waterjet Cutting
- ▶ Microcontroller Programming
- ▶ Analog and Digital Electronics

MASc Courses

- ▶ Autonomous Mobile Robotics
- ▶ Pattern Recognition
- ▶ Machine and Process Control
- ▶ Image Processing and Visual Communication
- ▶ Continuous Optimization (Audit)

Interests

- ▶ Piano
- ▶ Badminton
- ▶ Tennis
- ▶ Table-tennis
- ▶ Travel

Contact

- 📍 Toronto, ON
- ☎ +1 604-537-1285
- ✉ someshdaga94@gmail.com
- 🏠 someshdaga.github.io
- 🌐 github.com/SomeshDaga
- 🌐 linkedin.com/somesh-daga

Lead Software Engineer

Sep 2018 - Aug 2019

A&K Robotics - Vancouver, BC

Led a team of software developers to develop and deploy the first fleet of autonomous floor cleaning industrial robots. Wide scope of responsibilities including technical development of core technologies, design and review of software/cloud architectures, DevOps, and project management. Contributed to development of autonomous platforms for indoor transportation of people with restricted mobility, and disinfecting robots.

Robotics Engineer

May 2017 - Aug 2018

A&K Robotics - Vancouver, BC

Worked on a large number of robotic technologies, not limited to, navigation, SLAM, teleoperation systems, human-robot interfaces and cloud solutions. Examples of projects include obstacle avoidance and indoor localization algorithms, behaviour trees for designing robot behaviours, UI/UX development, automated backups for robot data and distributed system communications.

Localization and Navigation Developer (Co-op)

Apr 2016 - Aug 2016

A&K Robotics - Vancouver, BC

Implemented comprehensive software-in-the-loop simulations using the Gazebo simulator. Developed software for robot subsystems such as navigation and diagnostics using the ROS framework, and created GUI dashboards using the Qt framework.

Junior QA Test Developer (Co-op)

May 2015- Aug 2015

AppNeta - Vancouver, BC

Created test suites and supporting infrastructure for a number of projects. Developed Dockerfiles for testing and verification of dependencies for web request tracking instrumentation (TraceView™) across supported languages and web servers, and automated provisioning of virtualized machines on AWS using Chef.

Systems Engineer (Co-op)

Jan 2014 - Apr 2014

Optigo Networks Inc. - Vancouver, BC

Developed extensive hardware-in-the-loop test systems for optical networking devices from the ground up. Completed research-focused tasks such as identifying bandwidth bottlenecks and overheads, and modelling device power consumption.

Project experience

UW Robotics Team

Sep 2019 - Feb 2020

University of Waterloo - Waterloo, ON

Created simulation model of custom arm and manipulator using ROS/Gazebo. Implemented simulated and hardware controllers using the ROS Control interface and developed CAN libraries for communication. Developed a cartesian controller for arm teleoperation using the MoveIt Motion Planning framework.

Self-Driving Car Nanodegree Program

May 2017 - Aug 2017

Udacity

A project-laden online course organized by Sebastian Thrun, offering Computer Vision and Deep Learning materials targeted for autonomous driving applications. Projects included traffic sign classification using Convolutional Neural Networks (CNNs), behaviour cloning for a car learning to drive around a simulated race track, detecting lanes on a road in a video stream under challenging lighting conditions and tracking vehicles in a video stream.