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Canada

Beshari Jamal

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Technical Skills

Programming: C, C++, Python, web technologies, Bash, MATLAB.
Software: Solidworks, OnShape, Fusion360, Ansys, Simulink, ROS, Gazebo, Eigen, OpenCV.
Theory: Linear Algebra, Probability, Multiview Geometry, Control Systems.

Professional Experience

Avidbots Corp
Kitchener, ON | *Oct 2021 - May 2023*
Autonomy software developer (sensors team)

- Developed and prototyped a new AMR navigation sensor layout, integrating 3D design, driver development, and various sensors (RGB cameras, lidars, 3D cameras) into Autonomy, calibration and monitoring systems.
- Robotic experiment design, 2d and 3D vision data analysis for sensor testing and qualification.
- Led the transition from simulation to hardware for a new autonomous robot prototype, resolving incompatibilities through data analysis, cross-team coordination, and code updates.
- Initiated and managed a rapid prototyping space, accelerating innovation within the team.
- Tools used: **OpenCV**, **Linux**, **ROS**, **C++**, **Python**, **Bash**, **Onshape** (3D printing, sheet metal).

Allied Scientific Pro: R&D
Gatineau, QC | *June 2021 - Oct 2021*
Robotics project lead

- Creation of Requirements Documents and Statements of Work, project schedules and estimates.
- Coordination of prototype project activities across software, electrical and mechanical teams.
- Presentation of the project to Canada's IRAP, securing funding for continued development and innovation.
- Skills used: **System Engineering, Project Management.**

Allied Scientific Pro: R&D
Gatineau, QC | *Sept 2018 - June 2021*
Mechatronics Specialist

- Drove the automation of the laser cleaning and decontamination process forward using robotics through research and needs analysis, conceptual design and prototyping proof of concept subsystems.
- Designed the layout and prototyped a new robotic arm in Gazebo with a perception system that was able to 3D restructure and segment a tabletop object and generate a corresponding constrained tool path.
- Led hardware prototyping activities, through sensors and robotic arm testing, EOAT design, integration of hardware to ROS and software development through the FlexBe behaviour engine.
- Prepare 3D CAD models, detailed drawings, mechanical BOMs, safety documentation and maintenance documentation for 100-watt optical-mechanical systems.
- Commissioned custom optical systems such as LCSs and SEE testing stations for customers.
- Tools used: **Linux, ROS**, **C++**, **PCL**, **Moveit!, Fusion360, OnShape, Gazebo**

The University of Ottawa Machine Shop
Ottawa, ON | *January 2015 - April 2015*
Production Associate

- Consulted the university shop clients on improving mechanical designs for manufacturing.
- Used drills, welding, mills, lathes and CNC machines to manufacture and fabricate engineered products.

Education

University of Ottawa
September 2009 - October 2015
Bachelor of Applied Science: Mechanical Engineering

Projects:

Open Source AMR Vacuum Kitchener, ON | *June 2023 - Current*
Software Developer

- Conceptual Design, Drive train development, control and integration to ROS, Integration of the navigation stack.
- Tools being used: **ROS, Arduino, Electronics, C++.**

YesCoach, Personal Web Application Ottawa, ON | *June 2016 - June 2017*
Software Developer

- Designed, and developed the user graphics and experience design made in Adobe XD, then into the one-page application using **HTML**, **CSS**, **Angular**, and **Ionic**.

Certificates:

- Engineer In Training Program (Pending P.Eng application)
- Laser Safety Certificate
- Workplace Hazardous Materials Information System (WHMIS)
- G-class Ontario Driver's Licence
- Open Water Diver

Professional Development Certificates:

- *Coursera*: Accelerated Computer Science Fundamentals
- *Udacity*:
  - Intro to Machine Learning with Pytorch nanodegree, and
  - *Robotics Software Engineer Nanodegree*
    - Learned about ROS essentials, perception, control, localization, mapping, navigation and use of deep learning in robotics perception and control.
- Yaskawa Motoman Robot Basic Programming Certificate

Interests: Systems, robotics, mentoring, designing and prototyping mechatronic systems.