(514) 663-1579
beshjm@gmail.com
Canada

# Beshari Jamal

linkedin.com/in/beshari/
https://beshario.github.io/

## Profile

Mechatronics engineer specialized in robotics product design and development with five years of experience in 2D and 3D sensor integration, data acquisition and processing, and robotics control. Looking to leverage my mechanical and software technical and leadership skills to drive innovative solutions forward.

## Technical Skills

*Programming:* C, C++, Python, web technologies, REST, Bash, MATLAB
*Software*: ROS, Gazebo, OpenCV, point-cloud Library, Docker, Pytorch, Linux, 3D CAD, Simulink
*Theory:* Linear Algebra, probability, computer vision, multiview geometry, control systems.

## Professional Experience

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

- Designed, Prototyped and brought up autonomous mobile robot sensor layout, including realsense 3D sensors, IP RGB cameras and lidars for new product lines.
- Developed and maintained the hardware abstraction layer, RGB camera, 3D sensors and Lidar drivers in C++ and integrated them into the autonomy pipeline for perception and localization algorithms in embedded Linux environments.
- Contributed to and maintained static and dynamic multi-threaded sensor suite calibration algorithms and sensor safety systems in a Linux environment.
- Contributed to 3D data analysis software tools for 3D sensors and lidars using PCL library and CMAKE packages.
- Continuously tested and interfaced with sensors to be used for robots, including fish-eye monocular, stereo, ToF cameras and lidars.
- Executed bring-up of autonomy and hardware validation in new product lines.
- Initiated and managed prototyping space that accelerated innovation for the sensors and advanced technology group teams.

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

- Creation and maintenance of project schedules, estimates, and cost reporting.
- Perform risk analysis and feasibility studies with integration into project schedules.
- Creation of Requirements Documents and Statements of Work.
- Coordinated prototype project activities across software, electrical and mechanical teams
- Managed the issuing of tasks weekly to drive the prototyping forward to completion.

### Allied Scientific Pro: R&D
Gatineau, QC | *Sept 2018 - June 2021*
*Robotics software developer*

- Developed and programmed the control software for semi-autonomous robotic laser ablation work cells. It includes a 6-DoF robotic arm, 3D sensors, a vacuum system, and the laser cleaning system (LCS): Main software used was ROS, C++, point cloud library and *Moveit!* in a multithreaded embedded Linux environment.
- Created simulations in Gazebo sim of the robot, environments and objects to test new algorithms and robot behaviour.
- Interfaced with different sensors, including RGB-D sensors, lidars, laser scanners and structured light sensors and integrated them into the Linux-based ROS robotic system
- Programmed robots such as Fanuc, Yaskawa Motomn and Hans for surface processing.
- Commissioned laser cleaning systems and SEE testing stations for customers.
- Contributed to the 3d cad mechanical design of company products, prototyping and testing.

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

- Interpreted mechanical blueprints and schematics to determine manufacturing feasibility and whether they should be outsourced or produced in-house.
- Used drills, welding, mills, lathes and CNC machines to manufacture and fabricate engineered products.
- Consulted the university shop clients on improving mechanical designs for manufacturing.
- Assembled different mechanical prototypes, including enclosures and gear subassemblies.

## Education

**Udacity (Online)**  *June 2017 - July 2018*
*Robotics Software Engineer Nanodegree Program  (1-year program)*

- Learned about ROS essentials, perception, control, localization, mapping, navigation and use of deep learning in robotics perception and control.
- Succeeded in finishing and passing eight projects that I simulated in Gazebo.

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

- Educated in the design of machinery, mechanics, electronics, kinematics, dynamic analysis, energy transfer, energy simulations, controls and computational analysis.

## Projects

**[YesCoach, Personal Web Application](#)**  Ottawa, ON | *June 2016 -  June 2017*
*Software Developer*

- Designed, prototyped and tested the user graphics and experience design mode in Adobe XD.
- Developed an interactive graphic interface using HTML, CSS, JavaScript, Angular, Ionic.
- Implemented authentication, database management and behaviour analytics on the Google Cloud Platform.

## Certificates:

- Engineer In Training Program (Pending P.Eng application)
- Accelerated Computer Science Fundamentals (Coursera)
- Intro to Machine Learning with Pytorch (Udacity)
- Yaskawa Motoman Basic Programming Certificate
- Laser Safety Certificate
- Workplace Hazardous Materials Information System (WHMIS)
- G-class Ontario Driver's Licence
- Open Water Diver

**Interests:** Systems, robotics, space technologies, mentoring, designing and DIY.

**REFERENCES ARE AVAILABLE UPON REQUEST**