

# Liam Gritters

## Robotics Engineer

Innovative and detail-oriented professional with expertise in developing and optimizing advanced technologies in robotics and autonomous systems. Proven track record of enhancing real-time environment modeling, obstacle detection, and target tracking through cutting-edge algorithms and multi-sensor fusion.

## EXPERIENCE

### **Provectus Robotics**, Ottawa, ON — *Robotics Engineer, Perception Team Lead*

June 2019 - PRESENT <Robotics Engineer Co-op May 2017 - August 2018>

- Developed and optimized Dynamic Occupancy Grid Maps to enhance real-time environment modeling and improve obstacle detection accuracy.
- Designed robust filtering algorithms tailored for off-road conditions, ensuring accurate determination of obstacles in challenging terrain environments.
- Implemented advanced target tracking algorithms, leveraging multi-sensor fusion to accurately identify, monitor, and track moving objects.
- Wrote and integrated software drivers for various sensors, such as radar and lidar, to allow for precise detection and measurement of the vehicle's surroundings.
- Performed trials, demos, and training sessions for customers/clients to demonstrate system capabilities and ensure proper usage and understanding.
- Implemented a convolutional neural network (CNN) that detects pedestrians and vehicles in a video stream, thereby improving obstacle classification in the encompassing area.
- Built an autonomous robot simulation in Webots Simulator with a custom controller that published and received data to a UDP Multicast Network.

## PROJECTS

### **Analog Neural Network** — C++, Caffe, Webots Simulator

- Implemented and trained a Multi-Layer Perceptron Neural Network for obstacle navigation, intended for integration into an analog circuit design.

### **Integrated Autonomous Vehicle** — C++, LCM

- Led a team of 16 students in developing an autonomous vehicle prototype.
- Focused on system architecture, network messaging, virtual simulation, control systems, and device drivers.

### **Raspberry Pi Security Camera** — C++, OpenCV, CSS/HTML

- Developed a security camera system with event detection and logging, accessible via a website hosted and operated on a Raspberry Pi.

## CONTACT

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## SKILLS

- ▷ C/C++
- ▷ Cuda
- ▷ Linux
- ▷ Git
- ▷ Bash
- ▷ Java

## EDUCATION

Carleton University, Ottawa, ON  
*Bachelor of Mechanical Engineering*

September 2014 - May 2019

- ▷ C.C. Gibson Scholarship
- ▷ Co-op Program

## INTERESTS

- ▷ Robotics, Machine Learning
- ▷ Chess, Board Games
- ▷ Science Fiction Novels
- ▷ Basketball, Tennis, Golf