

# Adam Heins

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## Skills

C, C++, Python, Matlab, bash/zsh, git, Linux, OpenCV, ROS, vim

## Education

**University of Toronto** • MAsc. Aerospace Science & Engineering • 2017 - 2019 (*expected*)

- Research focused on machine intelligence-based approaches to mobile robot control.

**University of Waterloo** • BAsc. Mechatronics Engineering • 2012 - 2017

- Achieved Term Dean's Honour List four times.
- Cumulative GPA: 88.23%

## Experience

**Nest** • Embedded Software Developer • Palo Alto CA • Summer 2016

- Implemented in-store demo application for unannounced upcoming device using C++.
- Wrote Python scripts to analyse and correlate log data on the device and stored in BigQuery.
- Rewrote timer implementation of upcoming device on top of Linux timer API.

**Pebble** • Embedded Firmware Developer • Palo Alto CA • Winter, Fall 2015

- Developed the dialog window system for the Pebble Time smartwatch in C.
- Optimized performance and memory usage to increase frame rate by up to 20% and reduce critical path stack usage by 10% on the Pebble.
- Wrote default watch faces for Pebble Time Round; built Golf and Sports apps for Pebble Time.
- Implemented screenshot and power calibration tools for automated testing in Python.

**BlackBerry** • Software Developer • Mississauga ON • Summer 2014

- Built BBM simulator in Java to automate tests and reduce testing time by a factor of five.
- Created a REST API with a Cassandra backend to validate user and message statistics.
- Wrote a tool in Java to automatically configure files deployed from Jenkins.

## Projects

**Nuclear Power Plant Inspection Robot** • hns.io/capstone

A mobile robot for semi-autonomous inspection of nuclear boiler rooms.

- Developed ROS package to interface with and control ST Robotics R12 arm used to measure pipe thickness.
- Designed and implemented image processing software with OpenCV and ROS to identify pipe locations to measure.

**Read My Lips** • hns.io/read-my-lips

A neural network architecture designed to perform lip-reading.

- Developed LSTM-based network using Keras to read lips from video data.
- Achieved an average accuracy of 86.30% when reading the lips of a known speaker.