Rahman Qureshi (Ray)

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EDUCATION

University of Toronto, *BASc in Engineering Science – Computer Engineering (GPA: 3.6)* **Expected June 2019**

- **Relevant Courses**: Operating Systems, Linear Control Systems, Robot Modelling and Control, Random Processes, Neural Networks and Deep Learning, Algorithm Design and Analysis
- **Thesis (Current):** Using PX4 flight stack, AprilTags, and Intel Realsense Cameras to estimate two tailsitter vehicle's positions relative to each other and maneuver them together

TECHNICAL SKILLS

- **Languages:** C++, C, Java, Python, Golang, NodeJS, Verilog (System)
- **Relevant Technologies**: Linux, Git, SciPy Stack, ROS, Gazebo, FreeRTOS, ARM Cortex M4, CMake, SQL, GCP
- Experience with circuit/PCB design and analysis tools including LTSpice, Altium

PROFESSIONAL EXPERIENCE

Software Engineering Intern **May 2018 – August 2018**
Google **Waterloo, ON, Canada**

- Supported graphic shaders compiler team by using Golang to develop AB testing infrastructure which launches tests across N machines using swarming infrastructure, and collects and uploads benchmarks
- Created easy-to-launch gatekeeping test suite which significantly reduced team's time to test changelists across many device variations and submit them, thereby accelerating development

Embedded Software Engineering Intern **May 2017 – February 2018**
Rapyuta Robotics **Chuo-ku, Tokyo, Japan**

- Developed embedded software for the ARM Cortex M4 microprocessor—specifically the STM32F405 MCU
- Rewrote driver implementation for the MPU9250 IMU using STM's newer Hardware Abstraction Library (HAL)
- Assisted developing drivers for an I2C Serial EEPROM chip (24AA64) and logging library
  Used the library to log important information that would be missed during a critical failure
- Wrote an application to receive simulated sensor data from gazebo over UART and publish over CAN
- Developed Python infrastructure to support automated Hardware-In-The-Loop (HWIL) testing
- Developed a ROS package to run on embedded Linux to diagnose faulty hardware (e.g. sensors, radio)

Software Engineering Intern **January 2017 – April 2017**
Google **San Francisco, CA, USA**

- Used Java and internal tools to integrate the AppEngine front-end into a sandbox environment
- Used AngularJS2, Flask, and BigTable to write a web-tool which identified Borg Job flag changes (side project)

Device Modelling and Design Verification Engineer **May 2016 – December 2016**
Intel **San Jose, CA, USA**

- Worked on modelling and verification of the transceiver (XCVR) of Intel's new 14nm FPGA, Stratix 10—mainly focusing on models for the Fractional Phase-Locked Loop (FPLL) and Transmit Data Path

Research Intern **May 2015 – August 2015**
Ultrasonic Non-Destructive Evaluation Laboratory **Toronto, ON, Canada**

- Developed a method to detect weak adhesion using ultrasound and machine learning, resulting in a trained SVM that could predict bond strength with >95% accuracy (k-fold cross-validation, k=10) on one type of pipe
- Wrote signal processing code to extract decay constant feature: used low-pass filtering and windowing to extract peak locations of echo responses, and fit a decaying exponential function

EXTRACURRICULARS AND PERSONAL PROJECTS

Programming Competition Director **May 2015 – January 2016**

- Designed a programming competition package for the University of Toronto Engineering Competitions
- Created app using City of Toronto Open Data map data (http://toronto-route-planner.herokuapp.com/)

8x8x8 LED Cube **May 2016 – July 2016**

- Designed, built, and programmed an 8x8x8 LED cube from scratch including base PCB and analog circuitry