Matthew Duke

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Practical and motivated engineer with a background in system integration and network infrastructure. Dedicated and motivated to learn new techniques and technologies and apply them to existing processes. Proactive team member with strong communication skills and the flexibility required to work simultaneously with multiple teams.

EDUCATION

QUEEN'S UNIVERSITY **Kingston, ON**

Bachelor of Applied Science (BASc) in Engineering Physics (Mechanical Option) *June 2020*

Finished with a cumulative GPA of 3.43

Dean's Scholar: 2015/16, 2019/20
Queen's University Excellence Scholarship 2015

PROFESSIONAL EXPERIENCE

HONEYWELL AEROSPACE **Kanata, ON**

Systems Engineer *October 2020 – Present*

- Currently working with the Retrofits, Modifications and Upgrades (RMU) group, whose role is to unlock revenue through certification of Honeywell products on existing airframes. Performing a variety of roles including writing hardware test reports and working with customer requirements to develop custom configuration files.
- Working with the V&V testing team to develop and execute manual and automated test procedures.

Systems Integration and Test Engineering Intern *May 2018 – August 2019*

- Developed and executed systems-level manual and automated test cases for satellite communications products such as modems, antennas and high-power amplifiers.
- Extensive hands-on testing and troubleshooting of embedded Linux hardware and virtualized test environments.
- Implemented and supported new testing infrastructure for lab-based simulation and performance analysis using vSphere and Docker containerization. This setup acted as a simulated Radio Access Network (RAN) to reduce over-the-air test time.
- Automated an existing configuration file generation process to reduce process time from 1-2 hours of manual work to 30 seconds.

BELL CANADA **Huntsville, ON**

Technician Advanced *May - September 2016 & 2017*

- Diagnosed and repaired telecommunication (DSL and POTS) infrastructure for water access properties throughout Muskoka, Ontario. This environment pushed the technology to its limits due to aging infrastructure and extreme distances.
- Performed exhaustive root cause analysis based on technical data, often in challenging and remote locations. I worked independently to manage and optimize daily workflow to improve customer service and productivity.

PROJECT EXPERIENCE

QUEEN'S SPACE ENGINEERING TEAM (QSET)

Payload Subsystem Manager *September 2019 – May 2020*

- Managed a team of students working to design and prototype an Earth observation telescope for a 3U CubeSat for the Canadian Satellite Design Challenge (CSDC). This year's payload consisted of an Earth observation telescope with pre-defined mission requirements, involving complex analysis including optical ray-tracing, thermal analysis and vibration simulation.
- Developed strong project management and organizational skills, and the ability to identify design weaknesses.

ENGINEERING PHYSICS THESIS

Acoustic Wave Simulation *September 2019 – May 2020*

- Worked over two semesters to perform software simulation of acoustic wave transmission through phononic crystals, using finite difference time domain techniques.
- Developed knowledge and skillsets in a variety of engineering subjects, including algorithm development, computational optimization, mechanical stress and project management.

ENGINEERING CAPSTONE

4-Axis Robotic Arm *September 2019 – December 2019*

- Designed and built a Scrabble-playing robotic arm, coupled with software to interpret and respond to a human opponent, as part of a small group of students.
- Worked primarily on the motion control system, including 3D kinematic simulation for the arm, along with hardware and firmware to control the motors.

QUEEN'S HYPERLOOP DESIGN TEAM

Prototype Subsystem Manager *September 2018 – May 2019*

- Managed a small team to design and build a 1:20 scale hyperloop pod and enclosed aluminum track, based on a whitepaper published by Elon Musk in 2013, outlining a high-speed land-based transportation system.
- This project had unique physical and financial constraints, requiring iterative prototyping and collaborative problem solving.

PERSONAL PROJECT

ROV Submarine

- Inspired by a local lake theorized to be created by a meteor impact, I challenged myself to create a small ROV submarine to film the subsurface topography. The scope of this project has expanded with my knowledge and abilities, while also significantly contributing to them.

TECHNICAL SKILLS

- Experience testing and developing for Linux on a variety of embedded systems.
- Adept with continuous integration tools such as BitBucket and Jenkins to automate software builds and test deployment, along with Jira and Confluence wiki tools.
- Proficient writing software in Python, C, MATLAB and Julia programming languages, with familiarity in C++, C#, JavaScript, SQL and Bash scripting.
- Extensive virtual machine and containerization experience using vSphere, Proxmox, Docker and LXC.