

Matthew T. Bowen

Profile

Hello! I'm Matt, a student at the Royal Military College of Canada, where I am pursuing a Master's of Science degree in Physics & Space Science with a research focus on remote sensing. I graduated from Queen's University in 2018 with a Bachelor's of Science (Honours) in Physics and Computing Science. In addition to my studies, I have a background in electrical engineering through various jobs and volunteer positions. Currently, I am the Chief Technical Officer for the Queen's Space Engineering Team's Satellite Project, as well as a Junior Web Developer at Docupet Inc., a Kingston based technology startup.

Education

- **Royal Military College of Canada** Kingston, ON
Master's of Science - Physics and Space Science 2018 - 2020
 - NSERC CREATE International Space Mission Training
- **Queen's University** Kingston, ON
Bachelor of Science Honours - Physics Major, Computing Minor 2013 - 2018
 - Dean's Honour List recipient: 2013-2016

Experience

- **Queen's Space Engineering Team - Satellite Project** Kingston, ON
Chief Technical Officer September 2019 - Present
 - Manages and supports a team of 50+ students which designs and constructs a 3U cube satellite.
 - Hired project managers for the major satellite subsystems.
- **Docupet Inc** Kingston, ON
Junior Web Developer October 2018 - Present
 - Responsible for large data set analysis and ETL using Python and MySQL.
 - Developing Docupet Import Module using Django.
- **Royal Military College of Canada - Physics & Space Science Department** Kingston, ON
Observatory/Teaching Assistant September 2018 - Present
 - Trained students on reflector telescope usage for undergraduate astronomy courses.
 - Guided student astronomical observing sessions.
- **Alma Mater Society of Queen's University Inc** Kingston, ON
Director of Information Technology March 2017 - May 2018
 - Member of the AMS Board of Directors, responsible for corporation-wide strategic planning.
 - Maintained the technological infrastructure, performed account management, and oversaw project development.
 - Trained and managed first level IT support staff.
- **Queen's Space Engineering Team - Satellite Project** Kingston, ON
Electrical Systems Design Lead May 2017 - May 2019
 - Designed and implemented the power generation and delivery system for CoSMOSat.
 - Managed the periphery electrical subsystems, including command/data-handling, and attitude determination.
- **Queen's Solar Design Team** Kingston, ON
Electrical Projects Director May 2016 - April 2017
 - Delegated and monitored projects in data collection, energy storage, and low power home electricity usage.
 - Designed and installed a fully off-grid photovoltaic power generation system for a 600sqft home.
- **Queen's Solar Design Team** Kingston, ON
Data Systems Manager September 2015 - April 2016
 - Designed and installed weather and data monitoring systems for the Queen's Solar Education Centre.
 - Includes hardware implementation throughout the home as well as software development.
- **Arts & Science Undergraduate Society** Kingston, ON
Peer Tutor September 2015 - Present
 - Provides academic assistance for fellow students, as well as foster beneficial habits and skills in the tutee.

- Queen's Athletics and Recreation** Kingston, ON
Intramural Official - Basketball September 2014 - March 2018
 – Ensured the safety and inclusiveness of participants, and upheld the regulations of intramural activities.
- The Home Depot Kingston** Kingston, ON
Customer Service Associate May 2018 - August 2018
 – Provided consistent and accurate administrative and analytical support to the staff and customers of Home Depot.
- School District #71 of British Columbia** Courtenay, BC
Groundskeeper and Delivery Driver May 2015 - September 2015
 – Maintained the infrastructure of schools, and engaged in new projects to enhance the teaching and recreational spaces at those schools. Compiled, loaded, and delivered equipment orders for school events.
- Domo Japan Restaurant** Courtenay, BC
Line Cook May 2014 - September 2014
 – Processed customer orders quickly and efficiently in keeping with the high standards of food presentation, quality, and timeliness that are upheld at Domo Japan.

Skills Profile

	Technologies	Skills
<i>Web:</i>	Django, Bootstrap, Symfony. General proficiency in JS/HTML/CSS/PHP/MySQL	Astrodynamics and Orbital Mechanics
<i>Programming:</i>	Most proficient scripting in Python, experience in C, MATLAB, Java	Space mission design
<i>Software:</i>	Space simulation in AGI STK Graphic design in Inkscape/GIMP/Visio PCB design in KiCAD/Eagle 3D design in SOLIDWORKS Mathematica, \LaTeX	Volunteer and team management Agile development Scientific computing and ETL processes
<i>Version control:</i>	Git	

Projects

- Polar Dust Loading Analysis using MetOp-A AVHRR Data** Royal Military College of Canada
Master's of Physics and Space Science Thesis Project May 2019 - Present
 – Studies the impact of dust aerosols on Arctic amplification models and the disappearing cryosphere.
 – Utilizes Advanced Very High Resolution Radiometer (AVHRR) imagery and novel distributed computing techniques to perform mass trend analysis.
- NGVS Surface Brightness Profile Fitting** Queen's University
Honours Physics Thesis Project September 2017 - May 2018
 – Study the light profile of Virgo Cluster galaxies to detect the trace of stellar halos.
 – Use of chi-squared and Markov Chain Monte Carlo minimization techniques to determine the light percentage contributed by halo stars.
- Investigating Hydrodynamic Quantum Analogues** Queen's University
Physics Laboratory, PHYS 350 December 2016 - May 2017
 – By mechanically vibrating viscous fluids, several quantum mechanical effects can be demonstrated.
- Implementation of Kalman Filters for Apogee Detection in Rocket Flight** Queen's University
Queen's Rocket Engineering Team September 2016 - January 2017
 – Research into the viability of using a Kalman filter to deploy airbrakes on atmospheric rocket flight.
 – Implementation of algorithm using an Arduino platform with pressure altimeter and 9-axis accelerometer.
- Determining the Width of the Kirkwood Gaps** Queen's University
Computational Methods in Physics, PHYS 313 September 2015 - December 2015
 – Wrote a limited N-body code (in C) to simulate the motion of asteroids in resonance with Jupiter and Saturn.
 – Co-wrote scientific report detailing the findings and results of the Verlet simulation.

Certifications and Courses

- **Amateur Radio Operator (callsign: VE3KSP)**
Innovation, Science, and Economic Development Canada
Toronto, ON
February 2017
- **Graduate Professional Skills Certificate**
University of Saskatoon
Saskatoon, SK
August 2019
- **Sexual Violence Bystander Intervention training**
Queen's University
Kingston, ON
May 2017
- **Workplace Hazardous Materials Information System**
Queen's University
Kingston, ON
May 2016
- **Working at Heights**
The Safety Guys
Kingston, ON
June 2016
- **CPR-C First Aid**
Canadian Red Cross
Belleville, ON
April 2015