Matthew T. Bowen

Profile

Matt is a highly motivated graduate of Queen's University with a Honours Bachelor's Degree in Physics and Computing. A technical mind and charismatic demeanor combine with excellent problem solving and communication skills. Matt derives knowledge and experience from three major avenues; academic, hobbyist, and professional: strong knowledge of computational methods applied to physics and software development, experienced in amateur electrical engineering in photovoltaics and space systems, and a professional team leader and decision-maker.

Education

- **Queen's University** — Kingston, ON
  Bachelor of Science (Honours - Physics Major, Computing Minor) — *2013 - 2018*
  - Dean's Honour List recipient: 2013-2016

Experience

- **Alma Mater Society of Queen's University Inc** — Kingston, ON
  Director of Information Technology — *March 2017 - Present*
  - Full time salaried position amongst the AMS Senior Directors, responsible for corporation-wide decision making and strategic planning.
  - Maintains the technological infrastructure, performs account management, and oversees project development for the AMS.
  - Manages, trains and advises staff in their capacity as first level support to the AMS.
- **Queen's Space Engineering Team - Satellite Project** — Kingston, ON
  Electrical Head — *May 2017 - Present*
  - Designs and implements the power generation and delivery system for CoSMOSat.
  - Manages 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*
  - Member of QSDT Executive Directors, and was responsible for sole decision making on all electrical matters
  - Oversaw the electrical sub-team of QSDT. 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.
- **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

Platforms: C, Java, Python (most proficient), MATLAB, HTML/CSS/PHP/JavaScript, LaTeX

Operating Systems: Windows 98/XP/Vista/7/8.1/10, Unix/Linux

Tools: Mathematica, MatLab, AGI Systems Tool Kit, SQL Server, MS Office, git, GIMP/InDesign/Visio, TRNSYS

Scientific and Mathematical: Differential and discrete mathematics and vector calculus. Scientific statistics. Knowledge of computational methods for physics and engineering. Modern physics theory.

Hardware: Knowledge of photovoltaic systems, including design and installation. Familiar with Campbell Scientific data acquisition systems. Experience with electronic lab equipment, circuit design, and usage of Arduino/RPi microprocessors. Amateur woodworker and automobile mechanic.

Projects

- **NGVS Surface Brightness Profile Fitting** — Kingston, ON
  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** — Kingston, ON
  Physics Laboratory, PHYS 350 — *December 2016 - May 2017*
  - By mechanically vibrating viscous fluids, several quantum mechanical effects can be demonstrated.
- **Implementing a Kalman Filter for Apogee Detection in Atmospheric Rocket Flight** — Kingston, ON
  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** — Kingston, ON
  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 Memberships

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