Matt Bowring

mbowring@purdue.edu | Cambridge, MA

[Website](#) | [Github](#) | [LinkedIn](#)

Experience

The MathWorks   May 2022 - Present
Software Engineer (Math/PDE)   Natick, MA (on-site)
MATLAB, C++, Python, CMake, OpenMP, CUDA, Git, Linux/Windows OS

- Lead development of the [MATLAB Quantum Computing Library](#); Design the core object-oriented framework that enables quantum programming natively in MATLAB; Develop numerical algorithms to simulate/compile/optimize gate-based quantum circuits, generate assembly code, and compute expected values of observables; Build client-side REST infrastructure using AWS and IBM cloud services to manage async jobs on quantum hardware; Write all unit/functional/performance tests, integrate/benchmark third-party quantum software, and manage CI/CD; Grew the library from an unreleased prototype to 9,100+ users.
- Consult industry users with machine learning and quantum computing applications; Developed a quantum neural network for image classification ([SPIE publication](#)) and researched methods to encode hard/soft optimization constraints; Featured at industy conferences (IBM QDC 2022-2025, AWS re: Invent 2025).

The MathWorks   May 2021 - May 2022
Software Engineer   Natick, MA (on-site)
MATLAB, C++, Python, Git, Linux/Windows OS

- Trained a recurrent graph network on the QM7-X molecular dataset to predict equilibrium energy and classify optimal configurations; Developed a format-agnostic data pipeline to encode atomic properties using OpenBabel.
- Developed a REST interface to cloud-based quantum annealing hardware; Evaluated binary optimization problems with hard/soft constraints to benchmark minor-embedding algorithms; Wrote parallel simulations to compute the energy spectrum of a graph-theoretic qubit coupled to external fields.

Education

Purdue University (3.8 GPA)   Jan. 2025 - Present
M.S. Mechanical Engineering   West Lafayette, IN (remote)

- Fabricated a mixed-signal PCB to solve combinatorial optimization problems using phase dynamics of coupled oscillators ([arXiv preprint](#)); Developed Lyapunov stability models using LTspice and MATLAB; Designed schematics and layouts in Altium Designer; Wrote MATLAB interfaces to my test instruments for signal processing and verification; Developed real-time embedded C++ firmware using SPI and FreeRTOS; Accepted for research mentorship under Stephen Wolfram.
- Judged the annual hackathon at MIT; Attended the Hot Chips conference at Stanford.

The University of New Hampshire (3.9 GPA)   Aug. 2017 - May 2021
B.S. Mechanical Engineering   Durham, NH (on-site)

- Awarded over $100,000 in scholarships for developing an autonomous quadcopter.
- Lead the Quadcopter Engineering Team; Selected for Makerspace Administrator, Academic Tutor and Mentor.

Projects

Computer Systems   2024 - Present
- Built a custom multi-GPU Linux machine for PyTorch/CUDA research experiments; Configured a Beelink home server using NixOS and Tailscale.

Machine Learning   2020 - Present
- Wrote a packet parser to process and analyze financial data using Python and Wireshark; Trained a recurrent network to predict dash-camera misalignment using OpenCV and PyTorch; Built a data pipeline and Bayesian network to predict trends for an online video game using NetworkX and PyTorch.

Robotics   2019 - 2021
- Integrated the PX4 flight-stack with a Raspberry Pi to enable waypoint tracking for quadcopters; Implemented ROS/MAVROS communication, telemetry, and interfaced Gazebo for SITL simulation with Python; Tuned the flight controller and analyzed motor responses using MATLAB; 3D-printed the frame, soldered electrical components, and conducted field tests.

Mechanical Design   2020 - 2021
- Lead a student team to develop an air intake for a mock jet turbine; Developed CAD models using SolidWorks, ran CFD simulations with Ansys, and 3D-printed airfoils; Experimented with aluminum casting using a custom silicon mold and vacuum chamber. [Collaborated with the University of Glasgow](#).