Daniel Mehany

647-917-0035 | daniel.mehany06@gmail.com | Linkedin/in/danielmehany | github.com/danielmehany | My-Portfolio

Summary of Qualifications

Design & Simulation: Altium Designer, KiCad, Tinkercad, AutoCAD, SolidWorks, MATLAB, Simulink
Embedded & Control Systems: Hardware-in-the-Loop (HIL), Verilog, ROS 2
Computer Vision & Data Analysis: OpenCV, MediaPipe, Control Vision, scikit-learn, Pandas, NumPy
Programming & Development Tools: C++, C, Python, Java, JavaScript, HTML/CSS, SQL, Docker, Node.js, Express.js, Linux, Shell, Virtual Machines, Git, GitHub, Jupyter Notebook

Experience

Embedded Systems Engineer **Jan. 2025 – Apr. 2025**
Skyjack Inc. *Guelph, Ontario*
- Designed a Simulink-based HMI dashboard to simulate functionality through CAN communication and DBC file decoding
- Supported Hardware-in-the-Loop (HIL) testing by validating controller I/Os using custom dashboard, reducing testing time by 30%.
- Created a script to automate data collection from MATLAB simulation graphs, cutting analysis time by 100%.
- Optimized over 1,000 lines of MATLAB code for data visualization, resulting in a 20% faster runtime.

Hardware Design Engineer **Sept. 2024 – Present**
Formula Electric *Waterloo, Ontario*
- Designed a PCB in Altium Designer to monitor voltage levels for electrical safety, integrating a 555 timer, LEDs, capacitors, resistors, USB port, and system wiring for amplitude-based flashing indicators.
- Supported Formula Electric Race Car electrical system compliance and collaborated in team meetings on progress tracking, troubleshooting, and task planning.

Founder & Full-stack Engineer **Demo | | GitHub | | Dec. 2024 – May 2025**
BestBudd.com *Toronto, Ontario*
- Founded and launched BestBudd.com, a full-stack web application built with HTML, CSS, JavaScript, Node.js, and SQLite to support special-needs students that are part of life-skills classroom.
- Application has personalized student dashboards for reminders, schedules, bookmarks, and daily reflections; as well as a teacher dashboard for monitoring and class-wide management.
- Used by over 40 special-needs students across a few classrooms, and it's proven to be 50% more engaging and effective than generic platforms like Google Classroom.

Projects

IMU STM32 Board Demo | | GitHub | | **April 2025**
- Designed a 4-layer PCB with 2 ground and 2 signal layers based around a STM32 microcontroller using Altium.
- The board included a MPU-6050 accelerometer, differential USB, low dropout voltage regulator, crystal oscillator, TC2030 debug probe, and a JST GH connector.

TurtleBot4 Challenge — *Toyota Innovation Hackathon* GitHub | | **May 2025**
- Collaborated alongside a team of 4 to develop a four-level framework in Python and ROS 2, leveraging LIDAR for real-time obstacle avoidance and ultralytics YOLO for camera-based stop-sign detection with timed stops.
- Engineered a one-variable mode selector configuration to run each Python control scripts seamlessly in Gazebo simulation and on the physical TurtleBot robot.

Student Exam Score Predictor Demo | | GitHub | | **Feb. 2025**
- Processed and analyzed 30,000+ student entries with 13 variables using Pandas and Jupyter Notebook, improving data organization and predictive accuracy.
- Developed and optimized three linear regression models for three different exam scores, math, writing and reading, using scikit-learn, achieving an average 5.6% error and 8.8% perfect predictions on student performance data.

SketchBot Demo | | GitHub | | **Dec. 2024**
- Engineered SketchBot, a LEGO EV3–based robot programmed for automated multi-view engineering drawing.
- Built a 3-axis system achieving 2× drawing speed over manual methods with near-perfect accuracy.

Education

University of Waterloo **Sept. 2024 – Apr. 2029**
Bachelor of Applied science (BASc) in Mechatronics, Robotics and Automation Engineering *Waterloo, Ontario*