Marcus De Maria

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Education

Bachelor of Mechatronics Engineering   Sept 2022 - Present

McMaster University | Hamilton, ON

Expected Graduation: April 2026 | 12pt. cGPA: 10.8 | 4pt. cGPA: 3.78
- Accolades: Faculty of Engineering Award of Excellence Scholarship, Dean's Honors Engineering (22/23, 23/24), Ontario Academic Excellence Scholar, Gerald O'Halloran Award of Academic Excellence
- Involvement: McMaster Google Development Student Club, McMaster AI Society McMaster Intramural Sports, Deltahacks, McMaster Engineering CAD Designathon, McMaster Engineering Design Challenge

Experience

Operations and Project Engineering Intern   May 2024 - Aug 2024

ALMAG Aluminum | Brampton, ON
- Analyzed and tested various data sets and operations statistics with help from Excel, SQL, and Python to optimize efficiency and yield of aluminum billets through press operations in the plant by an extra 15%.
- Collaborated on various projects involving CNC machines and other robots in facility processes with SOLIDWORKS, Ansys, and CNC programming to automate 10-20 drill and tapping machines/processes.

Electromechanical Engineering Intern   May 2023 - Aug 2023

Welbilt Inc. | Mississauga, ON
- Created 30+ unit assemblies of products for 100+ workers by utilizing specifications of engineering drawings, diagrams, computer-aided design in SOLIDWORKS, and other methods of testing in the facility.
- Assembled and tested 50+ parts to confirm design criteria and functionality as a key contributing member.
- Observed products with the engineering team and collected data through various forms with MATLAB and Python in the engineering lab to increase oven door production and temperature efficiency by 10-12%.

Mechanical Design and Testing   Sept 2023 - May 2024

McMaster Formula Electric | Hamilton, ON
- Pivotal team member who assists in dozens of drawings (physical and CAD) of the chassis through design and group discussions, as well as research and development into data analysis of performance.
- Utilized FEA tools in SOLIDWORKS to conduct a static stress analysis study on several automotive components to predict behavior under various loads, confirming design decisions and analytics.

Projects

Pacemaker Program - Heartbeat Detector | Python, MATLAB, Tkinter, Microcontroller   December 2024
- Designed a functioning pacemaker using a board with communication through MATLAB and Simulink to detect irregular heartbeat in a patient and set conditions for a stable beat based on various parameters.
- Implemented a working GUI with Python and Tkinter to allow up to 10 users to login and access their parameters in 8 different modes, view graphs of their heartbeat, and measure/determine conditions/diseases based on heart performance.

Sparse Matrix Solver | C, Excel, SQL   August 2024
- Building upon a C program developed for an assignment in an Intro to Programming class that uses Jacobi's iterative method to solve large sparse symmetric matrices. The solutions computed by these matrices were multiplied in Ax + b to produce an accurate residual to the e-10 to e-14 magnitude of accuracy for matrices smaller than 5 digits x 5 digits.
- Stored results from computations in C in a SQL database with other modifications and revisions in Excel that scaled and graphed how accurate results were based on various parameters such as matrix size and level of sparsity.

Microcontroller Alarm System | C++, Embedded Systems   March 2024
- Created an FSM with a working controller, breadboard, and embedded C++ programming to act as a security alarm system using push buttons, leds, an LCD screen, motion sensors, and a buzzer.
- Included additional functionality and predetermined settings for alarm timing, buzzer, and sensing based on input parameters of the user and their needs.

Skills

Programming: Python, C, C++, Tkinter, HTML/CSS, JavaScript, Maplesoft, AI/ML, MATLAB, R, SQL

Developer Tools: Git, GitHub, VSCode, Visual Studio, GDB, Node.js, Valgrind, Tensorflow, LaTeX

Technological: Microsoft Office Suite, Embedded Systems, NI Suite, SOLIDWORKS, Autodesk Inventor, Ansys

Manufacturing: AutoCAD, 3D Printing, Acrylic Laser Cutting, Soldering, FEA

Soft Skills: Customer Service Engagement, Analytical and Critical Thinker, Problem Solver, Results-Driven, Relationship Building, Strong Collaborator, Organized, Punctual, Multi-Tasker