Mohammed Al Ani

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EDUCATION

University of Waterloo — Waterloo, ON
Bachelor of Applied Science in Mechatronics Engineering — GPA: 3.94/4 — *Expected Graduation Year: 2029*

- Option/Minor in Artificial Intelligence (AI)
- Engineering Scholarships: Awarded $10,000+ for outstanding academic and extracurricular performance
- **Coursework:** Data Structures, Circuits, Control Systems, Embedded Systems, Algorithms, Machine Learning
- Dean's Honours List for outstanding academic achievement

EXPERIENCE

Firmware Engineer — Oct. 2024 – Present
Midnight Sun Solar Car Team — *Waterloo, ON*

- Developed firmware in Python (**MicroPython**) and C++ for real-time energy monitoring and optimization
- Integrated **data logging scripts** using Python (Pandas, Matplotlib) to analyze energy trends in the system
- Automated testing & debugging scripts in Python to identify issues in the power system, reducing errors by **30%**
- Used **Git** for version control, ensuring efficient collaboration and maintaining comprehensive documentation

PROJECTS

Full Stack NLP Chat Bot ⬈ | *Python, Flask, NLTK, spaCy, HTML, CSS, JavaScript*

- Implemented natural language understanding using **NLTK**, achieving **85% accuracy** in intent recognition
- Integrated sentiment analysis using **spaCy**, achieving **92%** accuracy in detecting emotional tone from user messages
- Developed a responsive interface with **HTML, CSS, and JavaScript**, optimizing for fast load times & response
- Automated deployment with **Flask**, enabling quick server startup & minimal setup requirements for local testing

CurveFit Pro - Advanced Data Modeling & Fitting ⬈ | *Python, Streamlit, SciPy, NumPy*

- Developed a web-based curve fitting tool, supporting linear, exponential, polynomial regression, and visualization
- Used **Streamlit** for web interface & **SciPy** for high-accuracy function fitting, regression, & curve analysis.
- Allowed users to upload and process large **CSV** datasets (10,000+ points) for analysis, visualization, & modeling

Relasto - Creative Writing Website ⬈ | *Python, Flask, MySQL, HTML, CSS, SASS*

- Developed a full-stack web application for sharing short stories, attracting 500+ unique visitors in the first month
- Designed a responsive, interactive UI using **SASS, HTML, CSS, and JS**, improving user engagement by **40%**
- Built a **Flask + MySQL** backend to handle user authentication, story storage, and search functionality

MineMatics – Minecraft-Themed Math Game ⬈ | *Processing, Java (Processing IDE), Eductional*

- Designed and developed a math game in Processing with 2 interactive modes, helping over **100 early learners** practice addition through engaging, Minecraft-themed gameplay
- Implemented **dynamic difficulty** scaling and bonus levels, improving average player retention time by 35%
- Wrote comprehensive help and setup documentation, reducing onboarding time for new users **by 50%**

TECHNICAL SKILLS

Languages : Python, C++, Java, JavaScript, SQL, MATLAB, HTML/CSS
Frameworks/Libraries : NumPy, Flask, Django, React, Node.js, TensorFlow, Pandas, OpenCV, SciPy, Bootstrap,
Software & Tools : Git, Docker, Jupyter, Streamlit, SPIKE Legacy, Figma, MS Azure, CLion, Spyder IDE, Anaconda
Office Tools : MS Office Suite, Google Workspace, Slack, MS Teams, Report Writing, Drafting, Excel Sheets, Power BI