

DORIAN DEBONO

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Currently looking for an automotive engineering internship in embedded systems and control. I am also interested in aerospace companies especially electrification of aircraft.

EDUCATION

University of Malta (UoM)

Msida, Malta

Bachelor of Engineering (Honours) | Electrical and Electronic Engineering

October 2023-June 2027

- **Relevant Coursework:** Electromechanical Drives, Power Electronics, Microcontrollers and Interfacing, RF Electronics, Automatic Control Systems 1-3, Communications Theory, C/C++ Programming, Electrical Circuit Theory, Dynamic Systems and Signals 1-3.

Independent Study Courses, EdX Online Learning

- Introduction to Aeronautical Engineering, Delft Institute of Technology August 2025-October 2025
- Electric Cars: Technology, Delft Institute of Technology August 2026-October 2026

EXPERIENCE

Methode Electronics Malta Ltd,

Birkirkara, Malta

Lab Student Engineer

June 2025 - Present

- Build LabVIEW-based data acquisition (DAQ) test suites (NI-XNET, CAN bus) to validate automotive switches, buttons, overhead modules (OHM), and sensors, confirming hardware and harness integrity across the test cycle
- Manufacture custom-designed test harnesses for over 100 components and refurbish equipment for current-generation compatibility
- Document testing procedures and compose technical reports ensuring ISO standards compliance
- Setup and wire testing of mobile testing systems

University of Malta Racing (Formula Student Team),

Msida, Malta

Electrical and Electronic Engineer

August 2024-Present

- Finished 9th/60 teams at Formula Student UK (FSUK) 2025 and 11th/69 teams at FSUK 2026.
- Implemented new speed and torque sensors into the engine control unit to display speed in driver's display and ensure linear power delivery to pedals using MATLAB
- Streamlined the vehicle's wiring harness layout using RapidHarness to improve the wiring assembly process
- Assembled and wired the car, researched better electronics, and improved the printed circuit board (PCB) design

PROJECTS

Thesis: AI-Based Trajectory Control in Shared Airspace

July 2026 - May 2027

- Developing a Python-based Reinforcement Learning (RL) agent for the real-time trajectory control of aircraft
- Simulating multi-aircraft environments and safety constraints utilizing the BlueSky ATM framework
- Implementing autonomous speed and heading policies to optimize arrival times and prevent airspace conflicts
- Evaluating the AI controller's performance across dynamic traffic scenarios using trajectory deviation and conflict metrics

A Scalable & Modular Architecture for Flight Simulators

October 2025 - May 2026

- Created a modular, object-orientated flight simulation architecture with defined data flow and process hierarchy
- Developed a 6DoF flight dynamics engine, mapping pilot inputs to realistic translational and rotational responses
- Developing and validating core flight dynamics and control algorithms in C++
- Implemented a custom Plugin for the physics engine to communicate with X-Plane for visual generation

Design of a Real-Time Voltage Control System

October 2025 - December 2025

- Developing a real-time control system on ARMv6-M Cortex-M0 microcontrollers using FreeRTOS
- Implementing and testing control, data logging, and communication tasks with SPI and RS232 interfaces
- Validating system performance through real-time voltage tracking and ASCII data transmission

Electric Kart BLDC Drive Commissioning

March 2026 - May 2026

- Commissioned BLDC drive using RGBL 1860 controller and ME4201 motor
- Configured closed-loop speed control using Hall effect feedback and Roborun+ software
- Validated motor parameters through data capture and performance analysis
- Refurbished test rig wiring.

AM Radio Transceiver Design

March 2026 – May 2026

- Designed a 950 kHz AM transceiver utilising a local oscillator, mixer, and envelope detector.
- Implemented superheterodyne architecture to downconvert signals to a 100 kHz IF.
- Tuned LC tank circuits to mitigate parasitic effects and maintain a 0.8 modulation index.
- Validated 80 mW low-power transmission via link-budget analysis and lab testing.

Microstrip Low-Pass Filter Design

March 2026 - May 2026

- Designed a 2.4 GHz Chebyshev LPF using Richards' Transformation and Kuroda's Identities for microstrip implementation.
- Simulated S-parameters in QUCS and Sonnet Lite to achieve 40dB rejection at 4.8 GHz and 0.5dB passband ripple.
- Fabricated the PCB on an FR-4 substrate with 50 Ω impedance matching for high-frequency signal integrity.
- Characterised performance using a VNA (Vector Network Analyser) to validate insertion loss against theoretical models.

SKILLS

- **Technical:** C, C++, C#, Python Programming, Altium, MPLAB X IDE, MCUXpresso IDE, MATLAB/Simulink, LTspice, Microsoft 365, LabVIEW
- **Languages:** English (Native), Maltese (Native), Russian (Proficient)