Zachary R. Madin

Looking to Work
Engineering Mathematics PhD
Univeristy of Bristol, Bristol

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⌗ morphdust.github.io

EDUCATION

•**University of Bristol** — *2023 - Now*

Distributed Decision-Making and Adaptive Heterogeneity in Sparse Robot Swarms
Engineering Mathematics PhD

•**University of Manchester** — *2018-2022* / Withdrew

Distributed Containement of Autonomous Underwater Vehicles (AUVs)
Electrical & Electronic Engineering PhD

•**University of Manchester** — *2014-2018* / 1st Class Honours

Electrical & Electronic Engineering, MEng

PROFESSIONAL HISTORY

•**Manchester Robotics** — *2018 - 2022* / Manchester

Electronics & Firmware Engineer
– Designed, populated and tested various PCBs for sale to students
– R&D for initial products and upcoming models for AUVs, UAVs and BLDC motors
– Developed validation rig for manufactured PCBs
– Managed logistics for PCBs, kitting of parts, liaising with manufacturers
– Oversaw production of 1000+ units sold to universities & academic institutions

•**MBDA** — *2017 - 4 Months* / Stevenage

Electronics Test Engineer - **Previously held SC Clearance**
– Designed test electronics for simulating physical supply
– Interpreted project requirements and reviewed design choices with customers
– Collaboratively developed test hardware
– Developed test schema for project to match project requirements

PROJECTS

•**MANSEDS Rover Team** — *2019 - 2021*

Lead Electronics Engineer

– Designed power & CANBUS management system for high power BLDC motors
– Managed and worked with team of 8 undergraduate students
– Conducted design review meetings for design of sensor systems PCB
– Collaboratively developed firmware for interface to high level controllers

•**MANSEDS Balloonian team** — *2017-2019*

Lead Electronics Engineer

– Designed electronics for high altitude weather system
– Worked with multi-disciplinary team to establish requirements
– Did atmospheric testing of electronics for high altitude
– Ran workshops with undergraduates for teaching electronics

TECHNICAL SKILLS

Electrical & Electronic	Software & Robotics	Practical
Schematic & Layout design	Control system implementation	Laser cutting
Miniaturisation & Ruggedisation	Multi-system design	3D Printing Prototyping
Design verification & simulation	Embedded realtime control	Precision PCB Assembly
Analogue & Digital Design	Actuators, Sensors and drives	SMD rework & refurb
Multi-board design	OpenCV & ROS expertise	Lathe & Mill
Embedded Firmware	Computer vision algorithm	PCB spinup & verification
CANBUS, I2C, SPI	Underwater sensors experience	Electronics logistics

SOFTWARE & PROGRAMMING

•**Software:** Altium, Autodesk, KiCad, MATLAB, ROS, ROS2, Docker, OpenCV

•**Programming Languages:** C, C++, Python, Julia, Bash, Linux Admin