Ali Reza Mahmoudi

Derby (Open to relocate) | Full UK Driving Licence | Email | LinkedIn | Portfolio

Personal Profile

First Class Aeronautical Engineering graduate with experience across CAD, CFD, FEA, control systems and manufacturing. My final year project, winner of the Best Final Year Project Prize, involved designing and validating a VTOL UAV through iterative modelling, testing and first principles analysis, improving lift to drag ratio by 12%. Alongside this, I bring industry experience in engineering diagnostics and process improvement, working with stakeholders to deliver projects and documenting my work clearly for handover. I am looking for a role where I can put my engineering background to practical use and keep developing alongside experienced engineers.

Technical Skills

CAD: Fusion 360, Creo Parametric, 3D Modelling, Engineering Drawings

Simulation and analysis: Ansys Workbench (FEA), Ansys Fluent (CFD), XFLR5, OpenVSP, FlightStream, first principles stress calculations, system modelling

Programming and control: MATLAB/Simulink, PLC ladder logic (Unitronics VisiLogic), HTML, CSS

Software: Microsoft Office, Microsoft Power Platform (Power Pages, Dataverse), Google Workspace

Practical: 3D Printing, Prototype Manufacturing, Wind Tunnel Testing, Oscilloscopes and Diagnostic Tools, Electrical Harness Assembly, Sensor Calibration

Methods: Aircraft Design, Aerodynamic and Structural Analysis, Root Cause Analysis, Requirements Analysis, Design Iteration, Technical Documentation

Education

De Montfort University, BEng (Hons) Aeronautical Engineering with Pilot Studies **Oct 2022 - May 2025**

- First-Class, Best Final Year Student Prize, Best Final Year Project Prize, Undergraduate Final Year Individual Demonstration Prize
- Modules: Computational Fluid Dynamics, Aircraft Structures & Materials, Structural Dynamics & Aeroelasticity, Aircraft Propulsion, Flight Dynamics & Control, Aircraft Design Principles, Computer Aided Engineering & Programming, Product Design, Project Management, Human Factors & Flight Safety

St Helens College **Jan 2018 - Jun 2021**

- City & Guilds Level 3 Advanced Technical Extended Diploma in Engineering
- EAL Level 2 Diploma in Engineering Technologies
- GCSEs: Maths & English

Employment History

RAF Inventory Volunteer, RAF Museum | Stafford **Aug 2026 - Present**

- Assess the condition of 145+ historic aviation artefacts by conducting visual inspections and condition reporting in line with collections care standards.
- Preserve 5+ historic objects per shift via dry cleaning techniques using soft brushes, cloths and conservation grade vacuum equipment.
- Prepare 3+ objects per shift for transport and long term storage with zero damage incidents by applying safe object handling and conservation packing methods.

Innovation & Technology Intern, Howes Percival | Northampton **Aug 2026 - Sep 2026**

- Benchmarked 25+ contract lifecycle management platforms via market research and requirements analysis to inform the proposed client-facing contract management portal.
- Gained stakeholder approval within 2 weeks by mapping contract management processes and developing an interactive prototype that demonstrated the proposed user experience.
- Built a client-facing contract management portal within 6 weeks by customising Microsoft Power Pages with HTML, CSS and JavaScript and configuring Microsoft Dataverse to enable contract repository, search, filtering and metadata functionality.
- Maintained delivery alignment across 30+ daily check-ins, 6 weekly team meetings and 6 manager reports by documenting milestones, blockers and next steps for stakeholders.

Engineering Faculty Ambassador, Unitemps | Leicester **Nov 2023 - Mar 2025**

- Advised 80+ prospective students on aeronautical engineering course queries by representing the Engineering Faculty across 8 university open days.
- Led tours of 4 specialist engineering facilities per shift, including the wind tunnel, workshop, flight simulator and engine laboratory, by demonstrating their practical applications to prospective aeronautical engineering students.
- Delivered talks to groups of up to 10 prospective students per shift by sharing first-hand experience of the course, practical learning and student life to support student recruitment.

Research & Development Intern, De Montfort University | Leicester **Oct 2023 - Jun 2024**

- Automated thermal cycling and airflow regulation across 500+ test cycles by developing a PLC ladder logic control system in Unitronics VisiLogic for a research thermal chamber.
- Improved temperature regulation responsiveness by 25% against the baseline setup by conducting root cause analysis and system modelling to identify control inefficiencies.
- Stabilised chamber temperature stability within ±0.5°C across repeated test cycles by applying sensor calibration techniques and optimising fan sequencing.
- Documented the control system across 3 technical documents, including logic diagrams, a user guide and a troubleshooting guide, to support handover to engineering teams.

Manufacturing & Customer Support Engineer, Pro-Shift Technologies | Derby **Jan 2022 - Sep 2022**

- Manufactured 2+ mechatronic units per week by operating precision engraving machinery for system enclosures and assembling custom electrical harnesses to meet vehicle specifications.
- Diagnosed and resolved 5+ gearshift control unit faults by performing root cause analysis on electrical systems using oscilloscopes and diagnostic tools.
- Supported 20+ customers across the UK, Europe and Australia by providing technical guidance on product functionality, installation and engineering queries.
- Reduced diagnostic lead times by 30% by standardising electrical harness assembly protocols to improve quality assurance and product reliability.

Projects

Advanced CAD & Systems Modelling, Personal Project **Sep 2025 - Present**

- Modelled 2 commercial airliners, the Boeing 737 and Airbus A320, in high-fidelity 3D by interpreting 2D technical drawings and applying advanced lofting and surface-modelling techniques in Fusion 360.
- Engineered a 32-component turbofan engine assembly in Fusion 360 via multi-body modelling, internal mechanical tolerances and part-to-part joint relationships.
- Developing a high-performance automotive powertrain and bodywork in Fusion 360 by applying surface modelling to balance manufacturability and aerodynamic performance.

Drone Design & Manufacturing, Final Year Project **Oct 2024 - May 2025**

- Earned an 88% grade and the Best Final Year Project Prize by designing a VTOL blended wing body (BWB) UAV that integrated fuselage and wing structures to improve aerodynamic efficiency.
- Increased lift-to-drag ratio by 12% against the baseline design via 5+ iterations of aerodynamic modelling in XFLR5 and CFD validation in Ansys Fluent across 6 simulated flight conditions.
- Prototyped 30+ components within a £300 budget by producing engineering drawings and 3D printing detailed Fusion 360 CAD assemblies incorporating structural supports and internal systems for ground testing.
- Verified structural integrity to a minimum safety factor of 5.2 by performing first-principles stress calculations and FEA in Ansys Workbench under simulated loads and vibration.

Wing Design Engineer, UAS Challenge Team Project **Oct 2022 - Jun 2023**

- Collaborated with a 15-member multidisciplinary team via the IMechE UAS Challenge to design, build and test a competition-ready UAV.
- Optimised wing geometry and structural design across 5+ iterations via aerodynamic modelling in XFLR5 and 3D CAD in Creo Parametric, balancing lift-to-drag performance, fatigue life and manufacturability.
- Validated UAV aerodynamic stability across 3+ flight trials by supporting performance evaluation against competition safety standards.