Mahmoud M. Sief

Phone: +20 01027104575
Email: mahmoudsief222@gmail.com

Professional Profile:

A detail-oriented Mechanical Engineer with a strong foundation in mechanical design, 3D CAD modeling, FEA, and CFD analysis. Proficient in SolidWorks, ANSYS, and MATLAB. Hands-on experience in prototyping, simulation, and validation from concept to testing. Seeking to apply technical expertise and problem-solving skills to contribute to innovative mechanical design and product development projects.

Education:

Bachelor of Aerospace and Aeronautical Engineering, (2018-2023)
Cairo University, Faculty of Engineering, Giza, Egypt.
Accumulative Grade: Excellent with Honors.
Relevant Coursework: Fluid Mechanics, Thermodynamics, Solid Mechanics, Machine Design, Control Systems, Numerical Methods, Aerodynamics.

Experience:

Research Assistant – Nile University
July 2025 – Present | Cairo, Egypt

- Conducting theoretical modeling and CFD simulations for aerodynamic and acoustic flow problems.
- Conducting simulations using MATLAB, Ansys, and OpenFOAM
- Preparing technical documentation and presenting results in team meetings

Summer Intern – Petroleum Air Services (PAS)
Overhaul & Workshops Dept., Cairo Airport
August 14 – August 27, 2022

- Gained hands-on experience in aircraft engine overhaul and mechanical maintenance
- Observed and assisted in disassembly, inspection, and reassembly procedures
- Learned workshop best practices and safety standards relevant to high-integrity systems[

Mechanical Design & Engineering Projects:

Attitude Determination and Control Subsystem (ADCS) Model
- Designed and fabricated a small CubeSat model for orientation control.
- Developed mechanical components and ensured integration with control systems.
- Conducted validation and testing on Arduino-based controllers.

Surface-to-Air Missile Conceptual Design & Aerodynamic Investigation
- Designed missile structure using CAD software.
- Analyzed aerodynamic derivatives and variations using Ansys simulations.
- Developed autopilot loops, guidance systems, and performed validation using a 6-DoF simulator.

Flow Analysis over Joukowski Airfoil – Numerical Project

- Developed MATLAB code using the finite difference method to numerically solve flow over a Joukowski airfoil.
- Compared simulation results with analytical solutions, validating convergence and accuracy.
- Enhanced understanding of potential flow theory and numerical stability.

Aerodynamic Investigation of MQ-1 Predator UAV

- Designed and created a CAD model for aerodynamic simulation.
- Developed a high-quality mesh and conducted CFD analysis using Ansys.
- Validated aerodynamic parameters with experimental data.

Oscillating Flow in a Duct Simulation

Modeled pulsating/oscillating compressible flow in a circular duct using OpenFOAM, with applications in thermoacoustic systems, involving transient CFD analysis, post-processing of unsteady velocity/pressure fields, and frequency-domain characterization of the flow.

Technical Skills:

- **Mechanical Design & CAD:** SolidWorks, AutoCAD, NX, Ansys, OpenFOAM
- **Engineering Simulation:** ANSYS (Fluent), OpenFOAM
- **Engineering Analysis:** CFD, FEA, System Modeling
- **Programming & Software:** Python, MATLAB, Simulink, StateFlow, Adams, Git/GitHub
- **Documentation & Reporting:** Microsoft Word, Excel, PowerPoint, LaTeX
- **Operating Systems:** Windows, Linux OS
- **Languages:** Arabic (Native), English (High Proficiency)

Soft Skills

- Strong analytical and problem-solving skills.
- Excellent communication and teamwork abilities.
- Eager to learn and adapt to new technologies and methodologies.