Shyam Sundar J

Portfolio-website

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"**There's a first time for everything"!** An enthusiastic student hoping to make myself known by building up new things. A Proficient Aeronautical Engineer with a strong base in Aerodynamics, Flight mechanics and an experience of 3 years in designing, fabricating and analyzing aircraft components and unmanned aerial vehicles.

EDUCATION

Kumaraguru College of Technology, Coimbatore, (Anna University) **2020 - 2024**
Bachelor of Engineering, Aeronautical Engineering **CGPA - 8.9 (Upto 7th semester)**

SOFTWARE SKILLS

- **Computational analysis -** Ansys (Intermediate) / OpenFOAM (Beginner)
- **Programming languages -** C, C++, MATLAB (Beginner)
- **Design Tools -** Solid works (Beginner), CATIA.
- **Post processors -** CFX post, ParaView (Beginner)

FIELDS OF INTEREST

- Computational Fluid Dynamics
- Aerodynamics
- UAV Design
- Flight Mechanics
- Control Systems

RESEARCH EXPERIENCE

1) ExaSlate **2024 - Current**

CFD Intern

Computational Investigations of fuel rod bundles **(Ongoing)**

Study and prediction of fluid behavior inside flow channel of a fuel rod bundle by computational analysis using **OpenFOAM.**

2) Kumaraguru College of Technology

Numerical and computational investigations of Tilt Wing UAV for reducing power consumption (Ongoing)

Implementation of tilt wings with multi rotor controls for control surface less fixed wing maneuvering and modelling a controller for controlling its dynamics using **CATIA**, **Ansys** and **MATLAB Simulink**.

Tilting and wing folding mechanism for Unmanned Amphibious Vehicle **2023 - 2024**

Design and development of a unique tilting and folding mechanism for compact storage and efficient performance of a Unmanned Amphibious Vehicle

3) Aeromodelling Club of KCT **2021 - 2024**

Drone design Team

Design and production of fixed wing plane **2023**

Design, testing and fabrication of Fixed wing plane along with its component for efficient performance and High payload lifting capabilities using **CATIA** and **Ansys**.
Participated in **SAE drone design challenge** and ranked 13 in all over India and 2nd in our region

CONFERENCE PUBLICATIONS

Design and Multi-Perspective Investigations on Aeroacoustic Noise Reduction Technologies for Anti-Drone Propeller - ASME Gas Turbine India Conference 2023
(DOI - https://doi.org/10.1115/GTINDIA2023-117639)

JOURNAL PUBLICATIONS

Design, Control, Aerodynamic Performances, and Structural Integrity Investigations of Compact Ducted Drone with Co-axial Propeller for High Altitude Surveillance - Scientific Reports, Springer Nature.
(DOI - https://doi.org/10.1038/s41598-024-54174-x)

Multi perspective structural integrity based computational investigations on airframe of Gyrodyne-configured multi rotor UAV through coupled CFD and FEA approaches for various lightweight and sandwich composites and alloys - Reviews on Advanced Material Science and research
(DOI - https://doi.org/10.1515/rams-2023-0147)

Design and multi-perspective investigations on the aerodynamic performance factors of conventional and advanced UAVs' micro gas turbine engine nozzle through validated CFD - International Journal of Fluid Mechanics Research, Begell house.
(DOI - https://doi.org/10.1615/InterJFluidMechRes.2024051464)

Multi-Perspective Investigations of Aerosol's Nonlinear Impact on Unmanned Aerial Vehicle for Air Pollution Control Applications under Various Aerosol Working Environments - Aerosol Science and Engineering.
(DOI - https://doi.org/10.1007/s41810-024-00219-7)

PATENT PUBLICATION

Worked and contributed for 4 patent developments, in which 3 of them are under progress and 1 got published in Indian patents.

Tiltable main rotor with a servo motor for enhancing thrust and control in an elevated rotary wing UAV - Indian Patents. Published on January - 12, 2024.
(**Patent ID -202341089590)**

CO CURRICULAR

- Member of Aeromodelling Club of KCT **2021 - 2023**
- Co-Lead of UAV development team in Department of Aeronautical Engineering **2021 - 2023**
- Lead Coordinator of Research and Development in Department of Aeronautical Engineering **2021 - current**

EXTRA CURRICULAR

- Zonal Table Tennis Tournament - Winner (3 years in a row) **2021 - 2023**