



Personal Information

- Mail ID : keerthijs70@gmail.com

Education

Program	Institution/Board	%/CGPA	Year
<i>M.Tech.</i> (Aerospace Engg.)	Indian Institute of Technology Madras <i>Chennai, Tamil Nadu</i>	9.04/10	2024-2026
<i>B.Tech.</i> (Aerospace Engg.)	M S Ramaiah University of applied sciences <i>Bengaluru, Karnataka</i>	9.46/10	2019-2023
<i>Pre-University</i>	St Aloysius PU College <i>Mangaluru, Karnataka</i>	95.6%	2019
<i>Matriculation</i>	Radha Krishna Public school <i>Sagar, Karnataka.</i>	89.1%	2017

Key Projects

- 2. Design and Development of Open Jet Facility** Dec 2022 - May 2023
(B.Tech / Faculty: Gopalakrishna Narayana) MSRUAS
- Design of contoured CD nozzle and Aerospike nozzle using MOC and Angelino method. The design exit Mach number is 2.6. Nozzle fabrication was done for the available supersonic wind tunnel setup. The pressure data across the length of the nozzle was compared with the computational results.
- 3. Computational study of shock wave turbulent boundary layer interaction** May 2022 - Dec 2022
(B.Tech / Faculty: Gopalakrishna Narayana) MSRUAS
- The numerical study on SWBLI is carried out, focusing on the Skin friction coefficient and surface pressure, which is validated with the experimental results.

Projects

- 1. Course Project: Design of Finocyl grain for Solid Rocket Motor(SRM)** Mar 2025- May 2025
(M.Tech / Faculty: Prof. P. A. Ramakrishna) IITM
- Redesign of S139 motor with Finocyl grain and study of the grain parameters using CEA analysis, Burn simulation.
- 2. Design of UAV to intercept and neutralize small enemy UAVs at a distance** Jan 2025- May 2025
(M.Tech / Faculty: Prof. Joel George and R Sriram) IITM
- Design of a small UAV under 10kg, with Radio jamming frequencies installed, to intercept and neutralize the enemy drones within a range of 2km. The project includes detailed design of UAV along with the propeller, motor and battery selection. Project also focuses on the performance analysis of the UAV.
- 3. A Computational Study towards Noise Emission of a Modified Supersonic Nozzle** Oct 2021-Jan 2022
(B.Tech / Faculty: Gopalakrishna Narayana) MSRUAS
- The work studies about the effect of geometric variation leading to changes in the shock structure thereby changing the acoustic emissions.
- 4. Numerical Investigation of heat flux using open source solver SU2** May 2022-July 2022
(B.Tech / Faculty: Gopalakrishna Narayana) MSRUAS
- Heat Transfer and Skin friction coefficient measurement by impingement of oblique shock on a flat plate leading to SWBLI.
- 5. 3D study of the SWTBLI** Jan 2023- May 2023
(B.Tech / Faculty: Gopalakrishna Narayana) MSRUAS

- Study of three dimensional effects of the SWTBLI.

6. Numerical investigation of 2D curved shock/turbulent boundary layer interaction Mar 2023- May 2023 (B.Tech / Faculty: Gopalakrishna Narayana) MSRUAS

- Study of the SWTBLI using curved shock generator.

Online Courses & Workshop

- Workshop: *Challenges in Hypersonic flows and Engineering in nature* (Aug 2021)
- Course: *Python for Data Science, AI and Development* (Oct 2022)
- Course: *MATLAB Onramp* (Nov 2024)

Internships

- **Physical Design and Integration Intern**
AIRBUS INDIA PVT LTD
Working on the optimization techniques used to build the aircraft architecture (06/2025 – Present)
- **Experimental Aerodynamics and Testing Intern**
The ePlane Company
Worked on the swirl-based combustor and studied diffusion flames related to combustion (08/2024 – 02/2025)
- **CAE Intern**
Experiqs
Worked on aerodynamics of airfoil in presence of a wavy ground, and data center simulation using ANSYS Fluent and cadence DCX (07/2023 – 09/2023)

Course Work

- **BTech Courses:** Fluid mechanics and machines(19ASC205A), Material science for engineers(19ASC202A), Thermodynamics for engineers(19ASC204A), Introduction to Aerospace systems(19ASC203A), Strength of materials(19ASC212A), Manufacturing process for Aerospace systems(19ASC213A), 3D modelling and machine drawing(19ASC214A), Aerodynamics(19ASC215A), Aerospace structures(19ASC301A), Theory of machines and mechanisms(19ASC302A), Aircraft performance, stability and control(19ASC304A), Aerospace Propulsion(19ASC305A), Finite element analysis(19ASC313A), Control systems engineering(19ASC314A), Computational fluid dynamics(19ASC315A), Light weight and novel materials(19ASE413A), Advanced Computational fluid dynamics(19ASE424A), Engineering optimization(19ASE432A), Surface Engineering(19ASE443A)
- **Lab:** Fluid mechanics and machines laboratory(19SL207A), Aeromodelling laboratory(19ASL206A), Materials and testing laboratory(19ASL216A), Manufacturing processes laboratory(19ASL217A), Aerodynamics laboratory(19ASL218A), Aerospace structures laboratory(19ASL306A), Aeroapce propulsion laboratory(19ASL307A), CFD Laboratory(19ASL316A), CAE practises for aerospace application(19ASL317A)
- **MTech Courses:** Aerodynamics and aircraft performance(AS5010), Compressible fluid flow(AS5011), Aerospace Propulsion(AS5020), Aerospace Structures(AS5030), Mathematics for Aerospace Engineers(AS6520), Personal and Professional Growth(GN5003),Flight Mechanics(AS5040), Design of MAVs and UAVs(AS5213), Rocket Propulsion(AS6510), Transport properties in Reacting Flow(AS5670), Acoustic instabilities in Aerospace propulsion(AS6320)
- **Lab:** Aerodynamics Laboratory I(AS5110), Structures Laboratory(AS5120)

Technical Skills

- **Programming Languages :** Python, MATLAB
- **CAD Modeling Software :** ANSYS Design modeller, Spaceclaim, CATIA V5, FreeCAD
- **Simulation Softwares :** ANSYS Fluent, SU2, OpenFOAM
- **Post Processing Software :** CFD Post, Paraview, Tecplot
- **Other Software :** Data Center DCX, Salome, ICEM CFD, GAMBIT, ANSYS Fluent Meshing, Workbench Meshing, BurnSim, NASA CEA software, Patran, Nastran

Conferences & Publication

- Participated in the *40th World Conference on Applied Sciences, Engineering and Technology (WSACET)* for paper titled - A Computational Study towards Noise Emission of a Modified Supersonic Nozzle (2021).

- o Participated in the *3rd Annual SU2 conference* for paper titled -Computational study of heat flux in the shock wave – turbulent boundary layer interaction using SU2(2022).
- o Participated in the *7th National symposium on shock waves, Physical Research Laboratory* for paper titled -Skin friction Analysis in shock wave turbulent boundary layer interaction using SU2 (2022).
- o Participated in the *25th AIAA International Space Planes and Hypersonic Systems and Technologies Conference* for paper titled -Numerical Investigation of heat flux in shock wave turbulent boundary layer interaction using RANS and WMLES (2023).
- o Participated in the *14th Asian Computational Fluid Dynamics Conference(ACFD 2023)* for paper titled -Numerical study of 2D curved Shock wave Boundary Layer Interaction (2023).
- o Research Publication: Vishal Umapathi choudari, Keerthi J S, Gopalakrishna Narayana, *Numerical study of 2D curved Shock wave Boundary Layer Interaction*, Journal of Aeronautics and Space technologies, 17(2) (2024) 107-1212023, 2024.

Declaration

I do hereby declare that all the details furnished above are true to the best of my knowledge and belief.

(Keerthi J S)