

# A U Nachiketh Kumar

 LinkedIn: a-u-nachiketh-kumar    Github: github.com/nachikethkumar    Email: nachiketh41@gmail.com  
+91-9606299177, Mangalore, KA, Indian

## EDUCATION

### Bachelor of Technology - Aerospace Engineering

Bangalore, India

M S Ramaiah University of Applied Sciences; GPA:9.32

Dec 2020 - June 2024

Courses: Aerodynamics, Propulsion, Structures, CFD, Control system, Manufacturing Materials, Aircraft mechanics, CAD, AI-ML, FEM

## SKILLS SUMMARY

- **Languages/Tools:** MATLAB, Python, C++, Simulink, StateFlow, GUI, Deep-learning, Computer Vision, STK
- **Modelling:** Catia V5, Autodesk FUSION 360, AutoCAD, GAMBIT, ICEM, Aircraft Design, Gazebo
- **Solvers:** ANSYS FLUENT, SU2, NASTRAN PATRAN, Open VSP, XFLR 5, FEMM, OpenRocket
- **Platforms:** Linux, Web, Windows, Arduino, PX4, Raspberry, Flight Gear, 3D Printing, Paraview, Qg Control
- **Soft Skills:** Exceeded expectations, tackled, initiative, self-motivated, reliable, driven, Collaborated effectively

## EXPERIENCE

### Aeronautical Development Agency, DRDO, Summer Internship

Onsite

Flight Mechanics and Control Division, National Aerospace Laboratories (NAL) (Full-time) May 2023 - Jun 2023

- **Runway alignment and motion estimation:** Developed and implemented a computer vision algorithm using optical flow techniques, resulting in a significant improvement in runway alignment and motion estimation accuracy for fighter aircraft landings, leading to enhanced safety and efficiency.

### GENEX Space, Research and Development intern

Onsite

Kormangala (Full-time)

Jan 2023 - Feb 2023

- **Product and Software development:** Product prototyping, 3D Printing and development of Telemetry data visualization application for CANSAT's, enabling real-time monitoring and analysis of critical mission data.

### Indian Institute of Technology, Kanpur, Research internship

Remote

Department of Aerospace engineering (Part-time)

Aug 2023 - Present

- **Fluid Structure interaction (FSI):** Numerical study on supersonic aeroelasticity and FSI using partitioned approach

## PROJECTS

- **Computational investigation of Hypersonic flow and Heat-Transfer over large angle blunt cone and Winged Re-Entry Vehicle:** Investigated the accuracy of different thermochemistry models on hypersonic flow. Validated heat flux predictions over a re-entry vehicle forebody, contributing to the development of reliable Martian atmospheric entry models.
- **Conceptual aircraft designing of water scooping amphibian aircraft for aerial fire-fighting:** Conceptual Aircraft designing according to given requirements, CAD, CFD and preliminary designing of scooper aircraft
- **Design and Analysis of Hall-Effect Thrusters:** Developed MATLAB program for optimizing key performance parameters such as thrust and Isp. Developed 3D CAD models for analysis, contributing to the advancement of electric propulsion tech.
- **Novel Path-following Algorithm for parrot mambo mini-drone using MATLAB Simulink :** Performed SITL simulation, code deployment and testing of Precise path tracking algorithm on mambo flight controller hardware
- **Development of Autonomous drone for surveillance using Pixhawk FC and Raspberry pi :** Prototype build, implementation of DroneKit library to execute MAVLink protocol, Integrated Deep-learning models on onboard computer for object detection and tracking
- **Development of deep-learning network for runway classification and aerial vehicle detection using YOLO and ResNet :** Designed a robust deep learning model for runway and aerial vehicle detection through transfer learning and training algorithm optimization.

## PUBLICATIONS

- **National symposium of Shock wave (NSSW 2023) Ahmedabad:** Computational aerothermodynamic study of winged re-entry vehicle using open source SU2 Solver
- **4th International SU2 conference, Italy-23:** Assessment of thermochemistry modelling of hypersonic non-equilibrium flow in martian atmosphere (CO2 species) using SU2 NEMO and Mutation ++

## HONORS AND AWARDS

- **National Geography Explorer Award**, Google science fair (GSF) California United States
- **Rastriya Bal Shakthi Award (National child Award)**, Govt of India, Ministry of Woman and Child Welfare
- **University student achiever Award**, National Innovation Day, MSRUS
- **5th place all India in minidrone competition**, MathWorks, SAE India, IIT Kanpur
- **2nd Place Autodesk Design Hackathon**, DSU, AUTODESK
- **Silver medal, International Sustainable World Energy, Engineering Project**, TX United States

## VOLUNTEER EXPERIENCE

### Society for Space Education, Research and Development (SSERD)

Bangalore, India

Managed and coordinated International Space Exhibition and Conference in 2022 along with CII. Nov 2022 - Present

### Institutes Innovation Council (IIC), Innovation coordinator

Bangalore, India

Administered the promotion of different engineering activities and exhibitions in university. Jun 2021 - May 2023