A U Nachiketh Kumar

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

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
- **Solvers**: ANSYS FLUENT, SU2, NASTRAN PATRAN, Open VSP, XFLR 5, FEMM, OpenRocket
- **Platforms**: Linux, Web, Windows, Arduino, Raspberry, Flight Gear, 3D Printing, Cura, Paraview
- **Soft Skills**: Leadership, Event Management, Strong work ethic, Time Management, Team work

Experience

- **Aeronautical Development Agency, DRDO, Summer Internship** — Onsite
  Flight Mechanics and Control Divison, National Aerospace Laboratories (NAL) (Full-time) — *May 2023 - Jun 2023*
  - **Runway alignment and motion estimation**: Developed and implemented computer vision algorithms for fighter aircraft landing and approach stages, utilizing optical flow techniques, resulting in precise runway alignment and motion estimation for improved safety and efficiency during critical operations.
- **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 aeroelasticity and FSI using partitioned approach

Projects

- **Assessment of thermochemistry modelling of hypersonic non-equilibrium flow in martian atmosphere (CO2 species) using SU2-NEMO and Mutation++** : Aerothermodynamic flow simulation. Prediction and Validation of Heat flux data over re-entry fore body geometry using open source solver
- **Novel Path-following Algorithm for parrot mambo mini-drone using MATLAB Simulink** : Deployment and testing of Precise path tracking algorithm on mambo flight controller hardware
- **Conceptual aircraft design of water scooping amphibian aircraft for aerial fire-fighting**: Conceptualization CAD, CFD and preliminary designing of scooper aircraft
- **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 algorithm optimization.
- **Design and Analysis of Hall-Effect Thrusters**: Conducted research on electric propulsion, developed MATLAB code for Thruster Sizing and performance parameters, and created CAD designs for prototype testing.

Publications

- **National symposium of Shock wave (NSSW 2023) Ahmedabad**: Computational aerothermodynamic study of winged re-entry vehicle using opensoure SU2 Solver
- **4th International SU2 conference, Italy-23**: Assessment of thermochemistry modeliing of hypersonic non-equilibrium flow in martian atmosphere 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 winner- National Innovation Day
- 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, and Environment 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*