A U Nachiketh Kumar

Aerospace Undergraduate

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PROFILE

Aerospace undergrad with keen interest in Space Engineering, Hypersonic flows, Space and air vehicles and new-found innovations in Aerospace. Having been actively engaged in various research endeavors in the aerospace engineering domain, which have provided me with invaluable experience and a deeper understanding of the field. Always looking forward to come up with next generation innovative technologies in aerospace which will create a significant impact on society.

PROJECTS

Novel path-planning algorithm for parrot mini-drone using MATLAB Simulink

06/2022 – 10/2022

Developed a novel computer vision based algorithm which included Computer vision, Image processing and Path planning algorithm using Stateflow on simulink models for path following for the parrot mambo drone.Testing was carried out by deploying the algorithm on actual drone in real environment.

Conceptual design of water-scooping amphibian aircraft for aerial fire-fighting

11/2021 – 05/2022

Conceptual designing of amphibian aircraft is carried out using the indian standards as part of NACDeC contest. Performed Initial Sizing, Constraint analysis, Airfoil and powerplant selection, Performance parameters calculations, Aircraft cost analysis etc.Analysis and CAD design were performed using open source solvers.

Study of Hypersonic flow and Heat-Transfer over Blunt cone flare body (DART) Winged Re-Entry Vehicle

11/2022 – present

Validation of CFD results of hypersonic flow over blunt body, Re-entry configuration(DART), conical blunt flare and calculation of heat transfer using FLUENT and open source software SU2 solver.Study on Non-equilibrium flows during the re-entry was carried out using SU2 NEMO. This research paper was selected to national and international shock wave conference held at PRL,Ahmedabad and Daegu,South Korea.

EDUCATION

Secondary School,
Indraprastha Vidyalaya
01/2008 – 05/2018
Uppinangady, India
Maths, Science, Social Science, English, 2 Languages

High School, *Indraprastha PU College*
06/2018 – 05/2020
Uppinangady, India
Physics, Chemistry, Maths, Biology

Undergraduate Degree, *M S Ramaiah University of Applied Sciences*
12/2020 – present | Bangalore, India
B-Tech, Aerospace Engineering

PROFESSIONAL EXPERIENCE

R&D Intern, *GENEX Space*
01/2023 – present | Bangalore, India
Product Design and Prototyping. Involved in developing new prototypes for CANSAT's and initiated testing, analysis. Developed Software application for its Telemetry. Worked on various aerospace rapid-prototyping using CAD.

Research Intern, *Learn by Research*
01/2022 – 03/2022 | Mumbai, India
Worked on Biomimetic design and analysis of flapping wing drone. Literature survey, case study, conceptual design and analysis were carried out throughout the research.

Student Intern, *DST Inspire Internship*
Mangalore, India
Involved in various pure science practical lab experiments and attended talks from scientists on cutting edge technologies and innovation in research field of nano-science, bio-tech, physics.

Scout Student,
Barath Scout and Guides
Uppinangady, India
Took part in a wide range of activities as part of the scout programme including traditional Scouting skills, such as camping, survival,Participated in service programmes, events, activities and project initiatives that contribute to community growth as active citizens

Student Volunteer, *SSERD- Society for Space education research and development*
08/2022 – present | Bangalore, India
Actively managed and coordinated Bengaluru International Space Exhibition and Conference- 2022

Design and Analysis of Hall-effect thrusters
09/2022 – present
Literature study and preliminary studies were performed on the theory behind electric propulsion and plasma physics. Thruster Sizing calculations and performance parameters are calculated.MATLAB code was build to calculate the thruster sizing and performance parameters.Prototype building and testing will be carried out on actual scaled model.

Design and Analysis of Bio-Inspired Mechanical Pickup and delivery mechanism for unmanned aerial vehicle
11/2022 – 12/2022
Designed an unpowered and spring based mechanism for pickup and delivery for Unmanned aerial vehicle using Autodesk FUSION 360 software. Simulation of mechanism and structural analysis were performed. Generative design was created using the generative design module in fusion 360.

Averrhoa Bilimbi -A Natural Coagulant For Rubber Latex
06/2017 – 09/2021
Developed and prepared an environmentally friendly rubber utilizing a fruit extract. This is a product made from the Bilimbi fruit (Averrhoa bilimbi), which can be used to make a standard rubber sheet that is less hazardous to the environment than the harmful and toxic formic acid that most farmers use, and can be produced at a low cost without sacrificing the rubber sheet's quality.

AWARDS

National Child Award (Rashtreeya Bal Shakthi Award),
Government of India
22/01/2021
Facilitated by National Child Award for Exceptional Achievement in the field of Innovation by Government of India from honorable president of India Sri Ram Nath Kovind and honorable prime minister Sri Narendra Modi.

National Geographic Explorer Award, *National Geography*
Awarded with National Geographic Explorer Award by National geography from the GOOGLE in International Google Global Science Fair-California USA

Global and Regional Finalist, *Google*
One among the top 20 global finalist from all over the world in Google science fair-2019

Silver Medlist, *I-SWEEEP*
Bagged Silver Medal in International Level I-SWEEEP Project Olympiad Science Fair Competition-Houston USA

Gold Medalist, *Science society of India*
Gold medal in National and regional level INSEF science and engineering fair

Young Scientist Award, *Kannada and Cultural Department, Bangalore*

National Finalist, *Aeronautical society of India*
National Finalist in Conceptual design of water scooping fire fighting aircraft NACDeC-2022

Top 5 Finalist, *Mathworks*
One among the top 5 finalist all over India in Mathworks Mini drone competition 2022- Indian institute of technology (IIT) Kanpur

Gold Medalist, *National Council of Science and Technology*
Secured gold medal in state and district level and selection to 23rd National level National children science congress-NCSC Chandigarh, Punjab

BCF Young Scientist Award, *Beary's Cultural Forum*

Innovation cordinator,
Institution Innovation council
01/2022 – present | Bangalore, India
Lead innovation promotion eco-system in the campus and managed various engineering exhibition.

SKILLS

Research and Project development	●●●●○
Problem Solving	●●●●○
Open source solver for Analysis and Simulation, SU2, Open VSP, XFLR	●●●●○
MATLAB, Simulink, Python Programming GUI	●●●●○
CAD Design, CATIA V5, Fusion 360	●●●●○
CFD Solvers, ANSYS, FLUENT, Nastran Patran	●●●●○
Microsoft office and google suite	●●●●○
Aircraft design and Model based design	●●●●○
Grid tool GAMBIT, ICEM	●●●●○
Operating system Linux, Windows	●●●●○

COURSES

MATLAB onramp, *Mathworks*

Simulink Onramp, *Mathworks*

Introduction to Aerospace Engineering: Astronautics and Human Spaceflight,
Massachusetts Institute of Technology

Computer Vision, Stateflow and Image processing Onramp, *Mathworks*

INTERESTS

Innovation and Technology,
Every kind of sports, Art and Design,
Reconstruct, Building, Gamming, Cooking

STRENGTHS

Creative Thinking, Strong work ethic,
Collaborative, Team-working, Innovative

LANGUAGES

English • Hindi • Kannada • Tulu

SOCIAL MEDIA

LinkedIn, *@A U Nachiketh Kumar*

Instagram, */nachiketh1_kumar*

Twitter, *@NachikethKumar*