ARUN A K

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SUMMARY OF QUALIFICATION

- Participated in **Phase II of the Global Sustainability Challenge 2026**, co-organized by IIT Bombay and Stanford Doerr School of Sustainability, United States
- **GATE AEROSPACE 2022 – AIR 472**
- Product of a top-ranking technical institution like **Anna University Regional Campus, Tirunelveli and Jawaharlal College of Engineering and Technology, Palakkad**
- Currently Pursuing Full-Time PhD Degree from **National Institute of Technology, Karnataka**
- Secured **first class** in both U.G and P.G in **Aeronautical Engineering**
- Executed my P.G Project on Flow Transients of Vacuum Ejector Operation with Straight Cylindrical Primary Duct at **Vikram Sarabhai Space Centre, ISRO, Trivandrum**
- Attended International Conference, national conference, national-level workshops and seminars.
- Acquired professional experience.
- Acquired knowledge in software like **Ansys, Matlab, Autodesk Inventor and Catia**
- Acquired knowledge in experiments like **Flow Visualization Techniques, Wind Tunnel Techniques and Particle Image Velocimetry**
- Acquired knowledge in **Electrochemical Work Station, Electrolyser performance** measurements techniques and different **material characterization** techniques.

CAREER OBJECTIVES

To use all my strengths like leadership, communication, teaching, researching and smart work in a challenging environment like a professional organisation that enhances my experience, learning, attitude, and skills.

SHORT TERM GOALS

- To create **self-sustaining, zero-emission energy systems for maritime and coastal applications**
- To receive funds for Projects (Proposals) from Funding Agencies
- To establish Joint collaborative research with Other/ foreign Universities
- To have a good publication (Journals)
- To establish consultancy work
- To conduct value added courses (Electrochemistry, Green Hydrogen Technologies)

PROJECT WORK

- Conceptual study of scramjet fuel injectors – **UG Mini project**
- Piezoelectric sensor embedded on aircraft structure to detect fracture – **UG Main project**
- Flow transients of vacuum ejector operation with straight cylindrical primary duct – **PG Project** done at Vikram Sarabhai Space Centre, ISRO, Trivandrum
- Investigation of electro-catalysts performance in a novel capillary-fed seawater electrolyser system for UAV maritime surveillance application – **Ph.D Project** Ongoing at National Institute of Technology, Karnataka

DETAILS OF ACADEMIC QUALIFICATION

COURSES	SCHOOL/COLLEGE	UNIVERSITY/ BOARD	YEAR OF PASSING	Aggregate
Doctor of Philosophy (PhD)	National Institute of Technology, Karnataka	National Institute of Technology, Karnataka	Pursuing Eight Semester	7 CGPA
Master of Engineering in Aeronautical Engineering	Anna University Regional Campus, Tirunelveli	Anna University, Chennai	2018	7.39 CGPA
Bachelor of Technology in Aeronautical Engineering	Jawaharlal College of Engineering & Technology, Palakkad	Calicut University	2015	7.61CGPA
Higher Secondary	Govt. Boys Higher Secondary School, Koyilandy	Kerala State Board	2011	91%
SSLC	Govt. Vocational Higher Secondary School	Kerala State Board	2009	83%

SHORT TERM COURSES ATTENDED

Course Name	Conducted By	Dates/Duration	Sponsored By
Catia and Ansys software, Autodesk Inventor Software (Part design, Assembly and Drawing)	Sky Jet Technologies, Coimbatore	10-01-2015 to 10-02-2015 90Hrs	
Applied Aerodynamics	IISC, Bangalore	22-26 January 2020 5days	AICTE
Digital Teaching Techniques	ICT Academy	25 - 29 Oct 2021 5days	

WORK EXPERIENCE

1) **Kasavu Kendra** as Billing Staff at Malappuram, Kerala – June – August 2015
2) **Fun2learn Marketing Pvt Ltd** as Product Specialist at Mysore, Bangalore – September 2015 – February 2016
3) **PSN College of Engineering and Technology** as an Assistant professor at Tirunelveli, Tamil Nadu – 6th June 2018 to 10th July 2019
4) **ACS College of Engineering** as Assistant professor at Kengeri, Bangalore - 19th July 2019 to 15th August 2022

JOURNAL PUBLICATION

Paper Name	Journal Name	Publication Details
Piezoelectric sensor embedded on aircraft structure to detect fracture	SSRG International Journal of Mechanical Engineering ISSN:2348-8360	March 2019 Special Issue ICRTETM http://www.internationaljournalssrg.org/uploads/specialissuepdf/ICRTETM-2019/2019/ME/PSN1075.pdf
Flow transients of vacuum ejector operation with straight cylindrical primary duct	SSRG International Journal of Mechanical Engineering ISSN:2348-8360	April 2019 Special Issue ICIETEM https://www.internationaljournalssrg.org/uploads/specialissuepdf/ICIETEM-2019/2019/ME/SGG017.pdf
A Comparison of the straight blade and swept back blade horizontal axis wind turbines	SSRG International Journal of Mechanical Engineering ISSN:2348-8360	April 2019 Special Issue ICIETEM http://www.internationaljournalssrg.org/uploads/specialissuepdf/ICIETEM-2019/2019/ME/SGG019.pdf
Numerical investigation of bio-diesel fuels for jet engine using CFD	International Research Journal of Modernization in Engineering Technology and Science e-ISSN: 2582-5208	August-2020 Volume:02/Issue:08 https://www.irjmets.com/uploadedfiles/paper/volume2/issue_8_august_2020/3253/1628083127.pdf
Fabrication of Maglev Assisted Take-Off System	SSRG International Journal of Mechanical Engineering ISSN: 2348 – 8360	September 2020 https://doi.org/10.14445/23488360/IJME-V7I9P102
Fabrication and Testing of Novel Hybrid Carbon Composite for Aircraft Applications	ACS Journal for Science and Engineering E-ISSN: 2582-9610	March 2022 Vol. 2 - No. 1 https://doi.org/10.34293/acsjse.v2i1.26
Integration of Sugarcane Bagasse and Waste Plastic Materials for Aeronautical Applications	ACS Journal for Science and Engineering E-ISSN: 2582-9610	March 2023 Vol. 3 - No. 1 https://doi.org/10.34293/acsjse.v3i1.56
Design, Analysis and Making of RC Controlled Stealth Aircraft Working Model	ACS Journal for Science and Engineering E-ISSN: 2582-9610	March 2024 Vol. 4 - No. 1 https://doi.org/10.34293/acsjse.v4i1.106

JOURNAL PUBLICATION – UNDER REVIEW

- **Investigation of Surface-Engineered Porous Ni-Cr-Mo Alloy and Heterostructured Electrodes for Enhanced Hydrogen Evolution in Seawater Electrolysis** – Communicated, Applied Surface Science (IF 6.9, Q1 Journal) - Manuscript Number: APSUSC-D-26-01877
- **Papers accepted for publication in Springer Proceedings as part of AGNI-S 2026**
  Paper ID: 176 – Studies on Development of Nickel based Bimetallic and Trimetallic sulfides Porous Electrodes for Green Hydrogen Production at Near Neutral Alkaline Seawater Media
  Paper ID: 265 – *Development of Solid-State Battery with Prelithiation Technology: A Review*
  Paper ID: 266 – *A Comprehensive Review of Natural Dye-Based Solid-State DSSC*
  Paper ID: 273 – *The Potential of Decoupled Water Electrolysis Systems for Green Hydrogen Production and its Recent Developments – A Review*

CONFERENCE PRESENTED

Paper Name	Conference Name	Conference Details
Navigation of unmanned aerial vehicle (UAV) by using aerial image matching technique	International conference ICSBD-2013	Jawaharlal college of engineering and technology
Piezoelectric sensor embedded on aircraft structure to detect fracture	National conference	PSN college of engineering and technology
Piezoelectric sensor embedded on aircraft structure to detect fracture	International conference ICRTETM March 2019	PSN college of engineering and technology in association with SSRG
Flow transients of vacuum ejector operation with straight cylindrical primary duct	International conference SSRG, ICIETEM April 2019	Shri Gopal Gaonkar Memorial Goa Multi-Faculty college, Goa in association with SSRG
A Comparison of the straight blade and swept back blade horizontal axis wind turbines	International conference SSRG, ICIETEM April 2019	Shri Gopal Gaonkar Memorial Goa Multi-Faculty college, Goa in association with SSRG
Integration of Sugarcane Bagasse and Waste Plastic Materials for Aeronautical Applications	National conference on Recent Innovations and Challenges in Aviation Technology RICAT-23	ACS College of Engineering, Bangalore
Design, Analysis and Making of RC Controlled Stealth Aircraft Working Model	National conference on Recent Innovations and Challenges in Aviation Technology RICAT-24	ACS College of Engineering, Bangalore
Studies on Development of Nickel based Bimetallic and Trimetallic sulfides Porous Electrodes for Green Hydrogen Production at Near Neutral Alkaline Seawater Media	International Conference on Advances in Green, Net-Zero Innovation – Sustainability (AGNI-S) April 2026	NIT Tiruchirappalli
Development of Solid-State Battery with Prelithiation Technology: A Review	International Conference on Advances in Green, Net-Zero Innovation – Sustainability (AGNI-S) April 2026	NIT Tiruchirappalli
A Comprehensive Review of Natural Dye-Based Solid-State DSSC	International Conference on Advances in Green, Net-Zero Innovation – Sustainability (AGNI-S) April 2026	NIT Tiruchirappalli
The Potential of Decoupled Water Electrolysis Systems for Green Hydrogen Production and its Recent Developments – A Review	International Conference on Advances in Green, Net-Zero Innovation – Sustainability (AGNI-S) April 2026	NIT Tiruchirappalli

PROJECTS PRESENTED

Project Titles	Organised By	Details
Piezoelectric sensor embedded on aircraft structure to detect fracture	Jyothi engineering college, Thrissur	National level workshop April 2025
Green hydrogen production by novel capillary driven seawater electrolysis system for maritime application	Rajalakshmi Engineering College, Chennai	Techfest Titanium 2026 Feb
Green hydrogen production by novel capillary driven seawater electrolysis system for maritime application	Indian Institute of Science Education and Research Bhopal	Research Showcase as part of workshop 14 March 2026

POSTERS PRESENTED

Project Titles	Organised By	Details
Green hydrogen production by novel capillary driven seawater electrolysis system for maritime application	Rajalakshmi Engineering College, Chennai	Techfest Titanium 2026 Feb
Green hydrogen production by novel capillary driven seawater electrolysis system for maritime application	Indian Institute of Science Education and Research Bhopal	Research Showcase as part of workshop 14 March 2026

FACULTY DEVELOPMENT PROGRAMME (FDP) ATTENDED

FDP Name	Organised By	Dates	Sponsored By
Outcome-based education	ACSCE, Bangalore	February 2020 5 days	AICTE
Outcome based education: A step towards excellence	Government college of Engineering, Karad	11-15 May 2020	AICTE
Machine learning and deep learning applications in Engineering and Science		16-20 May 2020 6 days	TEQIP
Introduction to computers offered by Spoken tutorial project	IIT Bombay	20-24 May 2020 5 days	MHRD
Artificial Intelligence		22-26 May 2020 5 days	
Emerging trends in nanomaterials for electronic and optoelectronic devices		May 10-15, 2021 6 days	AICTE
Design of Experiments	BIHER, Chennai	28 June-2 July 2021, 5 days	
Conceptual & practical knowledge sharing on CFD	Nehru Institute of Technology,Coimbatore	14-18 June 2021 5 days	ATAL
An Insight into Futuristic Aerospace Propulsion	SRM Institute of Science and Technology, Chennai	15 - 20 Oct 2021 6 days	SRM
Recent Technological Trends in Aerospace Engineering	SRM Institute of Science and Technology, Chennai	15 - 20 Oct 2023 6 days	SRM

Recent Advances in Electric Vehicle Technologies: Challenges and Solutions	Dayananda Sagar College of Engineering, Bengaluru, Karnataka	06-11 Nov 2023 6 days	ATAL
Energy Storage	Amrita Vishwa Vidyapeetham, Coimbatore	18-23 Dec 2023 6 days	ATAL
Green Hydrogen Generation Opportunities and Challenges in India	Shri Mata Vaishno Devi University, J&K	09-14 Dec 2024 6 days	ATAL
Hydrogen (H_2) Generation from Renewable Energy Technologies	Anna University, Chennai	3- 8 Feb 2025 6 days	ATAL
Applications of R, Python & Bibliometric Tools in Research with Systematic Literature Review	MCC Boyd Tandon School of Business, Chennai	27-10 to 01-11 2025, 6 days	ATAL
Hydrogen Energy: Pathways to a Sustainable and Decarbonized Future	NIT Raipur	24 – 29 Nov 2025, 6 days	ATAL

RECENT ACHIEVEMENTS

Event	Organised By	Achievements
Phase II of the Global Sustainability Challenge 2026, Feb 7	IIT Bombay and Stanford Doerr School of Sustainability	Selected for the Global competition (3,000+ student participants from over 91 countries and 500+ universities)
Project Expo (Chemstruct) Techfest Titanium 2026, Feb	Rajalakshmi Engineering College, Chennai	3rd Prize (4K cash prize)
Ideathon Techfest Tech Yuva 2026, March	Srinivas University, Mukka	1st Prize (1.5K cash prize)
Startup Pitch Speech Techfest Tech Yuva 2026, March	Srinivas University, Mukka	2nd Prize (1K cash prize)
ChemZ Pitch 2026, April	NIT Karnataka	2nd Prize (6K cash prize)

WORKSHOPS ATTENDED

Workshop Name	Organised By	Dates	Sponsored By
Technical Writing and Publication	BMS College	7 April 2020	
Education 4.0: Transformation of learning environment		29-30 May 2020 2 days	
CFD fundamentals- theory and practice		May 18 2020	
Smart structures & Aeroelasticity	Dayananda Sagar University, Bangalore	9 - 13 Jan 2023 5 days	ARDB
Unleashing Innovation for and from Grassroots"	National Institute of Technology Karnataka	February 24, 2024	
Microbial Fuel Cells (MFC)	National Institute of Technology Trichy	4-9 March 2024 6 days	SERB
HYDGEN Innovation Day	Sahyadri Campus, Mangalore	April 9 2025	

Advanced Materials and Manufacturing: Characterization and Applications	National Institute of Technology Karnataka (NITK), Surathkal	22–26 Sep 2025 5 days	DST-ANRF
Recent Advances in Metal Additive Manufacturing	National Institute of Technology Karnataka	15 - 19 Dec 2025 5 days	DST-ANRF
Aeromodelling - Skyverse	National Institute of Technology Karnataka	06-10 March 2026 5 days	Boeing
Green Hydrogen Technologies: Research Highlights & Innovations	Indian Institute of Science Education and Research Bhopal	13-14 March 2026 2 days	ANRF

WEBINAR ATTENDED

Webinar Name	Organised By	Dates
Introduction to computational methods in Fluid dynamics	TNECFWA, Chennai	10 May 2020
Satellite and automation	ACS College of Engineering	11-13 May 2020
Meshing and grid independence study	TNECFWA, Chennai	17 May 2020
Recent trends in Industrial Engineering		29-30 May 2020
Foundation of computational fluid dynamics		May 25
New product design and development		May 21
Foundation of CFD		25 May 2021
3D High lift flow computations	ACS College of Engineering	28 May 2021
Design perspectives in morphing wings	ACS College of Engineering	04 June 2021
Missile aerodynamics	ACS College of Engineering	05 June 2021
Applications of Drones In Various Sectors	SRM Institute of Science and Technology, Chennai	08 Nov 2021

SKILL DEVELOPMENT PROGRAM ATTENDED

SDP Name	Organised By	Dates
Document setting using LaTeX	National Institute of Technology Karnataka (NITK), Surathkal	29 - 30 Sep 2022 2 days

AREA OF SPECIALIZATION

- Electrochemistry, Green hydrogen, Energy, Aerodynamics, Wind tunnel techniques, Flight mechanics, Material characterization, Computational fluid dynamics

SUBJECT HANDLED

Propulsion I	Fundamentals of aeronautics
Propulsion II	Aircraft electrical systems and instrumentation
Rockets and missiles	Aircraft stability and control
Aircraft performance	Solid mechanics and thermal engineering lab
Theory of vibrations	Aircraft structure and modelling lab
Helicopter dynamics	Modelling and analysis laboratory
Wind tunnel techniques	Aircraft propulsion laboratory
Aircraft material science	Flight simulation laboratory
Engineering drawings	Material testing laboratory

ACADEMIC ADDITIONAL RESPONSIBILITIES

Conference Coordinator	NDT Course Coordinator
Gate Coaching Coordinator	Class Advisor for B.E And M.E Students
Extra- Credit Coordinator	NBA Criteria 1 Coordinator
NAAC Criteria 7 Coordinator	VTU E-Shikshana Coordinator
Newsletter Coordinator	Department Library Coordinator
Mini-Project Coordinator	ICT Academy Coordinator

PROGRAMS ORGANIZED & COORDINATED

- Optimization Techniques - Webinar
- Geometric Dimensions and Tolerance – Webinar
- Winning Resume Writing for Young Graduate Students – Webinar
- How To Crack A GD, Tips for Group Discussion – Webinar
- How To Face an Interview, Tips for Interview Preparation – Webinar
- Unmanned Aerial Vehicles in Industry 5.0 – Academic Guest Lecture

PROJECTS GUIDED

- Fabrication of super hydrophobic surfaces on Aluminum alloy AA6061
- Fabrication of Maglev assisted propulsion system for aircraft take-off and landing.
- Comparative analysis of biofuels for jet engine using CFD
- Analysis of delaying combustion in scramjet engine
- Aerodynamic analysis ramp type vortex generator on NACA 4415 wing
- Fabrication and testing of mechanical properties of carbon nano-fiber composite for a/c brakes.
- Simulation of boundary layer behavior on a morphing airfoil
- Fabrication and Characterization of Composite from Sugarcane Bagasse and Waste Plastic for Domestic Thermal Insulation
- Numerical analysis of aerodynamic interaction of jet plume on rocket body

MEMBERSHIP DETAILS

International Association for the Engineers and Computer Scientists (IAENG) – Membership No 30773

CURRENT RESEARCH WORK

- Development of nickel-based porous bimetallic and multimetallic (sulfide) electrocatalysts for HER and OER in near-neutral alkaline seawater, utilizing sulfur recovered from spent iron sponge. The work integrates drop casting, magnetron sputtering, hydrothermal synthesis, and electrochemical impregnation, evaluated in conventional and capillary-fed seawater electrolysers with/without redox mediators, and extends to theoretical design of hydrogen-based propulsion systems for maritime surveillance UAVs.

LANGUAGES KNOWN

- **English** - Speak, Read & Write.
- **Hindi** - Read & Write.
- **Malayalam** - Speak, Read & Write
- **Tamil -** Speak

PERSONAL DETAILS

Date of birth	: 11-11-1994
Gender	: Male
Nationality	: Indian

REFERENCES

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Place: Mangalore
Date: 24-06-2026

Signature

ARUN A.K