

GOKULA KRISHNA TAVVA

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EDUCATION

Birla Institute of Technology and Science • Pilani, India
Bachelor of Engineering • *Mechanical Engineering* • GPA: 9.08/10.0

Oct 2022 – Present

TECHNICAL SKILLS

- **Simulation:** ANSYS Fluent, OpenFOAM, Basilisk C, Simscale, ANSYS Structural
- **Designing:** SOLIDWORKS, Autodesk Fusion, Creo Parametric, Autodesk AutoCAD, OpenVSP, Altair Inspire
- **Others:** MATLAB, Simulink, C Programming, Ardupilot

PROJECTS

Optimization of a Conveyor-Style Dehumidifying Chamber – BITS Pilani
Pilani, India

Mar 2025 – Present

- Project Advisor: [Prof. Manoj Kumar Soni](#) & [Prof. Chennu Ranganayakulu](#)
- Conducting simulations on a multi-stage conveyor-style dehumidifying system to optimize airflow and ensure output relative humidity stays within desired ranges.
- Analyzing results to identify potential design improvements for enhanced system efficiency and energy optimization.

Simulation study of lanced offset fins of Compact Heat Exchangers – BITS Pilani
Pilani, India

Jun 2024 – Feb 2025

- Project Advisor: [Prof. Chennu Ranganayakulu](#)
- Developed refined empirical correlations for heat transfer in lanced offset fins by simulating **1000+** cases varying design parameters such as flow length, fin thickness, fin height, and fin spacing.
- Expanded previous research by considering a broader range of cases, incorporating flow length variations, and extending Reynolds number coverage into the highly turbulent regime.

Compact refrigeration system for the fishing boats – BITS Pilani
Pilani, India

May 2024 – Aug 2024

- Project Advisor: [Prof. M.S Dasgupta](#)
- Contributed to modeling and enhancement of the refrigeration system's compactness, manufacturability, and repairability for the **Indo-Norway** fishing industry project.
- Created CAD designs for a boat-engine-powered refrigeration system with an evaporator drum to facilitate ice production for optimal fish preservation until reaching shore.

Experimental study on PV cell performance with magnetic nanofluids – BITS Pilani
Pilani, India

Jan 2024 – Dec 2024

- Project Advisor: [Prof. Suvanjan Bhattacharyya](#)
- Designed and Fabricated a magnetic nanofluids (like Fe_3O_4) based solar PV cooling experimental setup.
- Initiated the validation of the experimental setup and aimed to improve the efficiency of the PV panels by **10%** when compared to cooling water.

EV Battery thermal analysis using PCM and nanofluids under vibration – BITS Pilani
Pilani, India

Jan 2024 – Jun 2024

- Project Advisor: [Prof. Suvanjan Bhattacharyya](#)
- Engineered an **innovative solution** to enhance thermal management, addressing critical cooling challenges in EV batteries
- Conducted multiphase PCM simulations and experiments to assess the heat transfer dynamics. Reduced the battery pack temperature by **15%**, and boosted EV range by **10%** with an inventive system.

PUBLICATIONS

Vimana Aerotech and the development of a tail-sitter VTOL drone for research as well as commercial facilitation. – [International Astronautical Federation](#)

Oct 2024

- Co-author in the [paper](#) published in the proceedings of the [75th International Astronautical Congress](#) in Milan, Italy.

CONFERENCES

ICGTME – [Department of Mechanical Engineering, BITS Pilani](#)

Feb 2025

- Presented thermo-hydraulic correlations of the Colburn 'j' factor for offset strip fins in laminar and turbulent flow regimes at an international conference. Achieved the **Best Presentation Award out of 134 papers**.

GRANTS

BVJCOE: Designing the Future: Solar-Powered Electric Vehicle for Sustainable Mobility; INR 40k	Nov 2024
AUGSD, BITS Pilani: Enhancement of PV module performance by magnetic nanofluid cooling; INR 36k	Nov 2023
AUGSD, BITS Pilani: PCM and nanofluid-based cooling tech for EV batteries under vibration; INR 33k	Nov 2023

WORK EXPERIENCE

Simulation Intern – Serendipity Space	Mar 2025 – Present
Remote	
<ul style="list-style-type: none">Executing thermal simulations for a space payload designed to study pharmaceutical compound's quality and stability in zero-gravity conditions.Collaborating on developing reusable satellites with re-entry capabilities to return processed pharmaceutical compounds from space to Earth.	
Undergraduate Teaching Assistant – BITS Pilani	Aug 2024 - Present
Pilani, India	
<ul style="list-style-type: none">Workshop Division Prof. Abhijeet K. Digalwar Jan 2025 – Present Responsible for preparing standard operating procedures and lab manuals for experiments conducted under 6 courses. I also assist students in their semester projects associated with manufacturing.Applied Thermodynamics Prof. Suvanjan Bhattacharyya Aug 2024 – Dec 2024 Led lab sessions, assessments, and invigilation for a core mechanical engineering course with 200+ students, ensuring effective learning and evaluation.	
Summer Intern – TATA Advanced Systems Limited	May 2024 – Jul 2024
Nagpur, India	
<ul style="list-style-type: none">Initiated the improvement of fixture management practices by developing a color-code system. This system helps in efficient organization of the fixtures on the machine shop floor and assembly.Achieved 80% reduction in the search time. Proposed ergonomic handles with improved grip for better handling in fixtures.	
Flight Testing Engineer and CAD Designer – Vimana Aerotech	Sep 2023 – Jan 2025
Pilani, India	
<ul style="list-style-type: none">Assisted in the development of a tail-sitter drone designed for long-duration survey missions with almost 4 times the flight time of conventional multi-copters with similar capacity and payload.Utilized rapid prototyping, testing each iteration with 3D-printed components.Contributed to designing custom hatches, covers, and motor mounts for an in-house manufactured hexacopter.	
Mechanical Design Intern – Khageshvara Aviation Technology Pvt. Ltd.	Jul 2023 – Aug 2023
Remote	
<ul style="list-style-type: none">Developed foundational aircraft design skills and proposed design modifications as per UAV certification criteria by the Ministry of Civil Aviation, India.	

LEADERSHIP AND EXTRACURRICULAR

Team Captain – Inspired Karters Gravity	Jun 2024 – Present
<ul style="list-style-type: none">Spearheading a team of 40+ members, focusing on designing and manufacturing a go-kart.Managed budget of INR 800k+, drafting timelines, and securing sponsorships.Achieved an All-India Rank 10 in the Electric Category at the national-level go karting competition.	
Structural and Dynamics Engineer – Team BITS	Apr 2023 – May 2024
<ul style="list-style-type: none">Designed spaceframes for 100% ethanol-run and electric cars for Shell Eco-Marathon Asia-Pacific.Assisted in designing a lightweight carbon fiber shell for our prototype, achieving a drag coefficient of 0.18, reducing air resistance and enhancing performance.	

CERTIFICATIONS

<ul style="list-style-type: none">SOLIDWORKS CAD Design Associate (CSWA) – Issued by Dassault SystèmesCourse certificate: Flight Mechanics – The Basics – Issued by ISAE-SUPAERO	Sep 2024 Dec 2023
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COMPETITIONS

Second position in CAD-a-thon, APOGEE-2023 – Issued by MEA - BITS Pilani	Mar 2023
<ul style="list-style-type: none">Achieved 2nd place out of 93 teams for designing a multipurpose furniture model, optimizing key design parameters.	