

Nitish Chauhan

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PROFESSIONAL SUMMARY

Researcher with high mechanical aptitude and aerospace background specializing in thermal-fluid sciences. My research involves the development of efficient methods and systems for adsorption-based non-vapor compression cycles to provide cost-effective applications in heating, ventilation, and air conditioning (HVAC) and energy conversion systems. During the course of my studies, I have completed multiple projects and worked on several experiments which have augmented my learning abilities and skills.

EDUCATION Florida Institute of Technology, Melbourne, Florida

August 2021 – July 2023

Master of Science in Mechanical Engineering (GPA 4.0)

Florida Institute of Technology, Melbourne, Florida

August 2016 – May 2020

Bachelor of Science in Aerospace Engineering

SKILLS

MATLAB, EES LABVIEW, CAD, PTC CREO, ANSYS FLUENT/Mechanical/HFSS, COMSOL, AutoCAD, REVIT, SOLIDWORKS, Python, XRD, SEM, FTIR, Microsoft Office, Machine TOOLS, CNC Database Research, Critical Thinking, Teamwork, Leadership.

WORK EXPERIENCE Florida Institute of Technology, Melbourne, Florida

September 2020 - Present

Researcher

- Developed an innovative and cost-effective washcoating method for fabricating adsorbents on ceramic substrates, expanding their application in thermal research fields and practical applications.
- Conceptualized, developed, and validated an innovative model that employs adsorbent-coated microchannels for asymmetrical heat pump operation, revolutionizing instantaneous water heating technology.
- Pioneered a novel method for applying adsorbent coatings to substrates using resins and UV curing, enhancing the durability and functionality of the materials.
- Developed and implemented a highly technical, semi-empirical model for accurately determining viscosity for wash coating applications, significantly enhancing process efficiency.
- Conducted comprehensive investigations on different adsorbents/binders for potential use in adsorption-based HVAC applications, expanding the field's understanding of possible alternatives.

Low Earth Orbit Biosciences LLC, Indian Harbor Beach, Florida

April 2021 – Feb 2022

Mechanical & Design Engineer

- Designed 3-D models & 2-D engineering drawings of scalable bioreactors, establishing a reliable platform for advanced biochemical research viability.
- Engineered custom impellers for variable RPM settings to integrate into small bioreactors.
- Innovated modified well plates and incorporated impellers for the agitation of the cells.
- Conducted comprehensive simulations using ANSYS to analyze thermal and fluid dynamics under microgravity conditions.
- Devised new configurations to reduce mechanical load, significantly enhancing the durability and longevity of the bioreactors.

Florida Institute of Technology, Melbourne, Florida

January 2022 – December 2022

Teaching Assistant

- Grading assignments for undergraduate courses: Heat Transfer and Thermal System Design coursework.
- Clearing doubts and queries for the students.
- Aiding the students whenever necessary & providing feedback to the professor.

Damesh Stone Crusher, Rudrapur, India

May 2017 – August 2017

Project Engineer Intern

- Examined & evaluated work orders to prepare for machine setup with the project engineer.
- Maintained high standards for safety, operation, and preparedness of all equipment.
- Managed the operation of the air breathers; verified that they met code standards.
- Directly managed & trained a small team to maintain security of costly inventory and supplies.
- Reported to managing supervisors on the status & accuracy of inventory and assigned work.

PROJECTS FOR JOURNAL PUBLICATION

Florida Institute of Technology, Melbourne, Florida

Adsorption-based thermal management of data centers

- Developed a MATLAB code for effective heat dissipation from data centers with minimized dimensions.

Plate Fin Heat Optimization for Thermal Cooling in Printed Circuit Board

- Optimized Heat Sink for multi-objective functions using NSGA II and analyzed the model using COMSOL

CAPSTONE PROJECT (B.S Aerospace) Florida Institute of Technology, Melbourne, Florida

January 2019 – May 2020

Senior Design Project (Propulsion Engineer)

- Designed 3D- Cad models of varied fuel tanks to hold 7 liters of Jet A1 fuel to ensure a flight time of 7 minutes with a speed of 300 mph.
- Performed all necessary calculations, built an aluminum fuel tank, and integrated it with the fuselage.

PUBLICATIONS & CONFERENCES

1. Chauhan, N., Accornero, F., Sultana, A. I., Ege, F., Reza, M. T., & Pahinkar, D. G. (2022). Synthesis and Characterization of MIL-101 (Cr) Adsorbent Coating on Microchannel Walls for Water Adsorption Heat Pumps. *Industrial and Engineering Chemistry Research*, 61(39), 14573–14585. <https://doi.org/10.1021/acs.iecr.2c02163>
2. Chauhan, N., Ege, F., Pahinkar, D. G., Development and Characterization of Inexpensive Methods for Fabricating Adsorbent-Coated Microchannels for Building Energy Systems Applications, ASME Energy and Sustainability 2022, ES2022-87907, Philadelphia, PA
3. Pahinkar, D. G., Chauhan, N., Ege, F., In-situ Fabrication of Adsorbent-Coated Microchannels for Building Energy Systems, Florida Academy of Science 2022, 85th Annual Meeting, March 11, 2022
4. Pahinkar, D. G., Chauhan, N., Goyal, A., Novel Tankless Adsorption Heat Pump Water Heater, ASME Energy and Sustainability 2021, ES2021-68893

PROFESSIONAL AFFILIATIONS

The American Society of Mechanical Engineering (ASME)
Order of Engineering