

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, SOLIDWORKS, Python, C++, JAVA, 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

- Researching & scaling innovative approaches to develop non-vapor compression systems for thermally driven applications using adsorption techniques.
- Researching & designing circular models for the high-performance microchannel adsorption heat pump.
- Developing expert modeling & simulating designs for the direct air capture and sequestration of carbon dioxide which will be verified with experiments.
- Developing viscosity models for varied solid fractions to be integrated for coating and heat transfer applications.
- Programming Graphical User Interface (GUI) code to facilitate the calculations of high-order differential equations.
- Developed an economical & novel method for the fabrication of adsorbent on ceramic substrates to be utilized for thermal applications & research fields.
- Developed & validated a novel model of an asymmetric operation of heat pumps for instantaneous water heating technology.
- Led investigative research to find an alternative of silica gel to integrate into heat pumps. Concluding findings in written reports for journal publications.

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 for biochemical research viability.
- Designed impellers for different RPM settings to be integrated into the reactors.
- Modified well-plates and incorporated impellers for the agitation of the cells.
- Conducted and simulated tests on ANSYS to analyze the thermal and fluid dynamics under microgravity conditions.
- Designed new configurations to reduce mechanical load.

Florida Institute of Technology, Melbourne, Florida
Teaching Assistant

January 2022 – December 2022

- 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
Project Engineer Intern

May 2017 – August 2017

- 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 100 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