

NITHIN VINOD UPOT

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EDUCATION

University of Illinois at Urbana-Champaign **December 2022**
Doctor of Philosophy (Ph.D.) in Mechanical Engineering GPA: 3.93/4.0

- Researcher at Air Conditioning and Refrigeration Center (ACRC)

University of Illinois at Urbana-Champaign **August 2016**
Master of Science (M.S.) in Aerospace Engineering GPA: 3.91/4.0

- Certificate of Graduate Specialization in Aerospace Systems Engineering

Anna University, College of Engineering Guindy, India **June 2014**
Bachelor of Engineering (B.E.) in Mechanical Engineering GPA: 9.3/10.0

- Ranked in top 2% of all students within the university

TECHNICAL SKILLS

ANSYS Icepak, ANSYS Fluent, Engineering Equation Solver (EES), LabVIEW, MATLAB, Python, SolidWorks

WORK EXPERIENCE

Intel Corporation **June 2021 - August 2021**

Packaging R&D Engineer Intern

- Developed a model to automate block location detection and reduced overall thermal model import duration by ~30%
- Characterized transient thermal response of substrate package utilizing Python scripting and a thermal profiler

Air Conditioning and Refrigeration Center (ACRC) **August 2017 - Present**

Research Assistant

- Created novel, ultra-scalable, durable metallic microstructures for enhancing flow boiling heat transfer coefficients
- Demonstrated boiling heat transfer performance improvement up to 270%

Illinois Business Consulting (IBC) **January 2021 - August 2021**

Consultant

- Developed metrics for five departments of an aerospace company to improve engineering efficiency as part of a six-member team
- Performed industry benchmarking and gap analysis through primary and secondary research to identify key areas of improvement
- Collaborated with an in-house analytics team to develop a mockup of an engineering allocation dashboard tracking proposed metrics

University of Illinois at Urbana-Champaign **August 2017 - July 2018**

Teaching Assistant: Heat Transfer & Introduction to Computer Science

- Led laboratory and discussion sections for 100+ senior undergraduate students
- Demonstrated fundamental physical phenomena in heat transfer through experiments and mentored students to improve technical communication skills through high-quality written reports

SELECTED PROJECT HIGHLIGHTS

Thermal Solutions for Handling Heat Loads in High-Speed Connectors **January 2022 - Present**

- Developed high fidelity simulations through ANSYS Icepak and identified critical heat flow paths
- Optimizing existing design using heat sinks, thermal interface materials and air-flow paths to improve thermal performance

Enhanced Flow Boiling Heat Transfer in Micro/Nanostructured Tubes - Ph.D. Thesis **May 2018 - Present**

- Designed and built a flow boiling rig for experimental investigation of boiling enhancements in modified structured surfaces
- Fabricated altered metallic surfaces through new scalable techniques and modeled performance through EES
- Analyzed flow regimes through custom-built flow visualization section and determined liquid film thickness
- Recorded data through LabVIEW and demonstrated enhanced heat transfer coefficients up to 270%

Thermal Modeling of IGBT

January 2019 - August 2020

- Analyzed temperature distribution for an entire power assembly and extracted junction temperature using ANSYS Icepak
- Optimized existing design for reduced pressure drop and increased heat transfer coefficients

Performance Improvement of Commercial Aircraft Wings with Variable Cant Angle Winglets

January 2014 - May 2014

- Designed wing of an aircraft with winglets using SolidWorks and analyzed aerodynamic performance at 4 different cant angles through ANSYS Fluent simulations
- Demonstrated optimum cant angle of 60° during take-off/cruise conditions and 0° during landing

Design and Fabrication of a Twisted Gas Turbine Blade

July 2013 - December 2013

- Collaborated with 4 research scholars to design and fabricate a gas turbine blade via Pro-E and 4 axis-milling machine respectively
- Conducted subsonic wind tunnel testing on blade for 3 different angles of attack
- Demonstrated improved aerodynamic performance through enhanced lift generation in comparison to regular straight blades

SELECTED PUBLICATIONS/ CONFERENCE PRESENTATIONS (out of total of 7)

- N. V. Upot, ..., ..., N. Miljkovic, "Enhanced Flow Boiling Heat Transfer in Microstructured Tubes with a Low-GWP Refrigerant", *Micro Flow and Interfacial Phenomena Conference (micro-FIP)*, Irvine, California, USA, June 2022
- N. V. Upot, ..., ..., N. Miljkovic, "Scalable and Resilient Etched Metallic Micro- and Nanostructured Surfaces for Enhanced Flow Boiling", *ACS Applied Nano Materials*, June 2021
- N. V. Upot, ..., N. Miljkovic, "Enhanced Refrigerant-Side Heat Transfer of R134a in Etched Aluminum Tubes", *International Mechanical Engineering Congress and Exposition (IMECE)*, Salt Lake City, Utah, USA, November 2019
- N. V. Upot, ..., N. Miljkovic, "Etched Metal Enhancements for Enhanced Refrigerant-Side Heat Transfer", *Proceedings of the 17th International Conference on Nanochannels, Microchannels and Minichannels, (ICNMM)*, St. John's, Canada, June 2019

CERTIFICATIONS

- Certified LabVIEW Associate Developer (CLAD): National Instruments June 2018 - Present

HONORS

- Member of Tau Beta Pi Engineering Honor Society January 2021 - Present
- Best Poster at International Mechanical Engineering Congress & Exposition (IMECE) November 2019
- Best Poster at International Conference on Nanochannels, Microchannels and Minichannels (ICNMM) June 2019
- List of Teaching Assistants ranked as "Excellent" and "Outstanding" August 2017 - July 2018

LEADERSHIP

University of Illinois at Urbana-Champaign

August 2019 - Present

Graduate Mentor

Urbana, IL

- Mentoring three undergraduate students on experimental rig development, real-time data acquisition, and computational modelling

Youth Red Cross, Indian Red Cross Society

August 2010 - July 2012

Volunteer - Unit 5

Chennai, India

- Organized outreach activities focused on improving rural-school education, organic farming, and child welfare