NITHIN VINOD UPOT

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EDUCATION

University of Illinois at Urbana-Champaign **July 2022**
Doctor of Philosophy (Ph.D.) in Mechanical Engineering GPA: 3.93/4.0
- Researcher at Air Conditioning and Refrigeration Center (ACRC)
- Researcher at Center for Integrated Thermal Management of Aerospace Vehicles (CITMAV)

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**
Assembly Packaging R&D Engineer Intern Chandler, AZ
- Developed a Python-based model to reduce overall thermal model import duration by ~30%
- Characterized transient thermal response of substrate packages utilizing thermal simulation software and Python scripting

Illinois Business Consulting (IBC) **January 2021 - August 2021**
Consultant Urbana, IL
- 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 Urbana, IL
- 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

Enhanced Flow Boiling Heat Transfer in Micro/Nanostructured Tubes - Ph.D. Thesis **August 2017 - 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 with reduction in associated flow boiling instabilities

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

Systems Engineering Analysis of Boeing 787 program **January 2016 - May 2016**

- Conducted a thorough case study of the Boeing 787 program from idea conception to system realization
- Examined Friedman-Sage concept domains and evaluated overall program success in implementation
- Identified two key strengths and three drawbacks of program through a systems engineering approach

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 60º during take-off/cruise conditions and 0º 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

- 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, "Etched Metal Enhancements for Enhanced Refrigerant-Side Heat Transfer", *Proceedings of the 17th International Conference on Nanochannels, Microchannels and Minichannels (ICNMM),* Canada, June 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 2019*, St. John's, Newfoundland, Canada, June 2019

PATENTS

- "Surface-Modified Component and Method of Achieving High Heat Transfer During Cooling", *US Provisional Pat. Ser. No 63/189,776*, May 2021

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