

Roman Giglio

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Education

University of California, Merced, GPA 3.6

Graduation: Summer 2024

PhD in Mechanical Engineering

Thesis: Exploring the limits of cooling for Extreme Heat Flux Applications: Data Centers and power electronics

Preliminary exams passed

Relevant Coursework: Transport in Porous Media, Convective Heat and Mass Transport, Radiative Heat Transfer, Transport Phenomena, Computational Fluid Dynamics, Linear Multivariable Control, Fuel Cells Fundamentals, Statistical Thermodynamics, Nano-Fabrication, Robotic Vehicles

University of California, Merced

August 2016 - May 2020

BS in Mechanical Engineering: GPA: 3.2

Awards: Merced Nanomaterials Center for Energy and Sensing; Undergraduate Research Fellowship; Merced's Innovate to Grow; 2nd place; Senior Capstone Competition

EXPERIENCE

PhD mechanical engineering student

October 2020 – Current

- Worked on projects involving electronics cooling; focus was on two phase cooling and promoting vapor escape
- Conducted experiments using labjack, an analog controller coded with python. Contributed to all the design steps
- Manufactured 3d copper manifolds by laser cutting and sintering copper mesh
- Managed and trained a group of undergraduate researchers to increase productivity in the workplace

Teaching assistant

August 2020 – May 2020

- Taught both Intro to Coding and Heat Transfer for a semester each; both involved using Python and Matlab
- Held lab and discussion sections; discussion sections involved short lectures
- Hosted office hours for students to ask questions
- Received almost perfect reviews from students for two semesters

Undergraduate Researcher Maces UC Merced

October 2019 – May 2020

- Learned how to conduct my own research in a professional setting
- Manufactured heat storage system with porous composite materials comprised of recycled plastics
- Programmed in Python for raw data analysis and management
- Presented results in a research fair at the end of the year to a panel of researchers

SKILLS

- Skilled in Python and MATLAB; can apply it in Computational Fluid Dynamics, Data Interpretation, GUI design, and Data Acquisition Systems
- Experienced in a clean room, trained for using both Electron Beam Evaporator and Sputterer
- Fabrication experience including laser cutting, 3d printing, chemical processing, soldering, and machining
- CAD experience using both ANSYS, SOLIDWORKS and Librecad

PUBLICATIONS and PATENTS

- Ercan M. Dede, Chi Zhang, Qianying Wu, Neda Seyedhassantehrani, Muhammad Shattique, Souvik Roy, James W. Palko, Sreekant Narumanchi, Bidzina Kekelia, Sougata Hazra, Kenneth E. Goodson, Roman Giglio, Mehdi Asheghi, Techno-economic feasibility analysis of an extreme heat flux micro-cooler, iScience, Volume 26, Issue 1, 2023, 105812, ISSN 2589-0042.
- Giglio, R., Palko, J., "Exploring the limits of cooling for Extreme Heat Flux Applications" Poster Presentation at the ARPA-e Energy Summit 2022
- Muhammad R. Shattique, Roman Giglio, Ercan M Dede, et al. Permeability of Single-Layer-Free-Standing Meshes at Varying Capillary Pressure via a Novel Method. Authorea. April 21, 2023.
- Chi Zhang, Qianying Wu et. al heat flux micro coolers having multi-stepped features and fluid wicking, Patent No.: US 11,728,951 B2, Filed: Jan. 13, 2022, Date of Patent: Aug. 15, 2023