

Taylor J. Morgan

North Carolina State University
Department of Mechanical and Aerospace Engineering
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EDUCATION

North Carolina State University – *Doctor of Philosophy in Mechanical Engineering*, Expected May 2026

Dissertation Advisor: Dr. Sophia Kim

Dissertation Title: 'Data-Driven Modeling and Optimization of Thermal Energy Systems'

Graduate Research Fellowship Program (GRFP) – National Science Foundation

North Carolina State University – *Master of Science in Mechanical Engineering*, May 2023

Thesis: 'Performance Evaluation of Solar-Assisted HVAC Systems'

Virginia Tech – *Bachelor of Science in Mechanical Engineering*, May 2021

Minor: Sustainable Energy

Dean's List, Tau Beta Pi Engineering Honor Society

PUBLICATIONS

Morgan, T., Patel, S., & Choi, K. (2024). Optimization of Compact Heat Exchangers Using Surrogate Models. *International Journal of Heat and Mass Transfer*.

Morgan, T., & Li, H. (2023). Energy Efficiency Analysis of Solar-Assisted HVAC Systems. *Journal of Energy Engineering*.

ACADEMIC POSITIONS

- Graduate Research Assistant, Department of Mechanical and Aerospace Engineering, NCSU, 2022–*Present*
- Graduate Teaching Assistant, MAE 310: Heat Transfer Fundamentals, NCSU, Spring 2023

FELLOWSHIPS AND AWARDS

- NSF Graduate Research Fellowship, 2022–2025
- NCSU Mechanical Engineering Research Excellence Award, 2023

WORKS IN PROGRESS

- Manuscript under development on machine learning applications for real-time thermal system diagnostics.
- Research collaboration with Sandia National Laboratories on high-efficiency thermal storage.

PRESENTATIONS

- “*Machine Learning Applications in Thermal System Optimization*,” ASME IMECE, Portland, OR, November 2024.
- “*Surrogate Modeling for Heat Exchanger Design*,” AIAA Energy Forum, Denver, CO, July 2023.

RESEARCH GRANTS

- Thermal System Design and Modeling, NSF GRFP, National Science Foundation, \$138,000, 2022–2025.
- Energy-Efficient HVAC Research, NCSU College of Engineering Seed Grant, \$15,000, 2023–2024.

PROFESSIONAL MEMBERSHIPS

- American Society of Mechanical Engineers (ASME)
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- Graduate Energy Research Organization, NCSU – President, 2023–Present