

Mercy Sammy

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ADDRESS

Antioch, Tennessee, 37013

OBJECTIVE: Secure a graduate student research position at a university or research facility that will allow me to leverage expertise in energy-efficient solutions to optimize HVAC system performance and occupant comfort. Dedicated to collaborating with interdisciplinary teams to advance research and develop innovative solutions.

EDUCATION:

Tennessee State University - Nashville, TN

Expected Graduation: May 2026

Ph.D. in Engineering/ Computational Science

Tennessee State University - Nashville, TN

Graduated: May 2023

Master's degree/ Civil Engineering

Tennessee State University - Nashville, TN

Graduated: Dec. 2021

Bachelor of Science / Mechanical Engineering

Nashville State Community College - Nashville, TN

Graduated: Dec. 2019

Associate of Science Transfer / Engineering

RELEVANT COURSES:

- ENCS 6010 - Advanced Applied Mathematics
- ENCS 6200 - Engineering Design Optimization
- MEEN 4200 - Heating and Air Conditioning
- MEEN 5420 - Advanced Thermodynamics
- MEEN 4800 - Advanced Machine Design
- CVEN 5800 - Advanced Steel Design
- CVEN 5710 - Advanced Reinforced Concrete Design
- MEEN 3250 - Computer Aided Design
- MEEN 5020 - Optimization Meth for Engr Des
- CVEN 5780 - Finite Element Analysis

TECHNICAL SKILLS:

- SolidWorks
- MATLAB
- Ansys/CFD modeling
- LabVIEW
- Right-Suite Universal
- Image J

PROJECTS/RESEARCH:

Cement-Based Rechargeable Battery

November 2021- November 2023

- Performed extensive experimental studies to evaluate the impact of the electroplating process on battery energy storage capacity, including electrochemical impedance spectroscopy analysis.
- Conducted experimental and theoretical analysis to determine battery capacity using single-layer versus double-layer electroplated mesh.

Augmented Reality Collaboration

November 2020 - November 2021

- Utilized AR smart glasses to conduct 3D visualization analysis of Air Handling Units, enhancing design accuracy and operational efficiency.

HVAC Design Project

February 2020 - August 2020

- Utilized Simulink for thermal modeling in HVAC design, analyzing heating demand and associated costs.
- Designed duct layouts and calculated CFM for each floor using Wright soft Suite, validated through Excel calculations, aiding in the selection of appropriate equipment.

WORK EXPERIENCE:

Oakridge National Laboratory – Oak Ridge, TN

January 2024 – August 2024

- Conducted experimental and theoretical analysis to leverage the current refraction-based air leak detector (ALD) using the background-oriented Schlieren techniques.
- Conducted experimental work to validate the performance of a microwave moisture detector device that measures the moisture content of sheathing materials within the building envelope.

Vanderbilt University – Nashville, TN

June 2023- December 2023

- Conducted an educational session tailored to the science experiment for middle school students. Additionally, I delivered a science kit obtained from Vanderbilt to a middle school within the Metro Public School district, engaging students in a hands-on science project and providing guidance throughout.

AWARDS:

- BRPH Future Achievers Scholarship/ May 2023 - Received the Future Achievers Scholarship to support college expenses, acknowledging exceptional academic accomplishments.
- INTEL/NSBE HBCU Student Scholarship/June 2022 - Received the regional student scholarship acknowledging outstanding academic achievement.
- ASHRAE Student Scholarship/ May 2020– Received the regional student scholarship in recognition of demonstrated leadership capabilities.

Professional Memberships and Affiliations:

- American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) - Served as a student president for two years
- American Society of Civil Engineers (ASCE)
- Society of Women Engineers (SWE)