Mercy Sammy

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ADDRESS
Antioch, Tennessee, 37013

OBJECTIVE: Seeking a civil engineering role where I can apply my strong analytical skills and innovative mindset to support impactful infrastructure and sustainability projects. Passionate about leveraging computational modeling and engineering principles to solve real-world challenges. Committed to collaborating with multidisciplinary teams to deliver high-quality, forward-thinking solutions in the built environment.

EDUCATION:

Tennessee State University - Nashville, TN **Expected Graduation: December 2026**
Doctor of Philosophy (Ph.D.) in Engineering and Computational Sciences (ENCS)

Tennessee State University - Nashville, TN **Graduated: May 2023**
Master's degree in civil engineering/ Concentration on Structural 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
- CVEN 5710 - Advanced Reinforced Concrete Design
- MEEN 5420 - Advanced Thermodynamics
- MEEN 4800 - Advanced Machine Design
- CVEN 5800 - Advanced Steel 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.

Capstone 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 Wrightsoft Suite, validated through Excel calculations, aiding in the selection of appropriate equipment.

WORK EXPERIENCE:

Tennessee State University-Graduate Teaching and Research Assistant. **January 2020 – Current**

- Assisted teaching in advanced Civil Engineering courses, including Soil Mechanics, Fluid Mechanics, Advanced Foundation Engineering, and Foundation Engineering, by providing grading, personalized feedback, and academic mentoring to undergraduate students.
- Conducted computational research using MATLAB, focusing on simulation and modeling tasks aligned with faculty-led engineering research projects.
- Facilitated soil mechanics laboratory discussions and provided supplemental support for students, strengthening their understanding of the complex field of soil mechanics.
- Assisted teachers with grading homework and giving feedback to the students

TSU MUREP Aerospace Program-Graduate Mentor **June 2025 – July 2025**

- Worked with high school students in the summer camp and visited the NASA space station
- Assisted teachers with grading homework and giving feedback to the students

Oakridge National Laboratory – Oakridge, 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**

- 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. Additionally, conducted an educational session tailored to the science experiment for the class.

DTE Energy-Engineering Intern – Detroit, MI **May 2021- August 2021**

- Collaborated closely with an engineer on two projects, successfully delivering both within tight deadlines.
- Conducted comprehensive data analysis utilizing advanced Excel techniques and leveraging company-specific web tools to drive informed engineering decisions.

AWARDS:

- BRPH Future Achievers Scholarship/ May 2023 - Received the Future Achievers Scholarship to support college expenses, acknowledging exceptional academic accomplishments.
- ASHRAE Student Scholarship/May 2021

Professional Memberships and Affiliations:

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