

Najma Thomas-Akpanoko

+1-301-212-0063 | najma.c.thomas@vanderbilt.edu


 Najma Thomas-Akpanoko

Nashville, Tennessee, USA

PROFILE SUMMARY

2nd-year Ph.D. student in Civil Engineering at Vanderbilt University, specializing in infrastructure resilience and sustainable systems. Bringing over 2 years of research experience, I focus on integrating wearable technologies and predictive models to tackle climate challenges and improve construction worker safety. Certified as a LEED Green Associate, I apply my expertise as a former Supply Chain Manager at Procter and Gamble (P&G) to develop data-driven solutions that optimize processes and design resilient, equitable infrastructure.



EXPERIENCE

- **Civil and Infrastructure Systems Engineering (CIS) Department, Vanderbilt University**  August 2023 - Present
Graduate Research Assistant Nashville, TN, USA
 - Utilizing wearable technologies to monitor physiological responses and predict heat stress in construction and maintenance workers, using tools such as electrodermal sensors, heart rate monitors, and temperature sensors.
 - Developing predictive models using Python, MATLAB, and machine learning algorithms to assess heat stress and inform infrastructure design and policy improvements for vulnerable communities.
 - Conducting case studies to evaluate the effectiveness of wearable technologies and predictive models in real-world construction environments, applying findings to refine strategies for heat stress mitigation.
- **Supply Network Operations, Feminine Care, Procter and Gamble (P&G)**  August 2021 - July 2023
Supply Chain Manager, Always Liners - Prior Role: Process Engineer and Conversion Analyst Cincinnati, OH, USA
 - Led end-to-end supply chain operations for Always Liners across North America, from manufacturing to customer distribution. Implemented strategies to enhance efficiency, reduce costs, and improve product delivery timelines.
 - Orchestrated the reduction of non-performing inventory by \$ 4.68 million through rigorous plant inventory reviews, the creation of a new category inventory run-out strategy approved by leadership, as well as the creation of system automations within the digital inventory management tool.
 - Selected to visit Costa Rica's Supply Chain Planning Center to optimize North America's Feminine Care supply chains through technological adaptation and innovative inventory management techniques. Collaborated with international teams to implement best practices and drive continuous improvement.
- **The Johns Hopkins University Applied Physics Laboratory (APL) Space Exploration Sector**  Summer 2021
Aerospace Systems Engineering Intern Laurel, MD, USA
 - Contributed to the development of Dragonfly, a dual-quadcopter designed for exploring Saturn's moon Titan, by creating a MATLAB-based weighted array script to distinguish wet surfaces from dry ones using image data.
 - Conducted edge detection experiments on rock-like materials with varying moisture levels and light wavelengths, enhancing Dragonfly's mass spectrometer for more accurate surface material analysis.
- **Agility Robotics**  Spring 2021
Primary Researcher – Black Deep Tech Summit Student Startup Research Project Remote
 - Developed CAD models of proposed design solutions to reduce degradation of Digit V2/V3's feet by analyzing ankle and foot control systems, exploring passive compliance, material selection, and the performance of rubber soles to enhance durability and stability.
 - Conducted extensive material science research and proposed design optimizations, including adjusting degrees of freedom (DOF) and improving traction patterns, to address wear and tear while ensuring better grip and functionality on diverse surfaces.
- **Baja SAE Off-Road Competition, Georgia Institute of Technology**  August 2019 - March 2020
Drivetrain Engineer Atlanta, GA, USA
 - Co-led the design and development of a continuously variable transmission (CVT) tension test-bed for the Baja SAE Off-Road Competition, utilizing advanced CAD modeling to simulate and analyze belt tension dynamics across varying gear ratios.
 - Performed detailed mechanical analysis and parameter optimization to enhance the CVT system's efficiency, with physical construction paused due to COVID-19-related disruptions.
- **Amazon Fulfillment Center (SDF4 Site)**  Summer of 2019
Area Manager Intern Louisville, KY, USA
 - Managed a team of 100 Amazon associates at SDF4, overseeing daily operations to meet customer demands and leading a process improvement project that reduced bin collisions by 30%, saving Amazon \$73,000 annually.
 - Designed and implemented a three-step bin collision reduction system, utilizing data-driven strategies and orchestrating meetings with senior operations managers to optimize site operations and improve efficiency metrics.

EDUCATION

- **Vanderbilt University** *Expected Graduation: May 2027*
Ph.D. in Civil Engineering Nashville, TN
- **The Georgia Institute of Technology** *August 2021*
B.S. in Mechanical Engineering, Graduated with Honors Atlanta, GA
- **Spelman College** *May 2019*
B.S. in Physics, Magna Cum Laude Graduate Atlanta, GA

COMMUNITY SERVICE EXPERIENCE

- **The Climate Leaders Academy, YEAH Network** *May 2023 – Present*
Sustainable Development Coordinator 
 - Selected to participate in the Climate Leaders Academy, funded by a \$2.5 million NSF grant, where I co-led the development of a community garden in North Nashville and created a year-long, in-class climate change program for high school students. This initiative addressed food and climate justice by planting native fruit and shade trees, mitigating the heat island effect, and improving access to fresh, healthy food in underserved communities.
 - Collaborated with local stakeholders, including churches, schools, and students, to build sustainable urban greenspaces, providing environmental and health benefits. Additionally, I presented climate change mitigation strategies at COP 28 in Dubai, highlighting actionable approaches to sustainability and infrastructure resilience.
- **The National Society of Black Engineers (NSBE)** *May 2020 – May 2021*
The National Pre-College Initiative (PCI) Chair 
 - Led the National Pre-Collegiate Initiative (PCI), implementing STEM education programs for over 3,000 K-12 students internationally and managing a \$500,000 budget to support initiatives like the GE Healthcare Product Development Challenge and Microsoft Curriculum Partnership.
 - Planned and executed a virtual engineering conference for over 1,000 NSBE Jr. students during the COVID-19 pandemic, including launching the Freshman Connection Mentoring Program to provide academic and professional support for first-year college students.

PUBLICATIONS





C=CONFERENCE, J=JOURNAL, P=PATENT, S=IN SUBMISSION, T=THESIS

- [C.1] Kooi, J., Thomas, N., Guy, M., & Spangler, S. (2022). **Radio Remote Sensing of Coronal Mass Ejections: Implications for Parker Solar Probe and Solar Orbiter.** *Authorea Preprints.*
- [C.2] Kooi, J., Thomas, N., Guy, M., & Spangler, S. (2018). **Recent VLA Measurements of CME-Induced Faraday Rotation.** *American Astronomical Society Meeting Abstracts, 231, 338.05.*

SKILLS

- **Programming Languages:** Python, MATLAB
- **Engineering Tools:** SolidWorks, Autodesk Inventor, Revit
- **Data Visualization & Reporting:** PowerBI, Tableau
- **Scientific Computing Tools:** Multidimensional Spectroscopy, 2D Coherent Spectroscopy
- **Leadership & Management:** Project Management, Team Leadership, Budget Management
- **Research Skills:** Data Analysis, Literature Review, Experiment Design, Academic Writing, Presentation Skills

HONORS AND AWARDS

- **Bill Anderson Fund (BAF) Fellow** *September 2024 - Present*
The William Averette Anderson Fund 
 - Selected as a fellow for the Bill Anderson Fund, a program dedicated to increasing diversity among professionals trained to address hazards and disaster mitigation.
- **LEED Green Associate Certification** *May 2024 - Present*
Leadership in Energy and Environmental Design (LEED) 
 - Achieved LEED Green Associate certification, demonstrating expertise in sustainable building practices and green infrastructure development.
- **Provost's Graduate Fellowship** *August 2023 - Present*
Vanderbilt University 
 - Selected as a Provost's Graduate Fellow and recognized as a Russell G. Hamilton Scholar for outstanding scholastic achievements.
- **ABC 7 Future Leader Recognition** *May 2021*
ABC News 
 - Featured by ABC 7 as a Future Leader for inspiring the next generation in STEM through developing global K-12 STEM programs and internships, while advocating for increased representation of women and minorities in STEM fields.

ADDITIONAL INFORMATION

Interests: Infrastructure Resilience, Climate Change Mitigation, Wearable Technologies, Predictive Modeling, Sustainable Development, Construction Project Management, Data-Driven Solutions for Engineering, STEM Education Advocacy