

# NAFEEZAT ADETORO AJENIFUJA

Department of Civil & Environmental Engineering, University of Houston, Houston, Texas, United States.

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PhD Student embedded with a translational passion for research with interests across intelligent systems, data-driven engineering, uncertainty quantification and urban computing.

## EDUCATION

### University of Houston | PhD in Civil Engineering

Advisor: Dr. Abigail Beck  
Presidential Fellowship

**Houston, TX, USA**  
August 2025—Present

### University of Houston | MSc. in Civil Engineering

Advisor: Dr. Ruda Zhang  
Thesis: Leveraging Gaussian Process Samples for Sensitivity Analysis and Optimization in Engineering Design

**Houston, TX, USA**  
August 2023—August 2025

### University of Lagos | Bsc. in Civil Engineering

Advisor: Prof. Isaac Akiije  
Thesis: A Study on Effect of Partial Replacement of Gravel with Periwinkle shells in Concrete Paving Blocks  
Second Class (Honors)

**Lagos, Nigeria**  
December 2015—September 2021

## SKILLS

**Programming Languages and libraries:** Python, MATLAB, Bash, PyTorch.

**Relevant Software:** AutoCAD, CADS RC, PROTA Structure, Revit.

**Developer Tools:** Git/Github.

## RESEARCH / WORK EXPERIENCE

### Beck Lab—University of Houston

*Graduate Research Assistant*  
Focused on social impact modelling, infrastructure resilience, equity-based decision support.

**Houston, TX, USA**  
August 2025—Present

### Uncertainty Quantification Lab—University of Houston

*Graduate Research Assistant*  
Focused on Probabilistic Machine Learning, Bayesian Optimization, Surrogate Modelling and Sensitivity Analysis.

**Houston, TX, USA**  
August 2023—August 2025

### Starkwood Associates Ltd

*Graduate Structural Engineer*  
Mentor: Engr. Tommy Ikhile  
Modelled, designed, and detailed multi-purpose structures using computational tools such as CAD-RC, Autodesk BIM, PROTA.

**Lagos, Nigeria**  
November 2021—March 2023

### University of Lagos

*Undergraduate Research Assistant*  
Researched the optimization of engineering structures and materials using experimental approaches.

**Lagos, Nigeria**  
January 2020—August 2021

### Lagos State Ministry of Works and Infrastructure

*Engineering Intern*  
Mentor: Engr. Bimbo Odufote  
Prepared the Bill of Engineering Measurements, reconnaissance surveys and site supervision of road for road construction and rehabilitation projects.

**Lagos, Nigeria**  
July 2019—January 2020

## SELECT ACADEMIC PROJECTS

### Bayesian Optimization and Sensitivity Analysis

Mentors: Dr. Ruda Zhang & Dr. Bach Do (University of Houston)  
Researching Bayesian Optimization and Sensitivity Analysis, their application in Machine learning and Engineering Design.

August 2023—August 2025

### Using HydroUQ for Experiment-Simulation Validation

Mentors: Dr. Krishna Kumar (UT Austin) & Charlie Dey (TACC)  
Validation, uncertainty quantification and numerical - simulation of landslides and tsunamis.

July 2024

## PUBLICATIONS

- Do, B., Ajenifuja, N. A., Adebisi, T. A., & Zhang, R. (2025). Sampling from Gaussian Processes: A Tutorial and Applications in Global Sensitivity Analysis and Optimization. *Under review at SMO*. ([preprint link](#))
- Adebisi, T. A., Ajenifuja, N. A., & Zhang, R. (2024). Digital Twins and Civil Engineering Phases: Reorienting Adoption Strategies. *Journal of Computing and Information Science in Engineering*. ([link](#))
- Akiije, I. and Ajenifuja, AN (2021). Influence of Superplasticized Concrete on the Compressive strength of Highway Pavements. *Nigerian Research Journal of Engineering and Environmental Science*. ([link](#))

CONFERENCE PRESENTATION

<b>Nigerian Institute of Structural Engineers (NISTructE) National Conference</b>	2021
<ul style="list-style-type: none"><li>• Collaboratively presented research on the Modelling and Simulation of Optimized Superplasticized Microsilica Concrete of Fine Gravel for Abating Structural Collapse.</li></ul>	

CERTIFICATIONS

<b>Micro-credential in Advanced Data Science and Artificial Intelligence, University of Houston—</b>	2024—2025
<b>HP Enterprise Data Science Institute</b>	
<ul style="list-style-type: none"><li>• Introduction to cluster computing</li><li>• Scientific Programming in Python</li><li>• Introduction to Machine Learning</li><li>• Principles of Data Management</li></ul>	
<b>NVIDIA WORKSHOP</b>	2024
<ul style="list-style-type: none"><li>• Model Parallelism: Building and Deploying Large Neural Networks</li></ul>	
<b>Health, Safety and Environment (HSE), Level 1-3</b>	2018
<ul style="list-style-type: none"><li>• Upskilled on the best approaches to eliminate hazards and ensure safety in the industry.</li></ul>	

DESIGN COMPETITIONS/GRANTS

<b>Jimmie A. Schindewolf Academic Scholarship (\$2, 000)</b>	2024
<ul style="list-style-type: none"><li>• Awarded by the Department of Civil and Environmental Engineering to high performing graduate students.</li></ul>	
<b>NSF DesignSafe CI Travel Grant, University of Texas at Austin (\$1,500)</b>	2024
<ul style="list-style-type: none"><li>• Winner of computational academy hackathon at the Texas Advanced Computing Centre at UT Austin.</li></ul>	
<b>1st Runner Up, ARUA Youth Business Innovation Challenge, Nigeria</b>	2021
<ul style="list-style-type: none"><li>• Presented a market-creating innovation aimed at solving waste management problems in Nigeria.</li></ul>	
<b>Finalist, BITE Innovation and Talent Expression, UNILAG</b>	2021
<ul style="list-style-type: none"><li>• Advanced the creation of a market in the rising adoption of Biodigesters in Nigeria to address the waste management problem.</li></ul>	

VOLUNTEERING / LEADERSHIP EXPERIENCE

Member Civil Engineering Graduate Student Organization (CEGSO)	2024—Present
Member, Sustainable Development Advocates, UNILAG	2019—2021
AIIESEC Lagos	2018—2021
Chief Strategic Officer, Professor Ayodele Awojobi Design Competition (PAADC) 4.0	2019—2020
Graduate, United Nations Millennium Fellowship, UNILAG Cohort	2019
Annual Conference Committee Manager, Nigeria Institute of Civil Engineering Students’ Affiliation, UNILAG	2019

ACADEMIC AND PROFESSIONAL AFFILIATIONS

United States Association for Computational Mechanics (USACM).	
<ul style="list-style-type: none"><li>• Technical Thrust Area in Uncertainty Quantification and Probabilistic Modelling. Graduate Student Member.</li></ul>	
American Society of Civil Engineers (ASCE)	
<ul style="list-style-type: none"><li>• Engineering Mechanics Institute (EMI). Graduate Student Member</li></ul>	
Society for Industrial and Applied Mathematics (SIAM). Graduate Student Member.	