Joseph M. Aerathu

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Education

Georgia Institute of Technology — Atlanta, GA
Master of Science in High-Performance Building — *Aug. 2024 – Dec. 2025(expected)*

Georgia Institute of Technology — Atlanta, GA
Master of Science in Building Construction and Facility Management — *Jan. 2024 – June 2024*

School of Planning and Architecture, Delhi — New Delhi, India
Bachelor of Architecture - First Class with Distinction — *Aug. 2018 – July 2023*

Experience

Graduate Research Assistant — Jan. 2024 – Dec 2025 (expected)
Sustainable Urban Systems Lab — *Atlanta, USA*

- Guided by Dr. Patrick Kastner, developing surrogate models and tools to estimate performance indicators of buildings and cities.
- Aggregating results from models that simulate energy consumption, walkability, and microclimate into an interface accessible by decision-makers and the general public.
- Developing results from the VIP program into a plugin for Grasshopper within Rhino.

Vertically Integrated Projects (VIP): Student Researcher — Aug. 2024 – Dec 2025 (expected)
Georgia Institute of Technology — *Atlanta, USA*

- Building an energy analysis tool as part of the Commercial Energy research group of the Surrogate Modeling for Urban Regeneration (SMUR) VIP team.
- Developing a machine learning model to be packaged as a software/decision-making solution, which will help to optimize building design parameters and minimize energy consumption for heating and cooling - to be disseminated to an existing global community of sustainability professionals.
- Currently optimizing urban thermal simulation approaches by developing surrogate models that accelerate simulations, so as to offer real-time feedback to decision-makers, such as architects, urban designers, and policymakers.

Apprenticeship - Energy Modeler, Green Building Consultant — May. 2024 – Aug 2024)
Ross-Bain Green Building, LLC — *Atlanta, USA*

- Performed energy studies using eQuest and Energy Plus models - energy simulations to aid in decision-making and/or document preparations for green rating systems (LEED-NC, LEED-OM, WELL).
- Performed EEM studies using energy models and spreadsheets - investigative/cost-benefit analyses to recommend, implement, and verify energy efficiency improvements in commercial buildings.
- Data analysis for building/HVAC energy optimization.
- Documentation preparation for LEED certifications.

Research Intern — Jan. 2022 – July 2022
MEAN - Middle East Architecture Network* — *Dubai, United Arab Emirates*

- Collaborated with a team of four architects to design and propose a 3D-printed residence made of mud, called Cosmos House, for a prestigious international competition that was launched by the Royal Commission for AlUla, Saudi Arabia, entitled, 'Architects in Residence - 100 Architects for 100 Houses'.
- Utilized parametric design tools to integrate contemporary and vernacular features, facilitating passive thermal regulation.
- Operated laser cutters and 3D printers to fabricate physical prototypes and mock-ups of various projects.

Technical Skills

Soft Skills: Leadership, Adaptability, Problem Solving, Creativity, Teamwork
Scripting: Grasshopper, Python, C#
Modeling: Revit, Rhinoceros, AutoCAD, openLCA
Simulations: EnergyPlus, eQUEST, DesignBuilder
3D-Printing: Ultimaker Cura
Project Management: Excel, Bluebeam Revu
Certifications: Columbia University - Climate Finance, Council of Architecture - Licensed Architect, NIT-P - Construction Management and Practices