

Kingsley Etonwana Nweye

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EDUCATION

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- University of Texas at Austin** Austin, TX, United States
 - *Ph.D. - Civil Engineering; GPA: 4.000/4.000* Aug 2021 - Dec 2024 (Expected graduation date)
 - *M.S.E. - Civil Engineering; GPA: 4.000/4.000* Aug 2019 - Aug 2021
 - *Courses: Data Mining, Energy Simulation in Building Design, HVAC Design, Smart Buildings & Cities, Sustainable Building Design*
 - University of South Carolina** Columbia, SC, United States
 - *B.S.E. - Mechanical Engineering; GPA: 3.858/4.000 (Magna Cum Laude)* May 2013 - May 2017
 - *Courses: Algorithmic Design, Engineering Optimization, Engineering Ethics, Fluid Mechanics, Heat Transfer, Thermodynamics, Mechanical Design, Product Safety Engineering, Introduction to Composite Materials, Manufacturing Processes, Engineering Materials, Kinematics & Dynamics of Machines, Mechanical Vibrations,*

SKILLS SUMMARY

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- **Programming:** Bash, Java, L^AT_EX, MATLAB, Python, SQL, Swift
 - **Tools:** AutoCAD, AWS, EnergyPlus, eQUEST, Firebase, Git, Grafana, Inventor, Jira, OpenStudio, Raspberry Pi, WinAM
 - **Soft Skills:** Leadership, Public Speaking, Time Management, Writing

EXPERIENCE

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- Utilities and Energy Management, University of Texas at Austin** Austin, TX, United States
 - *Graduate Research Assistant* Jan 2020 - Present
 - **University of Texas Energy Hub:** Developed and maintained cloud architecture for the collection, storage and manipulation of data from over 1,000 utility meters and 200 buildings located on the university campus and micro-grid. The data were used to model energy and water consumption for the purposes of demand-side management, fault detection, project planning, billing, business intelligence and reporting. Tech: AWS (Athena, API Gateway, Lambda, QuickSight, RDS PostgreSQL, S3), Bash, Git, Jira, Python.
 - **Comfort Kiosk iOS Application:** Developed iPad application for thermal comfort polling to determine occupant indoor environment preferences and optimal HVAC zone set-point schedules. Tech: Google Firebase, Python, Swift.
 - **Building Energy Performance Modeling:** Developed and calibrated energy models for the evaluation of energy conservation measures in 3 existing buildings. Tech: WinAM.
 - **Maintenance:** Carried out HVAC fault detection in campus buildings using BAS infrastructure. Also, participated in on-site inspection of HVAC equipment to inform maintenance work orders.
 - Intelligent Environments Laboratory, University of Texas at Austin** Austin, TX, United States
 - *Graduate Research Assistant* Aug 2019 - Present
 - **Reinforcement Learning for Building Energy Management:** Led the development of CityLearn Gym environment v1.1.0 - present and researched on the use of reinforcement learning control for demand response and grid-interactive building applications. Tech: Bash, EnergyPlus, Git, Grafana, OpenStudio, SQL, Python.
 - **Occupant-Centric Control:** Developed cost-effective framework for the estimation of occupancy counts by leveraging existing Wi-Fi infrastructure as well as estimation of energy savings from utilizing occupancy and smart meter data in HVAC equipment ramp-up and setback scheduling. Tech: EnergyPlus, Git, Python, WinAM.
 - **Publications:** First-authored 10 poster, conference and journal papers. Tech: L^AT_EX.
 - **Mentorship:** Mentored 4 undergraduate and 2 graduate students in machine learning and building energy modeling projects.
 - Climate Change AI Summer School 2023, Climate Change AI** Pittsburgh, PA, United States
 - *Independent Contractor* Jun 2023 - Aug 2023
 - **Tutoring:** Developed and taught a guided tutorial on reinforcement learning control for grid-interactive efficient buildings and communities in a virtual class of over ten students. Tech: Google CoLab, Python.
 - CAEE Department, University of Texas at Austin** Austin, TX, United States
 - *Teaching Assistant; Elementary Mechanics of Fluids Laboratory* Jan 2021 - May 2021
 - **Tutoring:** Lectured and supervised a class of 30 undergraduate students on experiment procedures and graded laboratory exercises and reports.
 - **Evaluation:** Received “very good” or “excellent” overall rating from 80% of responses in an anonymous mid-semester survey that had a 50% return rate.
 - Ministry of Works and Infrastructure, Ondo State Government** Akure, Ondo, Nigeria
 - *Secretary to the Deputy Director of Finance and Administration; N.Y.S.C.* Mar 2018 - Dec 2018
 - **Secretarial Services:** Prepared capital project files, memos and letters for endorsement by the ministry’s Permanent Secretary and Commissioner approval by the state’s Governor.
 - TotalEnergies E&P Nigeria Limited** Port Harcourt, Rivers, Nigeria
 - *Maintenance Engineer Trainee* Sep 2017 - Jan 2018
 - **HVAC Maintenance:** Conducted routine maintenance on chillers, air handling units, direct expansion packaged systems, extractor fans and split air conditioners and prepared quotations for the mechanical and electrical part purchase orders.

- **McNAIR Center for Aerospace Innovation, University of South Carolina** Columbia, SC, United States
Undergraduate Research Assistant Aug 2016 - May 2017
 - **Characterization of non-conventional laminates:** Conducted tensile load testing on laminate coupons using MTS Hydraulic Testing System to investigate the mechanical properties of quasi-isotropic non-conventional composite laminate using ASTM 3039D guidelines.
- **Brookstone School Secondary** Port Harcourt, Rivers, Nigeria
Head Boy Sep 2012 - Jun 2013
 - **Leadership:** Appointed on merit for achieving best May/June 2012 I.G.C.S.E. result. Coordinated daily school assembly and liaised with school administration on improvement of student welfare.

PROJECTS

- **NEURIPS Competiton Track: The CityLearn Challenge (Supervised Learning, Reinforcement Learning):** Developed CityLearn environment used in two editions of the challenge on Alcrowd where machine learning solutions were crowd-sourced from over 100 teams to optimize energy, thermal comfort, emissions and resilience objectives in grid-interactive communities. Tech: Git, Python. (Jul 2022 - Present)
- **Building Energy Intensity Toolchain (Big Data, Electrification, Decarbonization):** Analyzed data from over 200 buildings, 6,000 equipment and 44,000 BAS points to develop a framework that provided insights on a building's sensor data quality, operational anomalies, energy performance and opportunities for electrification through heat pump adoption as well as, a dashboard for data visualization and exploration. Tech: EnergyPlus, Grafana, Python. (May 2022 - Jul 2022)
- **Intelligent Environments Laboratory COVID-19 Dashboard (Data Management, Analysis, Visualization):** Designed and deployed a media-featured dashboard that provided a multifaceted view of the COVID-19 impact in Austin, TX using open-source and private public health, economic, transportation, air quality, energy, water and social data. Tech: Git, Python. (Mar 2020 - Present)
- **HVACLearn (Occupant-Centric Control, IoT):** Developed source code an deployed in Raspberry Pis for indoor environment data collection and management in 19 office spaces to support Ph.D. work on occupant-centric control of thermostat set-points to balance comfort and energy efficiency. Tech: AWS (Lambda), Python, Raspberry Pi. (Aug 2019 - Mar 2021)
- **Alias Mob (Mobile Application Development, Event Management):** Developed client and business side front-end solutions for iOS application that was used to manage club event booking and ticketing. Tech: Firebase, Swift, XCode. (Apr - Dec 2019)
- **Yefi (Mobile Application Development, Food Services):** Developed iOS application that was deployed in the App Store which, provided users with general information on over 60 local restaurants and their menus. Tech: Android Studio, Firebase, Java, Swift, XCode. (Feb - Aug 2019)
- **Solar Boat Senior Design Project (Renewable Energy, Transportation):** Improved existing vessel design by including boundary layers at areas of obstructed airflow to improve aerodynamics, installing 2 pairs of motors in parallel to improve torque. (Aug 2016 - May 2017)

SELECTED PUBLICATIONS

- Kingsley Nweye et al. "CityLearn v2: An OpenAI Gym environment for demand response control benchmarking in grid-interactive communities". In: *Proceedings of the 10th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation*. BuildSys '23. New York, NY, USA: Association for Computing Machinery, Nov. 2023, pp. 274–275
- Kingsley Nweye et al. "A framework for the design of representative neighborhoods for energy flexibility assessment in CityLearn". In: *Proceedings of building simulation 2023: 18th conference of IBPSA*. Building simulation. Shanghai, China: IBPSA, Sept. 2023
- Kingsley Nweye et al. "MERLIN: Multi-agent offline and transfer learning for occupant-centric operation of grid-interactive communities". en. In: *Applied Energy* 346 (Sept. 2023), p. 121323
- Kingsley E Nweye et al. "CityLearn: A tutorial on reinforcement learning control for grid-interactive efficient buildings and communities". In: *ICLR 2023 workshop on tackling climate change with machine learning*. May 2023
- Kingsley Nweye et al. "The CityLearn Challenge 2022: Overview, Results, and Lessons Learned". en. In: *Proceedings of the NeurIPS 2022 Competitions Track*. ISSN: 2640-3498. PMLR, Aug. 2022, pp. 85–103
- Kingsley Nweye et al. "Real-world challenges for multi-agent reinforcement learning in grid-interactive buildings". In: *Energy and AI* 10 (2022), p. 100202
- Kingsley Nweye et al. "MARTINI: Smart meter driven estimation of HVAC schedules and energy savings based on Wi-Fi sensing and clustering". In: *Applied Energy* 316 (June 2022), p. 118980
- Kingsley Nweye et al. "Impact of COVID-19 on Academic Campus Energy Use". In: *Proceedings of the 7th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation*. BuildSys '20. New York, NY, USA: Association for Computing Machinery, Nov. 2020, pp. 322–323

AWARDS

- Best Virtual Poster Award at BuildSys 2023 for Heterogenous Multi-Agent Reinforcement Learning for "Grid-Interactive Communities". (Nov 2023)
- Kolodzey Travel Grant awarded to attend and present research at BuildSys 2023 conference. (Oct 2023)
- Third place in Technical Demonstration category and \$5,000 award for "Building Energy Intensity Toolchain" team submission at Real Time Energy Management Global Energy and Building Hackathon by New York State Energy Research Development Agency. (Jul 2022)

ACTIVITIES

- **Graduate Student Guest Editor of IET Renewable Power Generation Journal** Remote
Selected reviewers and managed peer-review process for submissions to journal's special issue. May 2023 - Present
- **Web Chair of ACM SIGEnergy RLEM Workshop** Virtual
Designed and maintained workshop website using a Jekyll and GitHub Actions workflow. Nov 2022 - Present
- **Web Chair of ACM SIGEnergy BuildSys Conference** Istanbul, Turkiye
Designed and maintained conference website using a Jekyll and GitHub Actions workflow. Jan 2023 - Dec 2023
- **Co-President of TexASHRAE** Austin, TX, United States
Facilitated networking opportunities between local MEP professionals and students. Aug 2021 - Aug 2023
- **Participant in IEA EBC Annex 81** Virtual
Contributed to review of data-driven energy flexibility KPIs for building-to-grid applications. Aug 2021 - Present
- **Participant in IEA EBC Annex 79** Virtual
Presented work on and contributed to discussions on occupant-centric building control. Apr 2020 - Present
- **Volunteer at UT Girl Day** Austin, TX, USA
Hosted a session and taught young girls how to build paper "bunny copters". Feb 2021
- **Member of Amadi Flats Fitness Club** Port Harcourt, Rivers, Nigeria
Participated in group running, aerobic and strength training exercise events. May 2017 - Feb 2018
- **Member of Pan-African Student Association** Columbia, SC, USA
Provided technical support during annual organization event. May 2013 - May 2017

INTERESTS AND HOBBIES

- DJ'ing, Flight simulator, LEGO, Paintball, Running, Soccer, Weightlifting.