

KEHINDE ELELU

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Professional Experience

Research Associate

January 2025 - Current

Michigan State University

- Drafted and submitted a successful grant proposal for the Venture Fellows Program.
- Leading the development and commercialization of a smartphone-based acoustic diagnostic system, advancing its technology readiness from TRL 4 to TRL 8, paving the way for product launch.

Data Scientist Intern

August 2024 – November 2024

Boston Scientific, CA

- Processed patient usage log data through preprocessing, feature engineering, and NMF-based dimensionality reduction to prepare for clustering.
- Utilized clustering techniques to identify distinct patient segments, supporting the development of personalized healthcare strategies.

Research Intern

May 2024 - July 2024

AI Lab, ETS, Princeton, NJ

- Developed and implemented word-level timestamp audio diarization to reliably identify speakers in collaborative problem-solving activities, enhancing performance with integrated video data.
- Conducted video analytics to extract and analyze features describing meaningful gestures, contributing to the understanding of collaborative dynamics.

Graduate Research Assistant

August 2021 – May 2024

Clemson University, SC, USA

- Developed machine learning models for audio signal classification and direction of arrival estimation using MFCC, logMel, and GCC-PHAT features. The CRNN-based model isolates critical signals from background noise to prevent collisions.
- Developed an NLP and LDA-based framework to automate legal provision extraction for utility relocation clauses during highway projects. The model streamlined drafting and will support SC-DOT's first utility manual creation.
- Communicated with a multi-disciplinary team in several research projects, as demonstrated by planning and executing four research projects, leading to a half-million-dollar grant total.

Machine Learning Researcher

May 2023 - August 2023

MEC R&D Intern, Dow Chemical, Freeport, TX

- Developed a two-stage CRNN neural network model for electric vehicle acoustic material analysis, projected to contribute to Dow securing a 4% annual growth of the estimated 1 billion pounds global sales for these materials.
- Developed a web user interface using ReactJS (front-end) and NodeJS (back-end) to enable internal staff to effectively use the models for their analysis.

Data Scientist

Jan 2021 – Aug 2021

Squad, HabariPay, Lagos, NG

- Performed data intensive financial forecasting and tracking of established six operational metrics, reducing cost by 75%.
- Built Machine Learning models (Clustering, Classification, Sentiment Analysis), designed Kibana dashboards via automated pipelines, and presented project results to key stakeholders.
- Developed visualization dashboards using PowerBI and Tableau, thereby improving business decisions in 100% of cases.

Software Engineer

Sept 2019 – Dec 2020

Guaranty Trust Bank, Lagos, NG

- Rewrote monolithic legacy services into Micro-services resulting in Improved scalability and reduced downtime occurrences of the internal applications by 50%.
- Developed internal and external Restful Web APIs according to the business requirements.

- Reduced the firm's cloud computing cost by 60% by championing the exploitation of AWS server-less technology and API gateway

Skills

Machine Learning Libraries: TensorFlow, PyTorch, Scikit-Learn, NumPy and Pandas

Programming Language: Python, JavaScript, PHP, SQL, R

Data Visualization & Report: Matplotlib, Pyplot, Seaborn, Tableau

Education

Clemson University, SC, USA

December 2024

- Ph.D. Engineering: GPA: 3.97/4.0

University of Ilorin, NG

August 2017

- B. Sc. Civil Engineering: GPA 4.6/5.0

Class Projects

- Conducted predictive analysis on taxi pickup numbers in New York City, employing time of day as a predictive variable, and assessed model performance through the utilization of the R2 metric.
- Conducted predictive analysis for Capital Bikeshare dataset, forecasting hourly bike demand, and providing revenue-boosting recommendations based on seasonal ridership patterns, utilizing multiple regression techniques

Publication

- Elelu, K., Le, C & Le, T. (2023). Collision hazard detection for construction worker safety using audio surveillance. ASCE Journal of Construction Engineering and Management, 149 (1), 04022159 (Editor's Choice)
- Dang, K., Elelu, K., Le, C & Le, T. (2022). Augmented Hearing of Auditory Safety Cues for Construction Workers: A Systematic Literature Review. Sensors 22 (23), 9135
- Elelu, K., Le T, Le C. Equipment Sounds' Event Localization and Detection Using Synthetic Multi-Channel Audio Signal to Support Collision Hazard Prevention. Buildings. 2024; 14(11):3347
- Elelu, K., Do, Q., Le, T., and Piratla, K. (2024). "Sample Legal Provision Retrieval Using Topic Clustering to Support Utility Relocation Agreement Drafting in Highway Projects." ASCE Journal of Legal Affairs and Dispute Resolution in Engineering and Construction, 16(2), 04523058
- Elelu, K., Do, Q., Le, T., and Le, C. "Wearable Device for Struck-by Hazard Identification and Localization Using Multi-Channel Audio Signal Processing." Automation in Construction. (Under review)
- Nguyen, T., Elelu, K., Le, C & Le, T. (2024). Enhancing Auditory Safety Warnings in Highway Construction Zones with Loud Noise Using Generative Artificial Intelligence. ASCE Journal of Construction Engineering and Management. (Under review)

Certificate and Awards

- Amazon Web Services Machine Learning Essential Training Issued July 2022 by LinkedIn
- Complete Python Mastery Issued August 2022 by Code with Mosh
- GitHub for Data Scientists Learning Issued July 2022 by LinkedIn Learning