RODNEY EWUSI-WILSON, PhD

● +44 7853519464 ● rhudwill@gmail.com ● Home - AI/ML Engineer Portfolio

MACHINE LEARNING ENGINEER

A highly motivated and results-oriented professional with a Ph.D. in Civil Engineering and over five years of hands-on experience applying **machine learning (ML)** and **artificial intelligence (AI)** to solve complex, real-world problems. My core expertise lies in **predictive modeling**, **time-series forecasting**, and **explainable AI (XAI)**, as demonstrated through a robust publication record. I am proficient in the **Python data science stack** and have experience with end-to-end project workflows. My unique background allows me to translate intricate engineering challenges into data-driven solutions. I am now seeking a challenging **Machine Learning Engineer** role in the where I can apply my advanced analytical skills and contribute to a forward-thinking team.

TECHNICAL SKILLS

- **Programming & Libraries:** Python (Scikit-learn, TensorFlow, Keras, Pandas, NumPy, Matplotlib, Seaborn), R, MATLAB, HTML.
- **Machine Learning:** Supervised and Unsupervised Learning, Regression, Classification, Clustering, Neural Networks (ANN), Time-Series Forecasting, Explainable AI (XAI).
- **Data & MLOps:** Data Pre-processing, Feature Engineering, Model Evaluation, MLOps principles.
- **Geospatial & Simulation:** ESRI ArcGIS, QGIS, SGEMs, Abaqus, Comsol, AutoCAD.
- **Other Tools:** Microsoft Office Suite, Civil 3D.

ACADEMIC & RESEARCH EXPERIENCE

Research Fellow & Collaborative Researcher
G. I. R. L Lab | 2022 – Present

- Applied advanced data-driven and AI methods to optimize **geothermal energy wall heat recovery**, a project that involved complex numerical simulations.
- Developed and validated a multivariate **time-series forecasting model** using AI to predict groundwater table fluctuations, demonstrating expertise in predictive analytics for environmental systems.

Ph.D. in Civil Engineering
Chonnam National University | 2018 – 2022

- **Dissertation:** *Dynamic Compaction Design and Assessment Utilizing Spatial Interpolation and Artificial Intelligence.*
- Engineered **AI-optimized models** for dynamic compaction design in granular soils, significantly improving predictive accuracy and efficiency over traditional methods.
- Authored multiple publications on the use of **Explainable AI (XAI)** to interpret and improve the estimation of soil properties, such as maximum dry density and optimal moisture content.

SELECTED PUBLICATIONS

- **Ewusi-Wilson, R.**, Yendaw J. A., Sebbeh-Newton, S., Ike, E., and Ayeh, F. J. F. (2024). "Application of explainable artificial intelligence to improve the estimation of the maximum dry density of soil." Transportation Infrastructure Geotechnology.
- Sebbeh-Newton, S., Seidu, J., Ankah, M. L. Y., **Ewusi-Wilson, R.**, Zabidi, H., and Amakye, L. (2024). "Real-time classification of ground conditions ahead of a TBM using supervised machine learning algorithms". Model. Earth Syst. Environ.
- **Ewusi-Wilson, R.**, Yendaw J. A., Sebbeh-Newton, S., Ike, E., and Ayeh, F. J. F. (2024). "The use of interpretable artificial intelligence inferences in the estimation of optimal moisture content utilizing basic soil parameters." Indian Geotechnical Journal
- **Ewusi-Wilson, R.**, Lee, C, and Park, J. (2023). "Artificial intelligence-optimized design for dynamic compaction in granular soils." Acta Geotechnica, Springer.
- **Ewusi-Wilson R.**, Park, J., Yoon, B., and Lee, C. (2022). "Geostatistics and artificial intelligence applications for spatial evaluation of bearing capacity after dynamic compaction." Advances in Civil Engineering, An International Journal.

TEACHING & INDUSTRY EXPERIENCE

Lecturer
Cape Coast Technical University | 2017 – 2018

- Taught and mentored undergraduate students in **civil engineering courses**, developing a strong ability to communicate complex technical concepts effectively.

Project Engineer
Various Companies | 2011 - 2018

- Held various roles with companies including **Huawei**, **Sabre**, **Samtotal,** and **Menergy**, where I honed my skills in project management, problem-solving, and team collaboration within fast-paced environments.

EDUCATION

- **Ph.D. Civil Engineering**, Chonnam National University, South Korea, August 2022
- **M.Sc. Geological Engineering**, University of Mines and Technology, Ghana, August 2016
- **B.Sc. Civil Engineering**, Kwame Nkrumah University of Science and Technology, Ghana, June 2010

REFERENCES

Available upon request.