# 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.

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## **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.

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