PATRICK BOATENG

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RESEARCH INTEREST

- Finite element analysis of structures

- Machine learning and Artificial Intelligence for design optimization

EDUCATION

Bachelor's degree   **Sep 2017 - Nov 2021**
Kwame Nkrumah University of Science and Technology

- **Programme**: Bachelor of Science in Civil Engineering

- **Honor**: First Class [3.76/4.0] - *Scholaro GPA Calculator*

- **Thesis**: Predicting the compressive strength of concrete using machine learning techniques.

- **Key Courses**: Introduction to Finite Element Methods ⏐ Algebra ⏐ Numerical Analysis ⏐ Statistics and Probability ⏐ Differential Equation ⏐ Soil and Rock mechanics ⏐ Computer Aided Design (AutoCad) ⏐ Computer Programming (MATLAB) ⏐ Construction Management

HONORS AND AWARDS

- Provost Excellent Students Awards, College of Engineering (KNUST) in year 3

- Provost Excellent Students Awards, College of Engineering (KNUST) in year 4

WORK EXPERIENCE

Assistant Consulting Engineer   **Sep 2022 - Present**
Heureka Consult Limited   **Full Time**

- Performed quality assurance and quality control procedures for construction projects, including overseeing the Cardinal Namdini gold mine's water storage and tailings dams.

- Generated project and laboratory reports for the client.

- Conducted geotechnical site investigations for road projects, such as the Accra-Ofankor road rehabilitation.

- Analyzed laboratory test results and made engineering judgements.

- Conducted an assessment of structural soundness and stability of pre-existing structures.

- Developed a Microsoft Excel add-in capable of soil classification, accommodating both the **Unified Soil Classification System** and the **American Association of State Highway and Transportation Officials** classification systems. **Project link**

IT Consultant   **Sep 2021 - Aug 2022**
Kwame Nkrumah University of Science and Technology   **National Service Personnel**

- Provided assistance in the digitization of manual tasks. For example, I developed a simple database using Python and WxPython to keep track of customers whose applications have been processed.

- Assisted and consulted in all IT related work.

Site Engineer   **Apr 2020 - Nov 2020**
Quatran Services Limited   **Intern**

- Conducted site supervision and implemented Quality Assurance and Quality Control measures during the construction of the solvent extraction plant for Wilmar Africa.

- Ensured precise execution of structural drawings by interpreting and comprehending the drawings accurately.

- Prepared weekly progress reports summarizing all the works completed on-site.

RESEARCH EXPERIENCE

Concrete compressive strength prediction   **Mar 2021 - Aug 2021**

- Employed various machine learning techniques to develop models for predicting the 28th day compressive strength of concrete. **Project link**

TECHNICAL SKILLS

- **Programming Languages**: Python | C | C++ | Microsoft Excel VBA

- **Deep Learning Frameworks**: Pytorch

- **Machine Learning**: Scikit-learn | XGBoost

- **Data Analysis**: Pandas | Numpy

- **Software**: Microsoft Office Excel | Latex | AutoCad | ETABS

PERSONAL PROJECTS

- **geolab**: An open-source software for geotechnical engineering analysis and modelling. **Project link**

- **makepackage**: A Python package for packaging python code. (*Contributor*) **Project link**

REFERENCES

Dr. Jones Owusu Twumasi

Lecturer, Department of Civil Engineering

Kwame Nkrumah University of Science and Technology

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