

# PATRICK BOATENG

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## RESEARCH INTEREST

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- Finite element analysis of structures
- Machine learning and Artificial Intelligence for design optimization
- Seismic retrofitting
- Structural steel design

## EDUCATION

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**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

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- Provost Excellent Students Awards, College of Engineering (KNUST) in year 3
- Provost Excellent Students Awards, College of Engineering (KNUST) in year 4

## WORK EXPERIENCE

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**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**

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#### **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

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- **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

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- **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

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### Dr. Jones Owusu Twumasi

Lecturer, Department of Civil Engineering  
Kwame Nkrumah University of Science and  
Technology

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