

BENJAMIN DAGBEY

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RESEAECH AND TEACHING INTEREST

My research interests focus on pavement materials characterization, performance modeling, and maintenance optimization, as well as the application of machine learning and data-driven methods in pavement engineering. I am particularly interested in asphalt mixture design, pavement distress prediction, sustainability assessment, and the development of intelligent pavement management systems that enhance durability and cost-effectiveness across varying climatic and loading conditions.

EDUCATION

BSc. Civil Engineering 01/2021 – 11/2024

Kwame Nkrumah University of Science and Technology

Thesis Title: Red-light-running among different categories of vehicles - a case study of Anloga Signalized Intersection
Class Honoured: First Class - GPA: 3.76 (WES evaluated)

RESEARCH EXPERIENCE

Research & Teaching Assistant |Transport Research and Education Centre Kumasi –TRECK 10/2024 -10/2025

Supervisor: Dr. Kenneth Tutu

Detection of Over-Aged Asphalt Mixtures Using Cantabro Abrasion Loss Testing

Investigated the impact of over-aging on asphalt pavement performance, focusing on issues like cracking and rutting.

Conducted FTIR analysis, revealing significant chemical alterations in binders due to oxidative aging, with carbonyl and sulfoxide groups identified.

Used the Cantabro abrasion test to demonstrate that over-aged asphalt mixtures are more prone to abrasion, particularly under wet conditions, with clear temperature abrasion loss relationships.

Undergraduate Thesis | Civil Engineering Department

08/2024

Supervisor: Prof. Yaw Adubofour Tuffour

Topic: Red-Light Running Among Different Categories of Motorists within the Kumasi Metropolis

- Conducted traffic signal timing analysis and vehicle category identification. Documented vehicle crossing events during peak periods, analyzing 40,000 observations to assess red-light running (RLR) behavior.
- Determined that 1.4% of vehicle crossings occurred during a red signal, with motorcycles and tricycles identified as the most frequent violators, accounting for a violation index of 6.48. Identified medium and large buses as the least frequent red-light violators, with an index of 0.11

WORK EXPERIENCE

Traffic Survey Supervisor | Delin Consult, Accra, Ghana

02/2025

Supervised transportation surveys to support traffic and infrastructure planning, including:

- Classified Vehicle Counts: Managed turning movement and screenline counts for traffic flow analysis.
- Non-Motorized Transit (NMT) Counts: Monitored pedestrian and cyclist movements for sustainable transport planning.
- Passenger Origin-Destination (OD) Surveys: Assessed travel patterns and passenger behavior.
- Non-Automated Boarding and Alighting Surveys: Evaluated transit user activities at bus stops and terminals.

Intern | Justmoh Construction Limited

10/2023

Assisted the project manager in the following areas: Site Supervision and Monitoring, Quality Control and Assurance, Surveying and Setting Out.

Intern | Adamus Resource Limited
12/2022

Conducted soil and rock sampling for geotechnical characterization Assisted in site investigations, including field data collection and site monitoring Performed laboratory testing on soil and rock samples Analyzed data and contributed to reporting on geotechnical findings

SKILLS

Programming Language

- Python: Machine Learning | Data Analysis and Data Visualization

Software

- Civil 3D: Skilled in designing and modeling civil infrastructure.
- Google Earth Pro: For geographic data exploration and visualization
- Excel: Advanced skills in data manipulation and statistical analysis
- AutoCAD: Proficient in drafting and design for civil engineering projects.

TRAINING AND CERTIFICATION

Certificate of Attendance | Engineering Institute of Technology (EIT), July 2025 | Perth, Western Australia.

- Shape the Future of Engineering: AI, Machine Learning & Innovation in Action
View certificate [Here](#)
- **Certificate of Attendance| Data Science and Machine Learning Internship Program Edureka, Online February 2025**
View Certificate [Here](#)

Introduction to Python | Pythech Hub | 03/2025

- Completed training on Python fundamentals, covering variables, data types, control structures, and basic programming concepts

Data Science and Data Analysis Training | 2024

- Gained practical skills in analyzing and manipulating large data Developed proficiency in Power BI Desktop

LEADERSHIP EXPERIENCE

Project Lead, Capstone Design Project, Design of Boankra Integrated Logistic Terminal Design KNUST-2023

- Coordinated multiple design disciplines, including Steel structure, Highway, Water supply and distribution, Water resource, Geotechnical, Waste management
- Conducted regular team meetings to provide guidance, address concerns, and ensure alignment with project objectives

Project Lead, Engineers Without Borders, KNUST

- Development and management of association’s records in online database
- Supervision of the structural design of a footbridge for a deprived village called Ullo |202

REFEREES

Dr. Kenneth Adomakoh Tutu
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