

# Daniel Agyapong

School of Informatics Computing and Cyber Systems, Northern Arizona University  
engineerdanny.github.io|da2343@nau.edu| (520)491-0072

## Education

- **Ph.D. in Informatics and Computing**

*Northern Arizona University (NAU), Flagstaff, AZ, USA*

Expected Graduation: May 2027

GPA: 4.0/4.0

- **B.Sc. in Electrical/Electronics Engineering**

*Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana*

Completed: September 2017 - November 2021

GPA: 3.76/4.0

## Professional Experience

### Graduate Research Assistant

Northern Arizona University

Aug 2022 - Date

*Flagstaff, AZ, USA*

- Training and testing novel machine learning algorithms for microbiome association prediction.
- Researching on network analysis models for studying the interrelationships between microbial communities.
- Tutoring graduate courses like large scale data structures, introduction to MATLAB and others.
- Main technologies: Scikit-learn, PyTorch, Numpy, R, MATLAB, C++.

### Statistical Learning Researcher (Intern)

Université Paris-Saclay/INRAE

April 2025 - July 2025

*Paris, France*

- Conducted comprehensive benchmarking of Poisson Log Normal (PLN) models [1], evaluating their performance across three key applications: Principal Component Analysis, abundance prediction, and network inference for microbial data analysis.
- Run cross-validation experiments demonstrating that PLN models outperformed traditional generalized linear models for microbial count prediction.

### Software Engineer (Intern)

Google Summer of Code (GSoC '22)

May 2022 - Sept 2022

*USA (Remote)*

- Wrote code for the R Project for Statistical Computing organisation, as a part of the Google Summer of Code '22 program.
- Modified the tool, Rperform and developed a custom GitHub Action to track quantitative performance metrics (runtime and memory usage) of other R packages.
- Main technologies: R, GitHub Actions, JavaScript, Bash.

### Research and Teaching Assistant

Kwame Nkrumah University of Science and Technology

Sept 2021 - Aug 2022

*Kumasi, Ghana*

- Mentored and supervised students in Digital Systems, Classical Control Systems, Digital Control Systems and Instrumentation engineering courses.
- Identified and resolved a critical security vulnerability in payment gateway integration for a mobile app and website, enhancing system security and preventing potential financial losses.
- Main technologies: Python, MITMProxy, BurpeSuite, MATLAB

### Full Stack Engineer

Chosen IT Business Solutions, LLC

March 2021 - May 2022

*Accra, Ghana (Remote)*

- Built and maintained cross-platform (Android and iOS) mobile apps for Shaq Express delivery company with Flutter and Laravel.
- Fixed a major issue with the Shaq Express user app (The start-up time of the app was extremely long).
- Re-built the entire UI and enhanced the functionality of Farmhouse Movies app, a cross-platform app with more than **300k** users on both Android and iOS platforms with Flutter.
- Developed the back-end and worked on the REST API for Hearts of Oak App (Soccer club app) with Laravel and wrote the mobile app with Flutter.
- Worked on the cross platform social media app, Lystn and launched the Alpha versions of the app on the Appstore and Playstore.
- Main technologies: Flutter, Java, Laravel, MySQL, PostgreSQL, Firebase, OneSignal

### Full Stack Engineer

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April 2020 - March 2021

Sweden (Remote)

- Built and maintained cross-platform mobile app with Flutter and the backend with Node.js and Express frameworks utilizing technologies like MongoDB for the database management, OneSignal for notifications and MailGun for email API service.
- Integrated STRIPE and SWISH payment gateways for debit card and mobile money payments respectively on the mobile app.
- Improved the efficiency and speed of the development by about 50% and launched a Minimum Viable Product (MVP) just three months after joining the team.
- Main technologies: Flutter, Node.js, Express.js, MongoDB, OneSignal, MailGun, STRIPE, SWISH

### Publication and Presentations

- First author paper, Cross-Validation for Training and Testing Co-occurrence Network Inference Algorithms, 2025 [2]
- University of California, Berkeley presentation, 2024
- Arizona State University ML Day presentation, 2023
- University of Arizona Seminar presentation, 2023

### Awards and Honors

- PBEEE Research Mobility Scholarship (Fonds de recherche du Québec) (**\$12,000 CAD**).  
A prestigious Quebec government scholarship for short-term international research collaborations.
- International Mobility Grant (DATAIA) (**€13,500**).  
This is a grant designed to support research collaboration and student exchange between institutions in different countries.
- The INRAE Junior Scientific Mobility Program (JSM) Award (Hadamard) (**€2,300**).  
This is an initiative designed to foster scientific exchange and collaboration among researchers.
- International Student Award (**\$559.55**).  
An award for best international students at NAU.
- Atos IT Solutions and Services Award (**\$597**).  
A prestigious award that recognizes the best students at NAU.
- College of Engineering Excellent Student Award/ Provost List at KNUST ('18,'19,'20)  
An award that honors the academic excellence of undergraduate students in engineering.

### References

- [1] Julien Chiquet, Mahendra Mariadassou, and Stéphane Robin. "The Poisson-Lognormal Model as a Versatile Framework for the Joint Analysis of Species Abundances". In: *Frontiers in Ecology and Evolution* 9 (2021). ISSN: 2296-701X. DOI: 10.3389/fevo.2021.588292. URL: <https://www.frontiersin.org/articles/10.3389/fevo.2021.588292>.

- [2] Daniel Agyapong et al. “Cross-validation for training and testing co-occurrence network inference algorithms”. In: *BMC Bioinformatics* 26.1 (2025), p. 74.