

Hannah K. Bako

Curriculum Vitae

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Education

- 2019–2024 **Doctor of Philosophy, Computer Science**, *University of Maryland*, College Park, GPA – 3.88.
- 2017–2019 **Master of Science, Software Engineering**, *Stevens Institute of Technology*, Hoboken, NJ, .
- 2011–2015 **Bachelor of Science, Computer Information Systems**, *Babcock University*, Ogun, NG, .

Experience

Research

- Spring **Doctoral Researcher**, *BAD Lab*, University of Maryland, College Park.
- 2021–Present **Full Disclosure Project**
Developing a background process for continually scraping news articles for mentions of potential police misconduct in the USA.
- Design a web scraper to continuously retrieve news articles from the internet.
 - Use Natural Language Processing techniques to perform semantic analysis of scraped articles to determine presence of content related to police misconduct and extract relevant attributes.
 - Design and developed a dashboard for users to interact with data on police misconduct across jurisdictions, cities, and various entities.
- Fall **Doctoral Researcher**, *BAD Lab*, University of Maryland, College Park.
- 2019–Present **Automated Development Environment for Rapid Visualization Authoring in D3**
Developing an interactive development environment for rapid authoring of interactive visualizations in D3.
- Investigate techniques and approaches used by D3.js users to create interactive visualizations on the internet.
 - Explore the use of reinforcement learning to model how user interest can be inferred via their code
 - Utilize JavaScript Babel to perform automatic code generation through manipulation of already existing code ASTs.
 - Design of a web based IDE for interactively creating D3 visualizations for novice D3 users
 - Lead a team of five undergraduate students where I assign tasks, monitor progress and evaluate reports

Fall 2019 **Doctoral Researcher**, University of Maryland, College Park.

Balance: Designing for Digital Well-being by Contextualizing Smartphone Usage

Evaluated effective methods for designing well-being tools that support deeper reflection from users.

- Analyzed smartphone screen usage data in order to contextualize smartphone usage behavior
- Conducted semi-structured interviews to evaluate users applications and mental models of digital well-being tools
- Identified common challenges users experience with digital well-being tools using and proposed design guidelines for these tools
- Developed a high fidelity prototype of a digital well-being application that implemented the proposed design guidelines.

Fall 2018 **Masters Researcher**, Stevens Institute of Technology.

Exploratory Analysis on the Contributors of the Bitcoin Cryptocurrency

Evaluate the activities of contributors to the development of the open-source cryptocurrency Bitcoin. Explored development activity over a time period of 8 years from data scraped from the GitHub repository. Using network modeling and graph theory we assess how different communities of developers formed.

- Scraped the Bitcoin GitHub repository for data on commits, issues and comments.
- Analyzed the data to conceptualize the evolution of the developers interest over the years
- Evaluated the communities of developers formed using clustering analysis on their interactions with each other through comments and issue requests.
- Identified 5 communities of contributors, their interactions and overlaps within these communities and how they evolved over 8 years.

Teaching

Fall **Graduate Teaching Assistant**, University of Maryland, College Park.

2019–Present **Courses:** Programming Technologies and Paradigms (CMSC433), Introduction to Data Science (CMSC320)

- Teach students core CS content related to the course
- Manage projects on various programming and data science concepts e.g Hadoop and statistical analysis
- Assist Head Professor in creating and managing course content
- Evaluate students assignments, projects and exams

Industry

Sept **Graduate Assistant**, *Systems Engineering Research Center (SERC)*, Hoboken, NJ.
2017–May
2019

- Developed a web-based data collection and processing tool for the World Wide Directory (www.wwdsie.com)
- Improved SERC website user experience through continuous updates to the web pages
- Reduced cost of maintaining contacts data by developing effective data management measures
- Organized annual SERC Sponsored Research Reviews and SERC Doctoral Students Forum conferences

Jan 2017–Jul **Android UX Software Developer**, *Nhub Nigeria*, Plateau, NG.

- Involved in the implementation of scalable software systems for clients
- Collaborated with team members to research, design and implement applications that solve real-world problems
- Improved intern performance through training on introduction to programming and problem-solving skills

Skills

Programming Languages and Frameworks	Java, Python, Javascript, C++, C, R, scikit-learn, Flask, Pandas, Numpy, Babel, ReactJS, D3.js, SQL
Tools	MYSQL Workbench, Git, GitLab, Jenkins, MongoDB, Microsoft Access, AWS, Tableau, PowerBI
Operating Systems and Applications	Linux, Android Studio, Parse

Awards

2015 Eagle Leadership award

Extra-Curricular Activities

- 2020 Student volunteer at the Very Large Databases Conference(VLDB)
- 2019 Participated as an organizer for Conference on Systems Engineering (CSER) 2019
- 2016 Volunteer Computer Literacy Program for underprivileged children in Nigeria
- 2015 Served as Financial Secretary for the 2015 graduating class executives

Languages

English	Advanced	
Hausa	Intermediate	<i>Conversationally fluent</i>

References

Dr. Leilani Battle, *Advisor*, Department of Computer Science, University of Maryland, College Park.
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