Paul Adutwum

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EDUCATION

Bates College   **Lewiston, Maine**
Major: BS, *Computer Science and Mathematics*   *GPA: 3.95*   *Expected May 2027*
Relevant Coursework: Data Structures & Algorithms, Discrete Math, Data Analysis and Visualization, Probability and Statistics
Computation and Formal Systems, Multivariable Calculus, Advanced Linear Algebra

TECHNICAL SKILLS

- **Languages & Frameworks**: Python(Pandas, Numpy, Pytorch), R, SQL, Java, JavaScript(Node.js, ES6+), REST APIs,
- **Interests**:Data Science, Machine Learning, AI-driven Web Apps, Predictive Analysis, FinTech
- **Databases**: MongoDB, PostgreSQL, Firebase
- **Cloud and Deployment**: Git, AWS(EC2, S3, Lambda), Vercel, CI/CD(Github Actions, Jenkins), Google Cloud

WORK EXPERIENCE

Trinity Jubilee Center   **Lewiston, Maine**
Software Engineer Intern   *May 2024 – August 2024*
- Developed a cross-platform web application using **Next.js** and **React**, enhancing accessibility and engagement for students and mentors at Trinity Jubilee Center
- Designed and integrated a dynamic **frontend UI** with a scalable backend, leveraging **Node.js** and **REST APIs** for seamless data retrieval and real-time updates.
- Implemented **caching** and performance optimization techniques, reducing page load times by **30%** and improving overall user experience.

Tech Stack: Next.js, React, Node.js, REST APIs, Firebase, AWS

Bates College IT HELP DESK   **Lewiston, Maine**
Student Supervisor   *April 2024 – Present*
- Manage day-to-day help desk operations, including task delegation, scheduling, and troubleshooting hardware and software issues.
- Enhance team capabilities, training new staff and streamlining clerical processes, boosting operational excellence.
- Supervised library operations and assisted in managing technical issues.

Key Technologies: Library Management System, internal tools, team management

Computer Science Department, Bates College   **Lewiston, Maine**
Teaching Assistant   *September 2024 – Present*
- Mentor and guide students in Introduction to Computer Science and Software Development in python, breaking down complex problem-solving techniques into clear, structured, and technically sound concepts.
- Facilitate hands-on learning by leading interactive coding labs, workshops, and one-on-one tutoring sessions, teaching data structures, algorithms, and computational thinking.

Public Lab   **Remote**
Open Source Contributor   *December 2024 – Present*
- Improved test coverage for low-tested functions by writing and optimizing tests using Pytest, ensuring software reliability and catching edge cases.
- Analyzed existing test gaps in the codebase using Codecov reports, identifying critical functions with low coverage and prioritizing test improvements

INDEPENDENT PROJECTS

WattsWise – Smart Energy Analytics & Prediction   **Github**
- Developed a predictive energy consumption model using machine learning (Linear Regression, Scikit-learn) to analyze historical usage patterns and forecast future dorm energy demands at Bates College.
- Engineered interactive visualizations using Matplotlib, Numpy, Seaborn and Flask APIs providing actionable insights into energy consumption trends through dashboards displaying energy usage by dorm, appliance, season, and time-of-day

Tech Stack: Pandas, NumPy, Seaborn, Matplotlib, Scikit-learn (Linear Regression, Predictive Modeling)

Admin Dashboard & Shuttle Tracking Web Application   **Website** | **Github**
- Developed interactive analytics dashboards using Chart.js and Firebase queries to visualize shuttle utilization, trip frequencies, and peak usage times.
- Implemented data-driven ride optimization by analyzing historical ride logs with PostgreSQL and Firebase to improve shuttle efficiency.
- Utilizes Google Maps API (Advanced Markers, Geocoding, Directions API) to display real-time vehicle locations, estimated arrival times, and optimized routes.

Tech Stack: NestJS, React, Firebase, Tailwind CSS, Google Maps API, SQL, RESTful APIs

AI-Driven Movie Movie Discovery App   **Website** | **Github**
- Developed Lumeo, an AI-driven web application that analyzes user sentiment to recommend personalized movies, enhancing emotional well-being and mental health support through entertainment.
- Integrated **TMDB API** to fetch real-time movie data, enabling **dynamic content updates** and a seamless recommendation system.
- Implemented **Firebase authentication and backend services**, ensuring secure user login and user data management.

Tech Stack: React, Next.js, Firebase, TMDB API, OpenAI API, Tailwind CSS, Node.js, Express.js

LEADERSHIP ACTIVITIES

- Residential Assistant Bates College
- Presidential Advisory Committee Member, Bates Student Government
- Co-Founder, Bates Coding Club
- Organizer, Physics and Astronomy Club

AWARDS

- Dana Scholar, Class of 2027
- Dean's List - *All Semesters*
- Most Outstanding Community Engagement by a First Year Student (*Rookie of the Year*)