Amin Babar

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OVERVIEW

Languages and Technologies: Full Stack Development, JavaScript, Python, TypeScript, React, REST, Git, RSpec Testing, Redux, Rails, Express.js, Node.js, MongoDB, PostgreSQL, AWS (Cloud Technology), jQuery, D3.js, Ruby, C, C++, SQL, HTML, CSS, Assembly, SCSS, Bash, Java, Clojure, Prolog, Haskell, and Perl.
Software: STATA, Adobe InDesign, Adobe Photoshop, Unity, WordPress, Excel, Salesforce, and Heroku.

RELEVANT EXPERIENCE

Lead Software Engineering Instructor, *App Academy, New York, NY* **Nov 2021 – Dec 2024**
- Trained 300+ developers in modern web technologies, including React, Redux, Node.js, Express, Rails, MongoDB, and AWS, while building real-world applications.
- Established a structured process for instructor contributions to in-house software, driving key features such as automated grading, IP-based check-ins, and Puppeteer-generated GitHub design docs, saving 50 hours/month.
- Led a team of 8 software instructors and collaborated with cross-functional teams to consistently exceed performance metrics.
- Conducted SQL-based statistical analysis to optimize instructor performance, resulting in 3 hours/week increase in coverage.
- Spearheaded hiring efforts by conducting technical and behavioral interviews to ensure team alignment and expertise.

Computer Science and Robotics Department Head, *Ranney School, Tinton Falls, NJ* **Sep 2020 – Nov 2021**
- Established the Computer Science Department, designed a modular curriculum that served 100+ students annually, and incorporated modern programming languages including C++, Python, HTML, CSS, and Scratch.
- Supervised an assistant robotics coach and mentored them on technical project management.
- Coordinated and executed VEX robotics competitions, leading teams to qualify for state championships. Strengthened team collaboration among 20+ participants through intensive preparation sessions.

Research Assistant, *Human Computer Interaction Lab, Tufts University, Medford, MA* **May 2019 – Aug 2019**
- Co-authored a research paper, "Visualization and Workload with Implicit fNIRS-based BCI," accepted at the NeuroErgonomics Conference 2024.
- Enhanced real-time measurements from the fNIRS device by implementing machine learning algorithms and optimizing data processing with Pandas and NumPy, increasing brain-state capture accuracy to 93% across two user-oriented tasks.
- Designed and built a mounting device for data probes targeting the prefrontal cortex and conducted experiments on 22 participants, ensuring consistency across trials.

Research Assistant, *Computer Science Department, Hamilton College, Clinton, NY* **Jul 2018 – Sep 2018**
- Optimized Akiba and Iwata's Branch and Reduce algorithms in Java.
- Improved runtime on the Stanford Web Graph by analyzing and implementing reductions based on maximum critical independent sets.
- Developed Bash scripts to run the Branch and Reduce algorithm on multiple graphs, documenting all results.

Senior Digital Media Tutor, *Burke Library, Hamilton College, Clinton, NY* **Jul 2017 – May 2020**
- Led a team of 20+ Digital Media Tutors, providing technical support to students in 3D printing, virtual reality, scanning, and utilizing digital tools such as Unity, Adobe Suite, WordPress, and Microsoft Office.

PROJECTS

Adventure Book, *(React/JS, Redux, Ruby on Rails, AWS, JBuilder, SCSS)* **Live Site | GitHub**
- Implemented secure user authentication with **BCrypt** for logins and session management across a **React-Redux** frontend and a **Rails backend**.
- Developed React components and a Rails backend with full **CRUD** functionality for posts, comments, likes, user profiles, friend requests, and **AWS S3** image uploads.
- Designed **RESTful API** endpoints to ensure smooth communication between **React** frontend and **Rails** backend systems.

AI Othello Player with Algorithmic Optimization, *(Python)* **GitHub**
- Implemented **Minimax**, **Alpha-Beta Pruning**, and **Iterative Deepening Search (IDS)** for improved decision-making.
- Engineered a custom **heuristic** for strategic control, achieving a **96% win rate**.
- Reduced runtime by **70%** through targeted algorithmic optimizations.

EDUCATION

Hamilton College, Clinton, NY
Bachelor's Degree in Computer Science (May 2020), Raphel Scholarship
Relevant Coursework: Artificial Intelligence, Data Structures, Python, Algorithms, Principles of Programming Languages, Databases, Computer Organization, Economic Statistics, Macroeconomic Theory, Linear Algebra, Calculus II, Calculus III