Amin Babar

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OVERVIEW

Languages and Technologies: JavaScript, Python, 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 – July 2024**
- Trained 300+ developers in modern web technologies, including React, Redux, JavaScript, Rails, Express.js, Node.js, MongoDB, AWS, Canvas, and D3, while also developing applications using these technologies.
- Trained and managed a team of 8 instructors and collaborated with cross functional teams to ensure project delivery.
- Contributed to in-house software development used by peers for day-to-day tasks at App Academy.
- Conducted SQL-based statistical analysis to assess and optimize instructor and student performance metrics.
- Hired new instructors by conducting behavioral and technical interviews ensuring right fit for the team.
- Used Salesforce to generate and manage detailed performance reports.

Computer Science and Robotics Department Head, *Ranney School, Tinton Falls, NJ* **Sept 2020 – Nov 2021**
- Established the school's first Computer Science Department and designed a scalable curriculum.
- Developed and taught courses in C++, Python, HTML, CSS, and Scratch for middle and upper school students.
- Supervised an assistant robotics coach and mentored them in technical project management.
- Planned and managed VEX robotics competitions, with teams qualifying for state championship.

Research Assistant, Human Computer Interaction Lab, *Tufts University, Medford, MA* **Summer 2019**
- Co-authored a paper titled "Visualization and Workload with Implicit fNIRS-based BCI" which was accepted by the NeuroErgonomics Conference 2024.
- Improved and optimized the real-time measurements from the FNIRS device by using machine learning, pandas and NumPy libraries to capture the brain state in different user-oriented tasks.
- Created the front-end interface using Tkinter for various tasks to achieve different brain states.
- Designed and built a device to affix multiple data probes to test subjects to obtain readings from the prefrontal cortex.
- Recruited and run an experiment on 20 people while ensuring minimal changes between different experiments.

Research Assistant, *Computer Science Department, Hamilton College, Clinton, NY* **Summer 2018**
- Optimized Akiba and Iwata's Branch and Reduce algorithms in Java.
- Improved the runtime of Akiba and Iwata's code on the Stanford Web Graph by analyzing and implementing reductions based on maximum critical independent sets.
- Utilized scripting methods in Bash to run the branch and reduce algorithm on multiple graphs and documented the results.

Senior Digital Media Tutor, *Burke Library, Hamilton College, Clinton, NY* **Summer 2017 – Summer 2020**
- Provided technical assistance to students and aided them with 3D-printing, virtual reality, scanning, and utilizing digital software packages including Unity, Adobe suite products, WordPress, Word, and Excel.

PROJECTS

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

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

EDUCATION

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