Prerak Patel

New York City · https://www.prerakpatel.info · prerak.patel2097@gmail.com

Education

Rutgers Business School   **New Brunswick, New Jersey**
Bachelor of Science in Computer Science & Finance   *Graduation: May 2022*
Dean's List: all semesters   *GPA: 3.7/4.0*

Professional Experience

Amazon   **New York, New York**
Software Engineer   **July 25, 2022, – Present**

Artificial General Intelligence – Project Hyperion

- Developing Hyperion an internal multimodal interface through which Amazon employees can experience capabilities of LLMs available on AWS Bedrock which assist with work-related tasks or simply serve as a gateway into LLM technology.
- Created reusable components for various aspects of Hyperion as new features were being worked on.
- Addressed UI bugs and changes in functionality of features based on intent brought upon by the Product Owner.
- Onboarded numerous LLM models onto Hyperion including Claude, Sonnet, Titan Text Premier, and Titan Image generator models.
- Added features such as document and image processing, bug reporting, conversation sharing, and detailed feedback reporting.

Alexa Info – Monetization

- Engineered the monetization experience for Alexa weather team which transformed advertising revenue from $0 year over year (YOY) to ~ $5.5 million YOY.
- Designed and created a robust monitoring and alarm system and to proactively identify and alert on service issues, ensuring high availability and optimal performance.
- Implemented feature gates to control gradual roll out of ad-related functionalities, ensuring a controlled and monitored deployment process while minimizing user disruptions
- Decreased Alexa weather latency by implementing a lazy loading solution to provide users with efficient load times.
- Created integration tests and load tests as part of the CI/CD pipeline to maintain code quality and safeguard against bugs.
- Reduced time to debug issues by creating parser rules with Regex for log streams enabling advanced filtering.
- Created multiple UI experiences in accordance with product requirements to display monetization content for customers.
- Deployed AWS resources following Infrastructure as Code (IaC) practices, utilizing tools like AWS CloudFormation and AWS CDK for streamlined and consistent provisioning and management of cloud infrastructure.

Programming Projects

Fast-Trajectory-Replanning

- Developed an AI Agent tasked to find the shortest path to a target position in a grid-world without knowing its environment. The environment contains blockers which hinder Agent from using certain paths. Implemented repeated forward A* search, repeated backwards A* search, adaptive A* search algorithms, and data structures such as priority-queues (min-heap), matrices, hash-maps, sets, etc. Agent found shortest path to target 100% of times for any simulated environment if a path to target existed.

Face and Digit Classification

- Created a Machine Learning program in Python which utilizes classification algorithms (Perceptron, Naïve Bayes, and K-Nearest Neighbors (KNN)) to detect faces and classify digits based on the image features. Each classification algorithm classified digits and detected faces with accuracy > 80%.

Git – Socket Programming

- Created a program in C which would emulate applications such as GitHub through a server and client relationship. The clients would be able to connect with the server and perform actions such as (but not limited to) "push", "pull", and "commit". The server would be able to read these actions and communicate with client. Applied multithreading to ensure that many clients can connect to one server. Implemented safety procedures such as mutex locks to ensure server integrity and proper git mechanics.

Skills + Involvement

- **Languages**: Python, C, Java, JavaScript/HTML/CSS, Git, SwiftUI, Scala, SQL, C++
- **Frameworks** & Libraries: Spring, NumPy, Pandas, Matplotlib, Seaborn, PyGame, Node.js, React.js, Next.js
- **Tools**: Git, Linux, AWS, Jira, CI/CD, Vim
- **Competitions**: Salhotra - Quantitative Trading Challenge, Accenture Consulting Case Competition, Bender Trust Equity Research Competition, Aim2Flourish Publication.