

# Prerak Patel

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## Education

### Rutgers Business School – New Brunswick

Bachelor of Science: Dual Major in Computer Science & Finance

Deans List: all semesters

New Brunswick, New Jersey

Graduation: May 2022

GPA: 3.7/4.0

## Relevant Coursework

*Intro To Computer Science (Java) · Data Structures (Java) · Computer Architecture (C) · Systems Programming (C) · Artificial Intelligence (Python) · Data Management for Data Science (Python) · Design & Analysis of Computer Algorithms · Data Science (Python) · Discrete Mathematics I & II*

## Professional Experience

### Amazon

#### Software Engineer

*Info Ads Dev (IAD)*

New York, New York

July 25, 2022, – Present

- Integrated ads into Alexa's Weather Speechlet utilizing a combination of API integrations, Alexa Platform Language (APL), and strategic code in Java which transformed advertising revenue from \$0 year over year (YOY) to ~ \$5.5 million YOY.
- Implemented feature gates to control gradual roll out of ad-related functionalities, ensuring a controlled and monitored deployment process while minimizing user disruptions, allowing a deployment schedule of 10%, 25% 50%, 100%.
- Performed comprehensive load testing for system robustness and scalability. Expected 50tps during peak seasons and successfully load tested for 140tps.
- Collaborated with cross-functional teams to understand business requirements and implement solutions that seamlessly incorporated advertising content into the Alexa user experience, including product managers and UI/UX designers to align technical implementation with overall product goals, contributing to a cohesive and polished user interface.

#### *Alexa Local Information + Data*

- Designed and engineered a feature to help data analysts edit Points of Interest (POIs) data at scale. Significantly decreased time needed for extensive edits, transforming days and weeks into mere minutes.
- Utilized a series of AWS tools such as S3, APIGateway, and Lambda along with JavaScript (react.js, node.js) serving as the frontend and backend for the feature.
- Implemented feature to systematically identify low quality data and autogenerate work tasks for data purification using AWS Lambda, DynamoDB, and S3. Successfully identified and created 500+ work tasks for the data team.

## 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
- **Frameworks & Libraries:** Spring, NumPy, Pandas, Matplotlib, Seaborn, pygame, Node.js, React.js, Next.js
- **Tools:** Git, Linux, AWS (Route53, EC2, S3, Lambda, IAM, Amplify, DynamoDB, Athena, etc.), Jira, CI/CD, Vim
- **Competitions:** Salhotra - Quantitative Trading Challenge, Accenture Consulting Case Competition, Bender Trust Equity Research Competition, Aim2Flourish Publication.