

Kartikey Sharma

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EXPERIENCE

Amazon Web Services

Software Development Engineer II

08/2022 – Present

- Implement and maintain features for Customer Profiles, a service that unifies customer data across disparate CRM systems into standardized profiles and segments them for email, voice, and SMS-based outbound campaigns.
- Led backend development of an AWS Lambda + Step Function solution (launched at the 2025 Customer Contact Week conference) to enrich profile metrics with historical data and unlock new use cases such as lifetime value statistics, upcoming order tracking, etc.
- Enabled onboarding of an XL customer by delivering a DynamoDB optimistic locking system that preserved data consistency for 62M profiles.
- Delivered capability to stream customer case data into the service via EventBridge, allowing customers to segment profiles based on support tickets and unblocking a large enterprise customer.
- Productionalized a Kinesis connector to let customers use clickstream events in hooks to trigger actions such as UI popups, SMS campaigns, database updates, interactions with other AWS services, etc.
- Augmented disaster recovery mechanisms and encryption in-transit, helping achieve compliance readiness and preventing a 2+ month delay in the launch of 3 features.
- Participated in oncall rotations to mitigate customer impacting issues and contributed documentation to accelerate mean time to diagnosis.
- Mentored 1 intern and 1 junior engineer; organized bi-weekly touchpoints to resolve blockers and provide coaching for career growth.

University of Richmond

Research Fellow: Agent Based Simulation

05/2020 – 07/2020

- Worked with codebase simulating infection spread in hospital settings with agent-based simulation to allow quicker and more ethical testing of antibiotic strategies.
- Developed 900+ lines of Python code to explore event-driven simulation, in which simulations are made more efficient by skipping to scheduled events in the simulated timeline, and presented results in UR A&S Symposium.

University of Richmond

Research Fellow: Bent Functions and Difference Sets

05/2019 – 07/2019

- Developed Python scripts to generate difference sets and test conjectures.
- Authored a paper published in *Designs, Codes and Cryptography* disproving a conjecture regarding symmetric designs held to be true for 25 years.

EDUCATION

University of Richmond

B.S. Computer Science & Mathematics

GPA: 3.98/4.0 | Richmond Scholar | Phi Beta Kappa

- Offered a highly selective merit scholarship covering full cost of attendance (30 spots for 8000+ students.)
- Offered Robins Science Scholar designation for high achievement in STEM.

PROJECTS

Question Answering System

Python

- Used spaCy NLP library and techniques like PoS tagging, NE recognition, and TF-IDF vectorization to answer a user's questions based on results from an IR system.
- Achieved a mean reciprocal rank of 0.14 on the test data.

Political Bot Detector

Python

- Used NLP/deep learning-based approaches such as topic modeling, SVM, LSTM to classify Russia-affiliated political bots among tweets from the 2016 U.S. election.
- Wrote a module for topic-based classification using scikit-learn which achieved an F1 score of 0.76 on test data, and tuned hyperparameters for the SVM model.

Traffic Intersection Simulator

C++

- Simulated an intersection using an integer time-step clock with animated output on the command line which avoids collisions 100% of the time during vehicles turns.
- Allows variation of parameters such as probability of new vehicles, traffic light times, length of road to study the effects of these changes on the flow of traffic.

Sugarscape

Python

- An agent-based event-driven simulation in which agents can eat, die, find a partner, and reproduce.
- Used the Simulus framework to maintain an event calendar and numpy for stream-based pseudorandom number generation and run-to-run output uniformity.

SKILLS AND INTERESTS

Skills

- Java, Python, C++, TypeScript, AWS, GitHub, OOP, Agile methodology, technical communication.

Interests

- Films by Edgar Wright, videos by 3Blue1Brown and Tom Scott, resistance training, reading Joel Spolsky's blog.