

Ambrose Tuscano

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SKILLS

- **Languages & Tools:** Python, Java, TypeScript, SQL.
- **Databases:** MySQL, PostgreSQL, MongoDB, DynamoDB, RDS, RedShift, Redis.
- **Frameworks:** Guice, Dagger, Hibernate, JDBC, Mockito, Junit, Spring Boot, Vert.x, Flask, Django, FastAPI, ReactJS, TensorFlow.
- **AWS Services :** Athena, API Gateway, Batch, Bedrock, CloudFormation, CloudWatch, EC2, ECS, Fargate, Glue, Kinesis Firehose, Lambda, Quicksight, SageMaker, S3, SNS, SQS, Step Functions

PROFESSIONAL EXPERIENCE

Software Engineer Amazon [Advertising]

Arlington, VA | May 2022 - Present

- **Ad Labeling Service:** Designed and built a scalable system using Lambda and Bedrock to process ad updates and store rule- and AI-driven labels. Developed a Glue- and Iceberg-based data lake with a 30-min freshness SLA and orchestrated a Step Functions based evaluation flow enforcing publisher rules for pre- and post-bid filtering, handling 5K+ TPS.
- **Ad Registration Service:** Contributed to the development of APIs, data models, GraphQL layer, and scalable infrastructure including a high-throughput cache ingestion system for Ad registration. The registration APIs achieve low-latency performance (under 15 ms) while the service overall handles over 1,000 TPS and provides extensible access to advertiser and creative metadata, making ad registration easier for DSPs and addressing key publisher concerns around pre-bid filtering and data availability during ad evaluation.
- **Ad Relevance API Launch & Optimization:** Supported the launch, end-to-end testing, and experimentation of the Ad Relevance API for Amazon SSP, achieving over 1 million transactions per second (TPS) and a projected year-over-year (YOY) \$10 million increase in ad revenue. Wrote a root cause analysis, and resolved a 10% request drop issue by optimizing infrastructure scaling policies, also enhanced alarming and monitoring, and implemented CI/CD best to help test and catch issues earlier.
- **Scaling Optimization for Data Pipeline:** Engineered a significant scaling optimization for the BrandSafety data pipeline, increasing throughput by 3x (from 17 million to 52 million ASINs processed per day). This improvement drastically reduced a critical backfill process from 45 days to under 14 days.
- **BrandSafety ETL Service Revamp:** Collaborated closely with clients to understand their day-to-day challenges and identify knowledge gaps. Conducted learning sessions to align on business needs and implemented new business logic that improved automation, enhanced content moderation accuracy, and reduced client review time by 70%.
- **Service Transition & Knowledge Transfer:** Orchestrated the seamless transition of a complex service comprising six distinct subsystems to another team. Led efforts in comprehensive service documentation, knowledge transfer sessions, and ongoing support, ensuring no disruption to service quality.
- **Mentorship & Operational Excellence:** Led operational excellence initiatives creating comprehensive documentation, and establishing monitoring systems; resolved 400+ tickets while managing high-stakes campaigns and wrote scripts to automate backfill debugging and create automated and self-updating knowledge wikis for customers.

Software Engineering Intern NXP Semiconductors

San Jose, CA | May 2021 – Aug 2021

- **Test Suite Revamp & Optimization:** Revamped the test suite using Python and Keras, incorporating advanced Machine Learning techniques in NLP and Unsupervised learning. Achieved a 30% reduction in runtime and decreased manual intervention by 60%.
- **Cross-Team Collaboration:** Collaborated with multiple teams to assess software testing needs, identified opportunities for ML integration. Explored SaaS solutions and authored comprehensive documentation to support seamless adoption within the team.

EDUCATION AND HONORS

University of Maryland, Baltimore County | *Master's of Science in Computer Science*

December 2021

University of Mumbai | *Bachelor of Engineering in Computer Science*

May 2019

KEY PROJECTS

Diabetes Detection Service:

[*FastAPI, Twilio, PostgreSQL, Docker, AWS, Postman*]

- Built a FastAPI-based REST application for Random Forest-based diabetes prediction with Google Maps and Twilio integrations.
- Dockerized and deployed on AWS EC2 with PostgreSQL, ensuring reliability through Postman testing.

Sports Fantasy Application:

[*Android Studio, Java, Python Flask, PostgreSQL*]

- Developed an Android app in Java for sports info and a Football Fantasy tournament.
- Built a Python web scraper to populate PostgreSQL with live game data and a Flask-based REST API to connect the database with the app, enabling real-time updates and interactive Fantasy scoring functionality.

Peer to Peer Distributed File System:

[*Sockets, Multi-threading, Python*]

- Architected a Distributed System using TCP protocol, enabling seamless File CRUD operations across multiple P2P connected nodes.
- Implemented a robust failure resilient architecture by incorporating replication strategy and employing version control techniques.

Product Validation Service:

[*Django, ReactJS, SQLite, Heroku*]

- Designed and implemented a QR code generation platform (Django, ReactJS, SQLite, Heroku) for efficient item detail sharing.
- Developed a robust API (hosted on Heroku) to manage validations, seamlessly integrating with ReactJS for an end-to-end solution.