SHASHANK RANGARAJAN

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EXECUTIVE SUMMARY

Seasoned machine learning scientist with 4+ years of experience in designing, developing, and deploying impactful ML solutions across diverse industries like E-commerce Advertising, Healthcare, Semiconductor, and Mobile Phones. Proven ability to bridge the gap between research and production through ML Operation (MLOps) practices. Seeking opportunities to leverage expertise in natural language processing (NLP), deep learning, and large-scale data systems to drive innovation and business value

SKILLS

Languages – Python, Java, Scala, TypeScript, SQL | **ML Libraries** – PyTorch, TensorFlow, Keras, scikit-learn, NLTK, HuggingFace Transformers, LangChain, OpenAI, Weka, Catboost | **ML, BigData** – MLflow, Kafka, Amazon SageMaker, Elastic Map-Reduce (EMR), Data Version Control (DVC), Docker, Apache Airflow, Apache Spark, PySpark | **Database** – Amazon RDS, Dynamo DB, Couchbase, MySQL | **Full Stack** – (Backend) Flask, FastAPI, NodeJS, Spring Boot, AWS Lambda, (UI/UX) React | **Cloud** – (AWS) EC2, StepFunctions, S3, ECS, IAM, (GCP) BigQuery | **Generative AI** – Large Language Models (LLM) - Azure-OpenAI, Llama

WORK EXPERIENCE

Intel, Inc. – IT: Engineering Compute — Folsom, CA, United States
Machine Learning Scientist – II — May 2023 – Present
Analytics & Intelligence – AI Optimizations for Engineering Compute (Private Cloud)

- Improved NFS (Network File System) utilization, and cut job execution time by ~ 40-60% through time-series analysis and statistical machine learning models to predict slowness events and redistribute loads
- Optimized OS patch/fix scheduling, and reduced resource wastage by 60% using job runtime predictions from a CatBoost model. Further boosted model performance by 30% by processing unstructured text with a BERT-based encoder model.
- Accelerated model deployments by 10x by designing a scalable MLOps framework with MLflow for experimentation and model registry, Docker for containerization of the inference API, and Kafka for logging metrics
- Enhanced customer experience on capacity management portal by adding an Azure-OpenAI based LLM chatbot with RAG (retrieval augmented generation), and agentic (OpenAI function calling, LangChain's tool) capabilities for data analytics

Amazon, Inc. – Advertising: Supply Quality — Bengaluru, KA, India
Software Development Engineer (Machine Learning) - I — Jun 2020 – Jul 2022
Expresso – ML & Data Operations Platform

- Accelerated ETL experiment-to-production by integrating Apache Zeppelin notebooks as EMR steps in production workflows. Collaborated with customers to onboard the first production use case.
- Developed an event-based ML retraining pipeline using AWS Sagemaker, StepFunctions, and DynamoDB. Collaborated with cross-functional teams (applied scientists, developers) to migrate 90+ production models with 100% uptime
- Simplified updating dynamic configurations (for model training, inference, DAG, etc.) in production, with Expresso Configuration Panel – a one-click solution. Reduced end-to-end efforts from one week to approximately 10 minutes
- Mentored one intern, and supervised peer-review and approval mechanism features for Expresso Configuration Panel
- Maintained operational excellence by resolving 100+ security risks and SEV2s across 10+ production pipelines

Motorola, Inc. – Mobility: Device Management — Bengaluru, KA, India
Software Development Engineer — Sep 2019 – Jun 2020
Over The Air – Software Upgrades for Motorola devices

- Implemented seamless upgrades for over 100,000+ devices by designing a smart update feature that detects inactivity to apply updates overnight
- Enhanced user engagement and customer satisfaction by integrating a customer feedback feature into the OTA app
- Personalized the user experience with game recommendations that increased click-through rates by 20%. Implemented a recommender system using autoencoder and deep neural network models. Led a team of four software engineers to integrate recommendations into the "Hello You" app
- Managed two interns and created a log analyzer for automatic call-drop detection, reducing turnaround time for 40% of tickets

PUBLICATIONS

- **Shashank Rangarajan**, Jeffrey M Borgerson. (2023). Net-Batch Job Runtime Prediction for Accelerating Linux Reboot Patching Cycles. In Engineering Computing Technical Conference (ECTC) 2023, Intel, Inc.
- K M Anil Kumar, B Ajay, **R, Shashank**, & D A, Amogha Subramanya. (2019). An A-priori Method for Topic Extraction from Text Files. In International Journal of Recent Technology and Engineering (IJRTE) (Vol. 8, Issue 2, pp. 2516–2521). Blue Eyes Intelligence Engineering and Sciences Engineering and Sciences Publication - BEIESP

RESEARCH EXPERIENCE

University of Southern California Los Angeles, CA, United States
Graduate Teaching Assistant & Student Researcher Feb 2023 – May 2024

- Graduate Teaching Assistant – Viterbi School of Engineering:
  - CSCI 585 Database Systems – Spring 2024
  - DSCI 250 Introduction to Data Science – Fall 2023
- Student Researcher – Laboratory of Neuro Imaging (LONI), Keck School of Medicine:
  - Delivered major backend APIs for Data Archive for Brain Initiative (DABI) Analytics control plane, enabling customers to run 50+ EER pipelines with multiple data processing and machine learning steps
  - Managed a team of 5 software engineers and fast-tracked deployments
- Student Researcher – Andrey Vilesov Group, Chemistry Department:
  - Implemented multimodal deep learning models to analyze X-Ray diffraction in Helium bubbles with 98% efficacy
  - Synthesized data and statistical estimation models for radius, intensity, aspect-ratio, and rotation of the bubbles

EDUCATION

University of Southern California Los Angeles, CA, United States
Master of Science in Computer Science Aug 2022 – May 2024
GPA – 4.0/4.0 | **MS Honors** | Coursework: Data Structures & Algorithms, Machine Learning, Natural Language Processing, Deep Learning, Databases, Multimedia Systems, Information Retrieval

Sri Jayachamarajendra College of Engineering Mysuru, KA, India
Bachelor of Engineering in Computer Science & Engineering Aug 2015 – May 2019
CGPA – 9.75/10.00 | **Rank #3**

ACCOMPLISHMENTS

- CSCI MS Honors & Scholarship @ USC - (May 2024)
- Presented at the Engineering Computing Technical Conference (ECTC) @ Intel - (Nov 2023)
- Awarded DRA (Department Recognition Award) for innovations in EC @ Intel - (Oct 2023)
- Recognized by Amazon Machine Learning University - Fraud Detection Challenge, Top 5 (among 200+) @ Amazon - (Oct 2021)
- Winner - Philips Hackabout 2017 - A data science challenge organized @ Philips - (Oct 2017)