

VIVEK GUPTA

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Technical Skills

Programming Language	C, C++, C#, Python, Objective-C, .NET, Java, Scala, JavaScript
Machine Learning	PyTorch, TensorFlow, NumPy, Pandas, scikit-learn, OpenCV, ROS2, NLTK
Backend	Node.js, Flask, Spring Boot, Kafka, Apache Spark, HTTP Rest, GraphQL
Database	MySQL, PostgreSQL, Neo4j, AWS DynamoDB, Redis, Elasticsearch
Frontend	React, Angular, HTML, CSS, webpack
MLOps / DevOps	Docker, Docker Swarm, Kubernetes, Jenkins, Grafana, Prometheus
Cloud	AWS EC2, AWS Lambda, AWS EKS, AWS S3, GCP Compute Engine
Other	Data Science, Data Analysis, Git, sleuthkit, XCode, GTest

Experience

Full-stack Engineer / Research Assistant

Aug 2021 – Aug 2023

Purdue University

- Collaborated with US Government Organization and designed a containerized microservices architecture deploying Digital Forensic investigation tool to mine disk images with tens of terabytes of data (Advanced version of Autopsy)
- Implemented Kafka based event-driven pipeline for analytics workflow (which mines disk images for evidence) reducing resource usage by 85% and making ingestion throughput configurable
- Created a Knowledge Graph leveraging Neo4j to establish relationships between files, leading to a 30% decrease in investigation time
- Architected an advanced value-based RL policy using invertible neural networks; driving 138% increase in returns compared to DDPG (Deep Deterministic Policy Gradient) on OpenAI gym tasks

Software Engineer II

Jul 2018 – Aug 2021

Adobe

- Built framework for Adobe's unified extensibility platform using C++, Objective-C, Python and .NET, serving in-house teams and external developers to write 300 native plugins, leading to a 22.6% increase in revenue year-over-year (\$2.88B)
- Collaborated cross-functionally to revamp code for 10+ core plugins integrating with the scalable framework powered by JavaScript engine, improving applications' launch time by 50% and enhancing user experience for 15M customers
- Led team to build 20+ reusable React native design components, resulting in 3x reduction in features' development velocity
- Orchestrated the whole lifecycle management of new sharing feature inside Illustrator within a hard 6-month timeframe
- Received special contribution award for prototyping a Photoshop dialog module, resolving critical deployment bugs

Research Intern

May 2017 – Aug 2017

Big Data Experience Lab, Adobe Inc.

- Collaborated to design a sequence model using LSTMs and NLP techniques to predict style breaches in documents
- Achieved 86% prediction accuracy surpassing the SOTA performance by 4 times, leading to the issuance of patent in US

Education

Purdue University

Aug 2021 – Aug 2023

Masters in Computer Science (Specialization in ML, Thesis in Robotics, Teaching Assistant for Statistical Machine Learning)

Indian Institute of Technology Roorkee

Jul 2014 – May 2018

Bachelor of Technology in Electronics and Communication (minor: Computer Science)

Projects

Multi-Robot Rearrangement Planning. Pioneered creation of task-and-motion-planning object rearrangement framework using vision transformers. Demonstrated exceptional results with success rate improvement of 25% (Work in review at IEEE RAL)

Dynamic Adaptation of Software-defined Networks. Developed a search-based congestion algorithm on AWS EC2 instance, leveraging an Open Source SDN Control Platform and mininet. Validated the algorithm's scalability to real-world systems

Political Bias Detection. Built a supervised learning model to detect and mitigate political bias in news articles using contextualized word2vec and sent2vec embeddings; resulting in an impressive prediction accuracy of 79.4%

Bayesian Deep-Q Networks. Implemented Bayesian Deep Q-Networks in PyTorch and conducted experiments on 8+ atari games; outperformed Double DQN in training time and better returns (by median of 300%)

Group Recommender. Deployed a group recommender model utilizing Relational Graph Convolutional Network on Google AI Cloud; achieved RMSE score of 11.43 for a movie ratings data, improving group preference estimation

Publication

Vivek Gupta, Praphreet Dhir, Jeegn Dani, and Ahmed H. Qureshi. Maner: Multi-agent neural rearrangement planning of objects in cluttered environments, 2023.

Patent

Vivek Gupta, Pranav Ravindra Maneriker, Anandhavelu Natarajan, et al. Predicting style breaches within textual content, 2020.

Leadership

- CSR Event Lead: Led an educational event for children on rights and safety, attracting 50 students and 100+ volunteers (2021)
- Technovation Mentor: Guided high school girls group in delivering an iOS mobile application (2020)
- Adobe Bootcamp Mentor: Mentored freshers in creating a C++ application and teaching industry coding standards (2020)

Awards and Recognition

- Spot Awards (2019 and 2020) by Adobe for outstanding technical contribution to Creative Suite deployments
- Best Project Award in Java and Web Technologies Boot Camp by Adobe