Pranaav Rao

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EDUCATION

Georgia Institute of Technology　　　　　　　　　　　　　　　　　　　　　Jan 2024 – Dec 2025
Master of Science, Computer Science　　　　　　　　　　　　　　　　　　　　　　GPA: 4.0/4.0
Coursework: ML for Trading, AI for Robotics, Artificial Intelligence, Natural Language Processing, Knowledge-based AI, Cognitive Science, Software Development Process, Computer Networks

Virginia Commonwealth University　　　　　　　　　　　　　　　　　　　　Sept 2019 – May 2022
Bachelor of Science, Computer Science

CERTIFICATIONS

Certified Terraform Associate, HashiCorp　　　　　　　　　　　　　　　　　　　　　Dec 2023
AWS Certified Cloud Practitioner, Amazon Web Services (AWS)　　　　　　　　　　　Nov 2022

TECHNICAL SKILLS

Languages: Python, Bash, SQL, Java, JavaScript, C　　　**AWS:** EC2, RDS, S3, EFS, Lambda, CloudWatch, IAM, CLI
IaC: GitLab, Terraform, Packer, Docker, Linux/Unix　　　**Development:** Git, PyCharm, VS Code, Vim, Jupyter
Data: NumPy, Pandas, Matplotlib, TensorFlow, Tableau　　**WebDev:** HTML5, CSS3, React, Android Studio, Swing

EXPERIENCE

Federal Reserve Bank of Richmond　　　　　　　　　　　　　　　　　　　　　Richmond, VA
Software Engineer II　　　　　　　　　　　　　　　　　　　　　　　　　　Feb 2024 – Present
- Contributed to **AWS** infrastructure for migrating ALM from on-prem to cloud, provisioning **EC2**, attaching **EFS**, and deploying a Uvicorn-based **Python** API server to support live migrations.
- Collaborated on ALM Upload API development, integrated backup/restore mechanisms, and aligned on-prem NAS storage to support all future migration efforts.
- Developed **PowerShell** script leveraging *tar* and *curl* to conduct HTTP-based transfers, migrating terabytes of data in hours with high reliability.
- Coded a **Python** validation tool to verify file mapping and integrity post-migration in minutes.
- Engineered a custom **GitLab** pipeline to run **AccelQ** test scenarios externally, decoupling test automation from the platform and expanding CI/CD integration options.
- Containerized test agents using **Docker**, improving test isolation and enabling horizontal scaling.
- Connected **RDS** PostgreSQL outputs to my custom **Tableau** dashboard for operational visibility.
- Built a pipeline to generate a Selenium Hub **Docker image**, improving grid boot time and test execution efficiency.
- Monitored test agent health, supported user onboarding, and contributed to **customer enablement** regarding AccelQ.

Software Engineer I　　　　　　　　　　　　　　　　　　　　　　　　　　Sep 2022 – Jan 2024
- Co-led a long-term initiative to automate and modernize the gold image creation process using **Terraform**, **Packer**, and Ansible to improve pipeline efficiency by 60% and reducing delivery time.
- Collaborated with Tenable, CrowdStrike, and BroadcomDCS internal teams to integrate security agents during **AMI** builds, ensuring enterprise compliance.
- Built production-grade infrastructure using **Terraform** and Postman API to publish and share AMIs across the National IT Cloud Foundation Services organization.
- Navigated deployed instance environments via **EC2**, validating configuration and troubleshooting failures using CloudWatch logs and real-time instance debugging.

PROJECTS

Stock Trading using Machine Learning
- Created an intelligent trading system using a **Random Forest** model in **Python** capable of analyzing market data and making predictions based on select indicators, achieving returns 10x higher than those generated by the benchmark.

BGP Measurements and Routing Table Analysis
- Analyzed 10+ years of BGP RIB and update data using **Python** to uncover trends in prefix growth, AS expansion, and path length evolution. Built analytics pipeline to detect Announcement-Withdrawal (AW) durations and RTBH events.

Express Cargo Shipping Database
- Designed and implemented a relational database fitted for an international shipping company alongside a 4-person team with **MySQL** Workbench 8.0 CE which was then deployed in **AWS RDS**.