

# ADITI PRABHAKAR PATIL

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## EXPERIENCE:

- Amazon**, Manhattan, NYC, USA | Software Dev Engineer, Payment Storage and Transmission Services June 2025 - Present
- **Upgraded** a core Payment Processor from **JDK 8 → JDK 17** and **AWS CDK v1 → v2**, addressing **CDK Deadly Embrace** issue during pipeline integration, **assessing migration stability within CI/CD workflows during Beta validation**.
  - Based on extensive root-cause analyses (RCA), created an **Improvement Design** outlining safer integration-testing workflows and deployment strategies for the Beta-stage environment.
  - Calibrated **CloudWatch composite-alarm** thresholds for key latency and error metrics, improving incident detection accuracy and reducing false positives during On-Call Activities.
- TechStack:** Java 17, TypeScript, AWS CDK v2, CloudFormation, AWS Step Functions, AWS Lambda, AWS CloudWatch.
- Illumio Inc.**, Sunnyvale, CA, USA | Cloud Engineering Intern, Architecture Team May 2024 - Dec 2024
- **Horizontally scaled** Redis Server for Illumio's Core Product, achieving a **30x boost** in calculation efficiency and **4x workload capacity**, while enabling high availability by developing a cross-platform orchestration tool.
  - Created **Kubernetes (K8s) deployments with Helm charts, ArgoCD, and Jenkins**, ensuring seamless CI/CD processes; developed dashboards using Azure Data, KQL, and Grafana for actionable insights and monitoring.
  - Replaced polling mechanisms with a **distributed, real-time** policy synchronization system by adding a **Java** microservice to existing architecture, **using message queues, and Kafka**, enhancing consistency, reliability, and efficiency.
- TechStack:** Java, Python, Ruby, Redis, Linux, PostgreSQL, KQL, Kubernetes(K8s), ArgoCD, Helm, Microsoft Azure, Kafka, Lua, Grafana.
- Citigroup Inc.**, Pune, India | Application Developer July 2021 - Aug 2023
- Transitioned from a monolithic swap reporting system to a **microservices-based architecture** using **Java, Kotlin, and Kubernetes**, **increasing accuracy by 97%** and integrated cloud storage technologies like Amazon S3 for low-latency delivery of reports.
  - **Developed a Data Lineage Application** to automate **report generation from Talend Job metadata**, ensuring **data integrity and governance** using **Java Design Patterns**.
  - Built monitoring dashboards in **Kibana** and **analyzed trade data with ElasticSearch**, enhancing **data observability** and **operational insights**.
  - **Optimized ETL workflows** by migrating **Scheduling Applications to Angular 12, Spring Boot, and REST APIs**, while managing **cloud storage (Amazon S3) and CI/CD pipelines (Jenkins, Kubernetes) for automated deployments**.
- TechStack:** Java, Kotlin, Spring Security, SpringBoot, Maven, Gradle, Angular, Kubernetes, Jenkins, RedHat OpenShift, ElasticSearch, uDeploy
- Nife Labs Pte Ltd**, Singapore | Machine Learning Researcher June 2020 - Apr 2021
- Developed and optimized **deep learning models** for **robotic machine learning applications**, achieving **70% latency reduction** through **AI acceleration** and **model compression** using **Intel OpenVINO**.
  - Implemented **real-time object recognition and classification systems** using **YOLOv3**, improving performance in **autonomous robotic workflows** with **computer vision** and **edge-based inference**.
- TechStack:** Edge/Cloud Computing, Python, Golang, OpenVINO, AWS, Raspberry Pi, IoT, Computer Vision, Robotics, OpenCV.
- Tata Communications Limited**, Pune, India | Network Intern May 2019 - July 2019
- Assisted in 'Internet Leased Lines (ILL) Migration over MPLS' by **configuring VLANs and enhancing IP/TCP communication** across network layers, while providing efficient troubleshooting and reconfiguration support for ILL customers.
- TechStack:** IPv4, IPv6, TCP, MPLS, VLANs, CLI, SSH, Tectia.

## EDUCATION:

- San Jose State University, San Jose, CA** | Masters in Software Engineering Aug 2023 - May 2025
- Coursework:** Distributed Systems, Enterprise Software Platforms, Data Mining, IoT, Application Development, Security **GPA: 3.8**
- Cummins College of Engineering for Women, India** | B.Tech in Information Technology Aug 2017 - May 2021
- Coursework:** ML, AI, NLP, Information Retrieval, Big Data and Analytics, Object-Oriented Programming, Design Patterns, Data Structures and Algorithms, Computer Networks, Cloud Computing, Computer Architecture, DBMS. **GPA: 8.81**

## TECHNICAL KNOWLEDGE:

**Languages:** Java, Python, Kotlin, Bash, C, C++, Go, HTML, Javascript, SQL, TypeScript, Ruby, Lua.

**Libraries and Frameworks:** Spring Boot, Spring MVC, Spring Security, Hibernate, JPA, JUnit, Angular, React, Flask, Selenium, Cucumber, Node.js, Redux.

**Database and Data Science:** RDBMS, MySQL, PostgreSQL, NoSQL, MongoDB, Redis, Tableau, Kibana, Grafana.

**DevOps:** Jenkins, Kubernetes (K8s), Docker, AWS, S3, ElasticSearch, Maven, Gradle, Docker, RedHat OpenShift, SSH, ELK, IaaS, SaaS, GCP.

**Technologies:** IPv4/IPv6, TCP/IP, WebSockets, SOAP, REST APIs, Linux, Git, Computer Vision, OpenCV, Prometheus, Agile, Scrum, GraphQL, Apache Kafka.

**ML & AI:** LLMs, TensorFlow, Keras, OpenCV, Deep Learning, NLTK, SpaCy, PyTorch, Scikit-Learn, Numpy, NLP, Numpy, Pandas, MATLAB, Simulink.

**Certifications:** CCNA: R&S (Introduction to Networks, Routing & Switching Essentials).

**Other Skills:** Problem-solving, Time Management, Mathematics, Critical Thinking, Research, Interpersonal Skills, Writing & Verbal Communication.

## PROJECTS:

- Financial Analysis Application - Ledger Alchemy (Fullstack Web Application)**
- Developed a **FinTech portal** for analyzing multi-bank transactions with **advanced data analysis and dashboards**, boosting financial management and decision-making. Developed **Web Services and microservices** for scalable Cloud Infrastructure following Agile in SDLC.
  - Incorporated Machine Learning for **91% accurate user goal predictions**, secured using **Single Sign-On (SSO) and Multi-Factor Authentication (MFA)**. Deployed on **Oracle Cloud** via Docker for optimal scalability and reliability.
- TechStack:** RESTful APIs, CI/CD pipelines, Distributed Systems, Node.js, Express, React, Redux, MySQL, Tableau, Docker, Rabbit MQ.
- Natural Language Processing for Indian Sign Language (Received \$16000 grant from IBM)**
- Developed an **Attention-based Encoder-Decoder model with LSTMs** to translate Indian Sign Language (ISL) into English, achieving a BLEU score of 32% with a custom dataset of 400 instances and a 1,000-word vocabulary. Integrated it into a UI-based tool enabling accessibility for verbally impaired users.
- TechStack:** Python, Matplotlib, Sklearn, NLP, Deep Learning, HTML5, CSS3, Bootstrap, Flask.