

Arpan Rakesh Patel

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WORK EXPERIENCE

Software Developer Engineer | *Credit Acceptance* **Jan 2025 - Present**

Go, Python, Java, Docker, SQL, Kubernetes, REST APIs, Microservices, GitHub Actions *(Remote) Southfield, MI*

- Architected new **Go** microservices to eliminate overhead, achieving **30% faster** execution for core backend processes.
- Revamped bottleneck **SQL queries and stored procedures** in Oracle using Liquibase, reducing response time by 40%.
- Migrated complex legacy codebase to Java reducing third-party reliance, and enabling **\$2M cost savings**.
- Optimized monolith with **caching, parallelism, and retries**, reducing latency by 35% and boosting throughput.

Software Developer Intern | *Credit Acceptance* **May 2024 - Aug 2024**

Django, Python, Java, Docker, Kubernetes, REST APIs, Microservices, GitHub Actions *(Remote) Southfield, MI*

- Developed and maintained REST APIs, enhancing system interoperability by 30% and ensuring robust **performance**.
- **Containerized** 20+ applications using Docker, improving deployment speed and enhancing system efficiency.
- Orchestrated microservices on Kubernetes and AWS, increasing application throughput by 50% while optimizing costs.

Co-founder and Software Developer | *Scudo Systems LLP* **Jul 2019 - Jul 2022**

Python, Raspberry Pi, IoT, APIs *Ahmedabad, India*

- Developed a **custom software system** to provide **real-time tracking** monitor devices which had 90% accuracy.
- Restructured **GPS algorithm** which provides 10-meter radius accurate location and improves tracking efficiency.
- Conducted **extensive testing and debugging** for bug-free software with 40% faster response time.

ACADEMIC PROJECTS

Distributed Key-Value Store Server | *Distributed Systems Application*

Tech Stack: Java, UDP, TCP, Triggers, Socket programming, Multithreading

- Supported **UDP and TCP** communication protocols, allowing seamless client-server interaction with a 98% success rate.
- Utilized hash map, for **efficient storage** and retrieval up to 10,000 key-value pairs with an average access time of 5 ms.

Scalable RAG-based Information Retrieval System | *GenAI Platform*

Tech Stack: LangChain, Pinecone, Redis, Kubernetes, Docker, Python, SQL

- * **Engineered a GenAI platform** utilizing a high-throughput RAG pipeline and **Redis semantic caching** to minimize LLM latency and maximize infrastructure efficiency.
- * **Architected scalable RAG infrastructure** with **LangChain and Pinecone**, orchestrating Kubernetes microservices to support 100+ concurrent sessions and semantic search over 50,000+ documents

PageRank Implementation | *Spark and MapReduce*

Tech Stack: Apache Spark, Hadoop, Scala, AWS EC2, AWS EMR, MapReduce, RDD, DataSet

- * Implemented **PageRank algorithm** from scratch using BFS with **10 iterations** for k=10,000 demonstrating scalability.
- * Experimented with **cache()** and **persist()** methods to optimize execution behavior and performance.
- * Implemented a solution to address memory issues by incrementally **building the graph** to fit into available memory.

TECHNICAL SKILLS

Programming Languages	: Java, Python, C++, SQL, Swift, TypeScript, Scala, GoLang
Development & Database	: MySQL, Django, MongoDB, HTML, CSS, Flask, Android, FireBase
Tools & Topics	: OOP, Linux, IoT, Restful API, Kafka, Spark, Hadoop, Java Networking, Shell Scripting
AI & Data Platforms	: LangChain, Vector Databases (Pinecone, Milvus), Redis Semantic Cache, Ollama
Cloud & DevOps	: Docker, Jenkins, Git, GitHub Actions, GCP, Kubernetes, AWS, Microservices

EDUCATION

Northeastern University | Master of Science in Computer Science **Sep 2022 - Dec 2024**

Courses - Programming Design Paradigm, Building Scalable and Distributed Systems *Boston, MA*

Sardar Vallabhbhai Patel Institute of Technology | B.E in Information Technology **Jul 2017 - Jul 2021**

Courses - Analysis and Design of Algorithms, Software Engineering, Database Management System *Vasad, India*

PROFESSIONAL ACCOMPLISHMENTS

- * Chapter Lead of **Mozilla Campus Club** at our campus, co-organized **Flutter Vadodara**, served as trusted **Mozilla Rep**.
- * Published **research paper** "Parkup" as co-author in International Research Journal of Engineering and Technology.
- * Contributed to **OpenSource** development of the Flutter Shortcut Widget via "Adopt a Widget" campaign on GitHub.