

# SUDIPTA BANIK

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## PROFESSIONAL PROFILE

Seeking Senior Software Engineer (Backend) roles to build reliable platforms for millions of users globally. 6+ years experience with supply chain visibility at FourKites and fintech products at Grab (microservices, distributed systems, event-driven architecture in Go/Java), plus batch compute platform managing thousands of nodes and batch workloads on Apache stack at Uber.

## PROFESSIONAL EXPERIENCE

### UBER

Oct 2024 – Present

Software Engineer (L4) | Batch Compute Team

Bangalore, India

- **Automated cluster fault isolation:** Implemented a Resilience4j fault-tolerance layer for Hadoop YARN Router, integrating **Circuit Breaker and Retry patterns** for yarn resource manager RPC calls. This added **per-cluster isolation** to prevent cascading failures during Resource Manager outages. Automated failure detection and recovery, **reducing manual intervention time from 15 minutes to under 60 seconds**.
- **Engineered a Kubernetes admission policy** that protected available cluster capacity during disaster recovery. By using **ConfigMap-based controls**, It rejected the **low-tier applications (7% of total concurrent volume of 600K)** that were bypassing upstream controls, ensuring high-tier workloads run with **full capacity during zone outages**.
- **Optimized scheduling in YARN Federation** by moving application id generation to the Router and enforcing submission-time ordering. This **eliminated Resource Manager specific ID conflicts** and one RPC per submission, **preventing priority inversion and reducing out-of-order scheduling delays by 20 seconds** in smaller clusters.
- **Cluster federation management CLI:** Designed and deployed a yarn router federation feature to **instantly detach problematic sub-clusters** via a dedicated ZK runtime state, preventing cascading failures to other clusters and timeouts for upstream clients. This solution ensures the detached cluster doesn't receive RPC calls even if the cluster's Resource Manager restarts and re-registers with the router, ensuring the **blast radius is contained during incidents**.
- **Mitigated host instability** by collaborating with the foundations team to implement **strict memory reservations for critical host agents**, such as SSH. This **prevented OOM kills** and subsequent host unreachability during periods of high memory pressure from intensive YARN applications, ensuring **infrastructure persistence under heavy load**.
- **Enhanced the internal K8s application listing page** with features such as job search by job id, colour shading for resource usage etc **improving operational visibility**.

### GRAB

Senior Software Engineer

Aug 2023 – Oct 2024

Lending Core Team

Bangalore, India

- Contributed to redesigning the loan eligibility processing engine from a bi-weekly batch process to an **event-driven system triggered by real-time driver activity**. This **eliminated data lag** and **redistributed the processing load for millions of drivers across five markets, reducing peak database demand by approximately 30% and increasing loan product adoption**.
- Optimized loan creation API performance by implementing **MySQL batch inserts** for instalment processing, **reducing p95 latency by 40%**. The reduction in network round-trips and lock acquisitions **improved throughput during high-concurrency database writes**.
- Developed a **scalable data aggregator** consuming 5+ internal APIs to facilitate banking partnerships; optimized for **sub-second latency** and implemented **partial response logic** to ensure **high system availability**.
- Enhanced an internal **retry framework** built on top of a Kafka connector, enabling **message re-queuing for reprocessing** during application shut-down to **prevent data loss**.
- Mentorship: Facilitated **codebase deep-dives and technical onboarding** for new hires to accelerate team integration.

**Software Engineer**  
*PayLater Team*

Oct 2021 – Aug 2023  
Bangalore, India

- Designed the **BNPL Refund API** to support Grab's expansion into Indonesia. Successfully **scaled the service to 10% of the country's user base** during the initial launch phase. Integrated **idempotent design and state machine logic** to automate error recovery and complex refund flows.
- Developed a **tiered service fee engine** for the Indonesia BNPL rollout. Orchestrated changes across **real-time Charge APIs and batch billing systems** to calculate **usage-based fees**. Integrated **slab-rate logic** and ensured fee charges during initial monthly transaction.
- Created **low-level design for a credit risk checker module**, featuring configurability, and developed an API client for **country specific credit bureau integration**, collaborating with product management and external credit bureau.
- Designed and implemented a **robust lending credit score API**, integrating data from multiple internal services. Drove discussions with internal data-science team and product teams, ensuring **adherence to API design and security best practices**.
- Collaborated in cross-service **technical debt reduction**, including a Go version migration and **full go mod adoption**. Improved **build pipeline speeds by 18%** and **reduced container image sizes**. Executed a comprehensive refactor that **increased unit test coverage by 20%** and ensured strict **clean-code adherence**.
- Awarded "**The Grab Way Award**" in 2023 for engineering excellence in BNPL project.

## **FOURKITES INC.**

*Software Engineer | Multimodal Supply Chain Visibility Team*

Jun 2019 – Oct 2021  
Chennai, India

- Designed and implemented a **scalable API response caching system** for generic tracking data, utilising **Redis** to **efficiently store and retrieve responses for 50,000+ ocean shipments** across 10+ ocean carriers. Successfully **containerized, deployed, and tested** the system. Later adopted by rail and air shipment teams, expanding its use.
- Designed an **asynchronous Kafka-based pipeline** to enrich maritime ETD events by **integrating distributed microservices** into a **unified callback payload**, decoupling ingestion from enrichment to ensure **high-throughput delivery of real-time shipment updates**.
- **Port Address Autocomplete API**: Developed global port autocomplete APIs using **composite indexing** on various granularity levels to achieve **sub-second search response times**.
- **Conceptualized and oversaw the development of an internal tool** for creating shipment tracking events, mentoring an intern, and **boosting QA productivity**. **Reducing tracking event testing time by 20mins**.
- **Integrated ocean-specific features into common shipment cloning module** to streamline new client demonstrations. This enhancement enabled tailored, **domain-specific data replication**, improving the **accuracy and impact of the sales engineering process**.

## **EDUCATION**

**Bachelor of Engineering (Electrical Engineering)**  
**Jadavpur University, Kolkata, IN**

Aug 2015 – May 2019

*Related Coursework: C++, Data Structures & Algorithms, Computer Networks, Signals & Systems, Engineering Maths*

## **TECHNICAL SKILLS**

- **Languages:** Go, Java, SQL, C++, Python
- **Infrastructure:** Kubernetes (K8s), Apache YARN, Docker, AWS, GCP
- **Backend & Messaging:** Kafka, Redis, PostgreSQL, MySQL, Aerospike, ElasticSearch
- **Tools/Frameworks:** Spring Boot, Datadog, Jenkins, Git

## **LANGUAGES**

**English:** Full Professional Proficiency    **Bengali:** Native