# Rupesh Kumar

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## Skills

**Programming & Query Languages:** Python, Golang, SQL, GraphQL

**Technologies, Tools & Techniques:** Docker, RabbitMQ, AWS (EC2, S3, SQS, Lambda, Athena, RDS), TensorFlow, Scikit-learn, Git, CNN, Image-Processing

**Databases & Table Formats:** SQL (MySQL, PostgreSQL), Redis, Apache Iceberg

**Observability:** Distributed Tracing, Log Aggregation, Real-Time Alerting (PagerDuty), APM (New Relic, Dynatrace)

## Work Experience

**Sandvine Technologies (Applogic Networks), Bangalore**                                   March 2025 - Present

*Software Development Engineer - 2*

- Building Insights Data Storage for AppQOE and Classification of The Network Traffic Data along with the Control Plane and Data Plane.
- Python, SQL, Pytest, Columnar Storage Vertica Database.

**Sling Media, Bangalore**                                   July 2022 - March 2025

*Software Development Engineer*

- Enhanced Sling TV's shared metadata server performance by implementing an optimized filtering mechanism using Golang, GraphQL, and Consul — reducing latency and server load for Video Ribbons and Tiles, and ensuring a seamless experience for **2M+** subscribers during **high-traffic VOD operations**.
- Designed and built modular image metadata services (Ribbon, Tiles, EPG) using Golang, gRPC, and Apollo Federation GraphQL — powering real-time content discovery for **Sling's OTT** platform with 750ms GET latency (95% SLO) and <4% error rates (100% SLO).
- Optimized video management workflows by decoupling media clip and processing flows (Flask, Django, RabbitMQ), containerizing with Docker — reduced deployment time by 30% and accelerated background task processing.
- Implemented a scalable channel health monitoring system aggregating multi-source stream metadata, computing segment anomalies, and storing results efficiently in S3 using Apache Iceberg, enabling real-time diagnostics and proactive issue detection via PyIceberg.
- Django, Flask, Gin, Echo, Mux, AWS (EC2, S3, Lambda), Kafka, Docker, MySQL, gRPC, Protocol Buffers, Apollo Federation GraphQL, PgBouncer, RabbitMQ, Celery, Flower, Elasticsearch, Consul, Redis.
- Prometheus, Grafana, OpenTelemetry, Kibana, AWS CloudWatch.

**Shipx, Bangalore**                                   Jan 2022 - July 2022

*Software Development Engineer Intern*

- Implemented indexing and partitioning on a MySQL database to optimize query performance, prepared data using SQL for Metabase integration, and embedded reports into a Ruby on Rails web module.
- SQL, Http, REST API's, Ruby-on-Rails.

## Education

**IIIT Dharwad**                                   Aug 2018 - Jun 2022

B.Tech in Computer Science and Engineering

Relevant Coursework: Object Oriented Programming (OOPs), Databases, Data Structures and Algorithms, Operating Systems, Computer Networks, Machine Learning, Advance Data Structures and Algorithms.

## University Project Work

- **Federated Learning Secure Aggregation (2022):** GitHub Link
  Implemented cross-silo federated learning system to train models on client devices and update on a central server, experimenting with hyperparameters for convergence (alpha = 0.01 took days, while 0.03 and 0.05 converged faster), utilizing the MNIST dataset. Explored Federated optimization in heterogeneous networks.
- **Image Captioning Using Sequence Model (2021):** GitHub Link
  Enhanced Image Captioning using a Sequence Model, achieving a 20% higher accuracy through attention mechanism integration and beam search (k=3) on the Flickr-8k dataset. Utilized BLEU score for comparison and implemented early stopping when the end of the sequence was detected.
- **Cost-Optimized Routes in Delivery Networks (2021):** Live Demo
  Applied Dijkstra's shortest path algorithm to find the route which takes the shortest time to travel from source to destination in a given delivery network.

## Certificates Leadership and Volunteering

- Machine Learning and Deep Learning Specialization on Coursera.
- **Flood Relief Dharwad(August 2019):** Led a team of 80 volunteers for flood relief operations in the Dharwad region under a CSR initiative. Coordinated efforts to distribute resources and provide assistance in the presence of Sudha Murthy (Chairperson, IIIT Dharwad Board Member).