Tavneet Singh

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Summary

Experienced backend engineer with a MSc. in Computer Science specialising in Big Data Engineering, with an interest in databases, backend development and stream processing systems. Looking to apply my industry and research experience to a company solving big data problems.

Experience

Centrum Wiskunde & Informatica, Amsterdam

Research Intern   *Feb 2021 - May 2022*

- **Database Architectures Group**
  - Architected support for the new **SQL/PGQ** extension (part of SQL:2023) in CWI Database Architectures' *DuckDB*.
  - This enabled graph queries and the Kleene star operator on a relational database, making it one of the first databases to have this feature.
  - Outcome of this work was a **paper submitted to CIDR 2023**.

Flipkart, India

Software Development Engineer   *Dec 2016 - Nov 2018*

- **Notifications Team**
  - Onboarded **Whatsapp** as a communication platform to send order updates and invoices. This added a new avenue of outgoing communication besides SMS, email, push and pull notifications to a system that notified **100 million+ users**.
  - Worked on sending push and pull notifications, onboarded a new SMS provider (responsible for **10% of outgoing traffic**) by creating a state machine and set up the team's Kafka manager.
- **IaaS Team** -
  - Worked on the backend of instance life cycle manager removing manual provisioning touchpoints, and planned maintenance scheduler.
  - Both systems were used across two data centres managing the entirety of Flipkart's in-house cloud (**20000** instances).
  - Involved in weekly on-calls to debug system wide alerts on application teams' instances.

Amazon, India

Software Development Intern   *Jan. 2015 - July 2015*

- **Amazon Trade Services Team** -
  - Designed and implemented the customs records document storage on a NoSQL database and worked on a data transformation service from NoSQL to SQL for the analytics team.
  - The project was estimated to save around **$2 million** per year in brokerage savings and helped in mitigating any potential customs penalties.

Skills

Languages: C++, Python, SQL, Java, Scala
Technologies: MySQL, Git, Kubernetes, CLI, Shell, Docker, Puppet, Jenkins, Hadoop, Spark

Education

MSc Computer Science (Big Data Engineering Track)   **GPA: 8.2**

Vrije Universiteit Amsterdam   *Sep 2019 - Aug 2022*

Courses - Large Scale Data Engineering, Distributed Systems, Distributed Algorithms, Software Containerisation, Data Mining

Bachelor of Technology, Computer Science   **GPA: 7.45**

Indraprastha Institute of Information Technology, Delhi   *Aug 2012 - Jun 2016*

Courses - Theory of Computation, Program Analysis, Discrete Mathematics, Analysis and Design of Algorithms, Compilers

Projects

Evaluation of Video Conferencing Systems   *Nov - Dec 2020*

Created a dockerised tool for comparing system metrics of video conferencing systems - Zoom, Microsoft Teams and Jitsi. **Paper presented at HotCloudPerf21**.

Kadaster Polygons   *Oct 2020*

Merged and cleaned Dutch **Kadaster (18 GB)** and LiDAR point cloud data **(1.2 TB)** on **Databricks** sheets to generate and visualise 3D polygons of buildings in major Dutch cities as a static website.

Expedia Challenge Hotel Ranking   *May 2020*

Ranked the hotels appearing on Expedia 2015 search queries based on the probability of them being clicked and booked. Used the entire data science pipeline from data cleaning to applying different models with hypertuning parameters.