ARSHDEEP SINGH

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EDUCATION

M.S. Computer Science (Thesis), University of Texas at Arlington, **GPA 3.9/4.0** Expected Fall 2023
Thesis: Substructure Discovery in Homogeneous Multilayer Networks
Relevant Coursework: Database Systems, Cloud Computing, Data Mining
B.E. Electronics and Communication Engineering, Thapar University, **GPA 3.0/4.0** 2014 - 2018

PROGRAMMING SKILLS

Languages Java, Python, Scala, SQL, JavaScript
Technologies Nodejs, Hadoop MapReduce, Spark, Pandas, NetworkX, Tableau, AWS

PROFESSIONAL EXPERIENCE

Software Developer July 2018 - July 2021
Cadd Primer *Chandigarh, India*

- Worked on data science projects to clean and process data, perform statistical analysis and build predictive models, resulting in better business insights for clients in industries such as manufacturing, healthcare and education.
- Developed and maintained IoT projects involving sensors, microcontrollers and cloud platforms such as AWS IoT, resulting in improved automation and efficiency for clients in manufacturing and logistics.
- Worked with database management systems (DBMS) such as MySQL, Oracle to store and retrieve data, and helped create the database schema according to clients' business needs.
- Participated in code reviews and contributed to documentation of various projects, creating user manuals, API documentation and technical guides.

ADDITIONAL EXPERIENCE

Student Researcher Jan 2022 - Present
IT Lab, University of Texas at Arlington *Arlington, TX*

- Conducted research on big data analysis,NoSQL databases and data mining in Multilayer Networks.
- Performed optimisations on existing substructure discovery algorithms over very large graphs, achieving 50% increase in performance and a 25% reduction in server resource usage.
- Contributed to academic publications on scalable data mining techniques, with one paper currently submitted for review.

Graduate Teaching Assistant Aug 2022 - Present
University of Texas at Arlington *Arlington, TX*

- Assisted the professor in teaching graduate level courses in computer science(CSE-5330 Database Systems and DASC-5300 Foundation of Computing) and led tutorial sessions to reinforce course material and clarify concepts.
- Received positive feedback from students for clear communication and effective teaching methods.
- Gained experience in organization and time-management skills, as well as adapted to different learning styles of students. Also received graduate education grant twice, totalling to $16000.

PROJECTS

Thesis: Substructure Discovery in Homogeneous Multilayer Networks Designed and implemented a novel algorithm for discovering frequent itemsets in a Homogeneous Multilayer Network using a decoupling based approach. The algorithm was implemented using the map-reduce paradigm on Hadoop.

RideShare Web Application using AWS Created a serverless web application that allowed users to request rides. The application included an HTML-based user interface for specifying pickup locations, and a RESTful backend service that handled ride requests and notified nearby drivers.

Motor Vehicle Collisions Designed and implemented a data pipeline that processed and analyzed a large dataset containing all motor vehicle collisions in New York City. Python, Pandas and NumPy were used to clean and preprocess the data. Tableau was used to visualize the data and generate charts to extract insights into the factors contributing to traffic accidents.

Hotel Reservation System Developed a reservation system, database and a web application, where users could check availability and reserve rooms. Implemented data validation and verification processes, reducing data errors by 90%, and developed stored procedures and views to support complex data queries, while optimizing the query time for common queries.