AMBAREESH JAYAKUMARI

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EXPERIENCE

Software Engineer

ThoughtSpot - Database Team

Aug 2020 – Present

1. Count Distinct Query Optimization
   - Optimized Count Distinct operation for queries on tables sharded on aggregation-key(s)
   - Achieved 5X execution speed up and up to 10X network transfer reduction, for queries on tables with more than 250 Mn rows
2. Distributed Grouping Query Execution
   - Designed and implemented a distributed shuffle operation which split Group-By workloads optimally among the query execution nodes in the system
   - The project helped prevent Out-of-Memory (OOM) crashes on heavy-duty Group-By queries on tables with more than 0.5 Bn rows

Associate Engineer

Qualcomm - Modem System Software Team, LTE Data

July 2017 – July 2018

- Ported and improved legacy automation code from Perl to Python, leading to faster (5X) testing of legacy features on medium-tier chipsets
- Conducted LTE feature tests for premium-tier Qualcomm Snapdragon™ chipsets, resulting in 11 Change Requests

PROJECTS

Python Module for Missing Data Completion

West Health Institute - Data Science Team

- Developed open-source Python module based on Deep Denoising Autoencoder & solved the Missing Data problem (MCAR)
- Achieved faster (10X on average) and reliable performance, compared to state-of-the-art imputation methods
- Tested on 12 datasets from the UCI ML Repository

Tool Tracking for Robotic Surgical System

UCSD Advanced Robotics & Controls Lab

- Co-developed *SuPer Deep* - Surgical Perception framework for robotic tissue manipulation using Deep Learning for feature extraction
- Corrected for inaccuracies in joint angles, initial calibration & kinematic errors to obtain accurate marker-less tool tracking for the da Vinci surgical robot
- Utilized ResNet based CNN to extract accurate (91%) feature points for tracking robotic tool arms in real-time

EDUCATION

Machine Learning & Data Science (Master's)

University of California San Diego, USA

June 2020 CGPA 3.5/4

Electronics & Instrumentation (Bachelor's)

Birla Institute of Technology & Science Pilani, India

June 2017 CGPA 8.1/10

SKILLS

Python | C++ | Go | Java | SQL | PyTorch | Docker | Kubernetes | Git | Vim

COURSES

- Intro to Database Systems
- Programming for Data Analysis
- Sensing & Estimation in Robotics
- Neural Networks & Deep Learning
- Web Mining & Recommender Systems

PUBLICATION

IEEE International Conference on Robotics and Automation (2021)

SuPer Deep: A Surgical Perception Framework for Robotic Tissue Manipulation using Deep Learning for Feature Extraction

POSITIONS

- **Research Assistant** Surgical Robotics, Advanced Robotics & Controls Lab UCSD
- **Teaching Assistant** Programming for Data Analysis, ECE Department UCSD

PURSUITS

Short Stories
ambreezesj.wordpress.com