

SUPUN ABEYSINGHE

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EDUCATION

Purdue University

West Lafayette, IN

M.S. in Computer Science - GPA 4.0/4.0

Dec' 22

Relevant Courses: Operating Systems, Algorithms, Compilers, Database Systems, Distributed Systems

University of Moratuwa

Sri Lanka

B.Sc Engineering (Hons) (Computer Science & Engineering)

Dec' 18

First Class Honours - GPA 4.06/4.20

SELECTED PROJECTS

- Efficient Incrementalization of SQL Queries with Nested Aggregates:** Building novel tree-based index structures to improve the incrementalization efficiency of nested-aggregate queries by **up to 1000x** over the state-of-the-art
- Optimizing End-to-end Data Science Pipelines:** Leveraging generative programming techniques to accelerate combined data processing and ML workloads. Observed **speedups up to 20x** in end-to-end performance (**Scala, C++, CUDA**)
- Graph Query Compilation:** Extending relational query compilation techniques based on generative programming to support compilation of graph queries, achieving **an order of magnitude speedup** compared to interpreted engines (**Scala, C++**)
- Server Parameter Auto-tuning using Machine Learning (2019):** Leveraging ML based optimization techniques to dynamically auto-tune server parameters to enhance runtime performance (**Java, Python, PyTorch**)
- Social Media Analytics Platform (2018):** A platform for automatically extracting information related to a particular entity (e.g., restaurant reviews from multiple sources) and performing various types of analysis (emotion detection, aspect-based sentiment analysis, trending topics and evolution of them, etc.) (**Python, PyTorch**)

EXPERIENCE

Graduate Research Assistant, Purdue University

May 2020 - Present

- Research on using runtime code generation techniques to build efficient data analytics and ML systems. Lead two research projects resulting in two paper submissions so far (both still in submission, awaiting reviews)

Software Engineer (Research), WSO2 Inc. Sri Lanka

Jan 2019 - July 2019

- Was part of the research team, working on utilizing ML techniques to auto-tune server configurations dynamically. Co-authored one publication that was published in ISCC '19

Research Intern, StatNLP Lab, SUTD Singapore

Jun 2017 - Dec 2017

- Was responsible for testing and fixing bugs of the StatNLP framework by implementing several traditional ML models

SELECTED PUBLICATIONS

- Architecting Intermediate Layers for Efficient Composition in End-to-End Data Science Pipelines**
(in submission)
- Sentylic at IEST 2018: Gated Recurrent Neural Network and Capsule Network Based Approach for Implicit Emotion Detection**
At Workshop on Computational Approaches to Subjectivity and Sentiment Analysis (held with EMNLP) (2018)

TECHNICAL SKILLS

- **Programmign Languages:** Scala, Java, Python, C, C++
- **Systems and Libraries:** Spark, Flink, PyTorch, Tensorflow, CUDA, LLVM;
Prior Experience - Spring Boot, Angular, Node.js

SELECTED AWARDS

- **Competitive Programming:** IEEEExtreme v12.0 (2018) - Country Rank 1st Global Rank 60th (top 2%), IEEEExtreme v10.0 (2016) - Country Rank 3rd Global Rank 106th (top 5%)