Menuka Warushavithana

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Education

Ph.D. in Computer Science (On-going) Jan. 2020 – Dec. 2024
Colorado State University, Current GPA: 4.0/4.0 *Fort Collins, CO, USA*

MS in Computer Science Jan. 2020 – Dec. 2021
Colorado State University, GPA: 4.0/4.0 *Fort Collins, CO, USA*

- Main areas of study: Distributed Systems, Big Data, Blockchain, Machine Learning

B.Sc.Engineering (Hons.) in Computer Science & Engineering Nov. 2014 – Dec. 2018
University of Moratuwa, GPA: 3.52/4.2 *Moratuwa, Sri Lanka*

Technical Skills

Languages: Java, Python, PHP, Go (GoLang), JavaScript, C, HTML5/CSS
Frameworks: Hadoop MapReduce, Apache Spark, JUnit, Mockito, Vue.js, React.js, Laravel
Libraries: gRPC, JAX-RS, Java NIO, Netty, Pandas, Numpy
Databases: MySQL, MongoDB
Developer Tools: Git, Maven, Gradle, Docker

Software Engineering Experience

Software Engineer Jan. 2019 - Jan. 2020
WSO2 *Colombo, Sri Lanka*

- Worked as a member of the WSO2 Enterprise Integration Team (Research and Development division)
- Developed a command-line client tool using *Go* for the WSO2 Micro Integrator (which is a cloud-native Enterprise Service Bus)
- Improved the performance of the HTTP Transport Service of WSO2 Enterprise Integrator by roughly 3 times the initial values (using the network application framework *Netty*)

Intern Software Engineer Jun. 2018 - Dec. 2018
WSO2 *Colombo, Sri Lanka*

- Developed a command-line tool for migrating APIs (protected with OAuth 2.0) between different WSO2 API Manager environments, thereby improved the user experience of WSO2 API Manager
- Technologies used: Go, Java, YAML, HTTP, REST, OAuth 2.0
- Project URL: http://bit.ly/wso2-apimtooling
- Contributed to the WSO2 API Manager Core

Research Experience

Graduate Research Assistant Jan 2021 - Present
Colorado State University *Fort Collins, CO, USA*

- Conducted research on containerizing machine learning workloads using Docker and Kubernetes
- Implemented Machine Learning tasks using Apache Spark and Scikit-Learn
- Utilized Kubernetes and Docker for workload orchestration

Graduate Research Assistant Summer 2020
Colorado State University *Fort Collins, CO, USA*

- Spearheaded the development of a geospatial query service for multiple datasets (including data from U.S. Census Bureau, FEMA, etc. (over 1TB of data)
- Implemented the query service to support queries based on geometry and predicate logic
- Managed a MongoDB cluster spanning 50 nodes
- Developed an interactive web application to visually construct geospatial queries
- Technologies Used:
  - Backend: Java, Gradle, gRPC, MongoDB
  - Frontend: Vue.js, Leaflet.js
- Project repositories: https://github.com/Project-Sustain/sustain-query-service, https://github.com/Project-Sustain/sustain-dataset-explorer

Projects

Routing Packets Within a Structured Peer-to-Peer (P2P) Network Overlay | *Java, Gradle* Spring 2020

- Class assignment for CS455 Introduction to Distributed Systems (at Colorado State University) (http://bit.ly/cs455-hw1)
- Constructed a logical overlay over a distributed set of nodes
- Used partial information about nodes within the overlay to route packets

Scalable Server Design | *Java, Java NIO, Gradle* Spring 2020

- Class assignment for CS455 Introduction to Distributed Systems (at Colorado State University) (http://bit.ly/cs455-hw2)
- Implemented a thread pool to be used by the server
- Implemented the server with the ability to establish connections with multiple clients (100+) at once
- The server was able to send and receive data through these links
- Additionally, the server was capable of organizing data into batches and improve network performance

Automatic Identification of Legal Arguments | *Java, Python, MySQL* Jan. 2018 - Dec. 2018

- Senior year research at University of Moratuwa
- Developed research methodologies to intelligently identify legal arguments by parsing legal documents
- Created datasets using publicly available transcripts of court cases from the U.S. Supreme Court
- Concepts based on Machine Learning, Natural Language Processing, Information Retrieval, and Computational Linguistics were used
- (Publications related to this project are included in the PUBLICATIONS section)

Publications

- Ratnayaka, G., Rupasinghe, T., de Silva, N., **Warushavithana, M.**, Gamage, V. S., Perera, M., & Perera, A. S. (2019). Classifying Sentences in Court Case Transcripts using Discourse and Argumentative Properties. ICTer, 12(1).

- Ratnayaka, G., Rupasinghe, T., de Silva, N., Warushavithana, M., Gamage, V. and Perera, A.S., 2018, September. Identifying relationships among sentences in court case transcripts using discourse relations. In 2018 18th International Conference on Advances in ICT for Emerging Regions (ICTer) (pp. 13-20). IEEE.

- Gamage, V., **Warushavithana, M.**, de Silva, N., Perera, A. S., Ratnayaka, G., & Rupasinghe, T. (2018)..“Fast Approach to Build an Automatic Sentiment Annotator for Legal Domain using Transfer Learning”. In : 9th Workshop on Computational Approaches to Subjectivity, Sentiment & Social Media Analysis, held in conjunction with EMNLP 2018 Conference.

- Ratnayaka, G., Rupasinghe, T., de Silva, N., Gamage, V. S., **Warushavithana, M.**, & Perera, A. S. (2019).“Shift-of-Perspective Identification with in Legal Cases”. In: Proceedings of the 3rd Workshop on Automated Semantic Analysis of Information in Legal Texts (ASAIL 2019).