Yasith Jayawardana
Ph.D. Student

E&CS 3110, Computer Science
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RESEARCH INTERESTS
Machine Learning, Computer Vision, Data Science, Signal Processing, Real-time Analytics, Human-Information Interaction

EDUCATION

Jan. 2019 - Present **Ph.D.** in Computer Science
Old Dominion University, Norfolk, VA
GPA – 4.0 | **Advisor** – Dr. Sampath Jayarathna | **Key Courses** – Data Science and Analytics, Information Retrieval, Machine Learning, Data Structures and Algorithms, Computer Architecture, DevOps Containers and Cloud

Jan. 2015 - Dec. 2018 **B.Sc.** in Computer Science and Engineering (First Class Honors)
University of Moratuwa, Sri Lanka
GPA – 3.84 | **Key Courses** – Human Computer Interaction, Machine Learning, Advanced Algorithms, Data Mining & Information Retrieval, Distributed Systems

WORK EXPERIENCE

Jan. 2019 - Present **Old Dominion University**, Norfolk, VA
Graduate Research/Teaching Assistant in Computer Science

Jun. 2018 - Dec. 2018 **DesignBoo (PVT) Ltd**, Sri Lanka
Freelance Software Developer, Team Lead

Jan. 2018 - Jun. 2018 **University of Moratuwa**, Sri Lanka
Teaching Assistant in Computer Science

Jun. 2017 - Dec. 2017 **WSO2 (PVT) Ltd,** Sri Lanka
Software Engineering Intern

TEACHING EXPERIENCE

Fall 2020 **CS300T – Computers in Society**, Old Dominion University
Teaching Assistant for Lecturer Rekha Gupta

Summer 2020 **CS361 – Data Structures and Algorithms**, Old Dominion University
Teaching Assistant for Dr. Steven Zeil
CS355 – Principles of Programming Languages, Old Dominion University
Teaching Assistant for Dr. Jay Morris

Spring 2020 **CS361 - Data Structures and Algorithms**, Old Dominion University
Teaching Assistant for Dr. Zac Howland

Spring 2018 **CS2963 - Presentation Skills**, University of Moratuwa
Teaching Assistant for Dr. Rapti De Silva

PUBLICATIONS
BOOK CHAPTERS
1. Sampath Jayarathna, **Yasith Jayawardana**, Mark Jaime, Sashi Thapaliya, "Electroencephalogram (EEG) for Delineating Objective Measure of Autism

Spectrum Disorder", in *Computational Models for Biomedical Reasoning and Problem Solving,* 2019, IGI Global. pp. 34-65.

PEER-REVIEWED CONFERENCE PUBLICATIONS

2. Bhanuka Mahanama, **Yasith Jayawardana**, Sampath Jayarathna, "Gaze-Net: Appearance-Based Gaze Estimation using Capsule Networks", in *11th Augmented Human International Conference (AH)*, 2020, ACM. pp. 1-4.

3. Dilantha Haputhanthri, Gunavaran Brihadiswaran, Sahan Gunathilaka, Dulani Meedeniya, **Yasith Jayawardana**, Sampath Jayarathna, Mark Jaime**,** "An EEG based Channel Optimized Classification Approach for Autism Spectrum Disorder", in *5th International Multidisciplinary Engineering Research Conference (MERCon),* 2019, IEEE. pp. 123-128.

4. **Yasith Jayawardana**, Mark Jaime, Sampath Jayarathna, "Analysis of Temporal Relationships between ASD and Brain Activity through EEG and Machine Learning", in *20th International Conference on Information Reuse and Integration for Data Science (IRI)*, 2019, IEEE. pp. 151-158. *(Best Student Paper)*

5. **Yasith Jayawardana**, Alexander C. Nwala, Gavindya Jayawardena, Jian Wu, Sampath Jayarathna, Michael L. Nelson, C. Lee Giles, "Modeling Updates of Scholarly Webpages Using Archived Data", in *5th Computational Archival Science (CAS) Workshop at IEEE BigData, 2020*, IEEE. (In Press)

6. **Yasith Jayawardana**, Randil Fernando, Gavindya Jayawardena, Dileka Weerasooriya, Indika Perera, "A Full Stack Microservices Framework with Business Modelling", in *18th International Conference on Advances in ICT for Emerging Regions (ICTer),* 2018, IEEE. pp. 78-85.

7. **Yasith Jayawardana**, Sampath Jayarathna, "Streaming Analytics and Workflow Automation for DFS", in *ACM/IEEE Joint Conference on Digital Libraries (JCDL)*, 2020, ACM. pp. 513-514. *(Nominated for Best Student Paper)*

8. **Yasith Jayawardana**, Sampath Jayarathna, "DFS: A Dataset File System for Data Discovering Users", in *ACM/IEEE Joint Conference on Digital Libraries (JCDL)*, 2019, ACM. pp. 355-356.

DOCTORAL CONSORTIUMS (Not in Proceedings)

9. **Yasith Jayawardana**, Sampath Jayarathna, "Towards a Consistent Metadata Format for Data Analysis", in *ACM/IEEE Joint Conference on Digital Libraries (JCDL)*, 2020, ACM.

PRE-PRINTS AND TECHNICAL REPORTS

10. **Yasith Jayawardana**, Alexander C. Nwala, Gavindya Jayawardena, Jian Wu, Sampath Jayarathna, Michael L. Nelson, C. Lee Giles, "Modeling Updates of Scholarly Webpages Using Archived Data", in *arXiv:2012.03397 [cs.DL], 2020.* (Extended Preprint)

11. Bhanuka Mahanama, **Yasith Jayawardana**, Sampath Jayarathna, "Gaze-Net: Appearance-Based Gaze Estimation using Capsule Networks", in *arXiv:2004.07777 [cs.CV]*, 2020. (Extended Preprint)

12. Sampath Jayarathna, **Yasith Jayawardana**, Mark Jaime, Sashi Thapaliya, "Electroencephalogram (EEG) for Delineating Objective Measure of Autism Spectrum Disorder", in *arXiv:1907.01515 [eess.SP]*, 2019. (Extended Preprint)

13. **Yasith Jayawardana**, Sampath Jayarathna, "DFS: A Dataset File System for Data Discovering Users", in *arXiv:1905.13363 [cs.DL]*, 2019. (Extended Preprint)

INVITED TALKS

1. "Diagnosing ASD from Brain Activity". CS395: Research Methods in Data and Web Science, Old Dominion University, 2020.
2. "Data Science with EEG". CS Summer Research Workshop, Old Dominion University, 2019.
3. "Machine Learning on Data". Student ThinSat Research Summer Camp (STRS), Old Dominion University, 2020.

PROJECTS

1. **EEG and Thermography as Objective Measures of ASD**
   Performed Spectral Analysis on EEG data, and trained CNN classifiers to diagnose ASD. Extended it using thermal data and got ≥ 90% accuracy.
   Technologies: TensorFlow, WEKA, Python, NumPy, Pandas, PyWavelets

2. **StreamingHub**
   A visual programming toolkit for simplifying data analysis workflows. It is built on the concept of unified dataset description and contains two subprojects: *conduit* and *orange-streaming*. *conduit* is a collection of connectors for sensory devices, and *orange-streaming* is its visual front-end.
   Technologies: Python, NumPy, Pandas, LSL, Orange, Qt, Node.JS, Node-RED, Angular

3. **HACS – A Focused Crawler For The Academic Web**
   A study to determine the next set of crawl URLs to be crawled from a set of seed URLs, based on their update frequency. The update frequency of each URL was estimated based on their historical captures in Internet Archive.
   Technologies - Internet Archive, Python, NumPy, Pandas

4. **Containerized Deployment of Apache OODT**
   Created Dockerfiles for each component in Apache OODT, configured OODT deployments using Docker Compose and Kubernetes, and integrated them into the build process through maven archetypes.
   Technologies: Docker, Docker Compose, Kubernetes, Java, Maven Archetypes

5. **Semantic-KB**
   My internship project at WSO2. I developed a semantic knowledge base, and a search UI to automate question answering in WSO2 Support portal.
   Technologies – Apache Solr, TensorFlow, Python, Flask, Spacy

6. **MSstack**
   Designed a microservices framework for Java, with boilerplate code generation and service orchestration using messaging.
   Technologies - Java, Netty, Kafka, Zookeeper, Curator

7. **DengAI**
   A competition hosted by DrivenData, where a model was developed to predict Dengue disease spread. Our model achieved rank #1 in 2017.
   Technologies - Python, Scikit-learn, Pandas

8. **Onion**
   A Point-of-Sales, Reporting, Loan Management and Employee Management System. Currently deployed at Dambulla Dedicated Economic Centre, Sri Lanka and Gold Line Tours and Tire Centre, Sri Lanka.
   Technologies - C#, WPF, MySQL, Dapper O/RM, Git, and VSTS

9. **Raven**
   A real-time facial recognition and emotion detection system for the hospitality industry, which uses camera feeds to analyze customer reactions and provide a rating of satisfaction in areas of interest such as a cafeteria or lounge.
   Technologies - Microsoft Emotion API, C#

10. **Music School**
Developed a web application to manage information of a medium sized music school. Supports classroom management, progress tracking, attendance, and payroll.
Technologies - PHP, Laravel, jQuery, HTML, CSS, MySQL

GRANTS
1. Sigma Xi Grants in Aid of Research (GIAR), "Analytic Streams for Sensory Data: can data analytics be streamed alongside sensory data and metadata to build efficient data pipelines?", March 2020. Amount: $500.

SERVICES
Reviewing | (CHIIR) ACM SIGIR Conference on Human Information Interaction and Retrieval, 2020
(JCDL) ACM/IEEE-CS Joint Conference on Digital Libraries, 2020
(AH) Augmented Human International Conference Series, 2020
Volunteering | 34th Great Computer Challenge (Grades 6-12), Old Dominion University, 2019
Trick Or Research event, Computer Science, Old Dominion University, 2019
Science Connection Day, Old Dominion University, 2019
STEAM on Spectrum event, VMASC, VA 2019

AWARDS, HONORS, & SCHOLARSHIPS
Dominion Graduate Scholar, 2019, Old Dominion University
Dean's List - Semesters 1, 2, 4, 6, 7, and 8, University of Moratuwa, Sri Lanka

SKILLS
Programming Languages - Python, Java, C/C++, C#, HTML, JS, CSS, PHP
Databases – MySQL, MongoDB, Redis, DynamoDB
AWS – S3, RDS, EC2, Route 53, CloudWatch, ELB, EKS
Version Control – Git, SVN

IDEs - PyCharm, IntelliJ, Visual Studio, XCode, VS-Code
Frameworks / Libraries - TensorFlow, TensorFlow.JS, Keras, OpenCV, Pandas, NumPy, Angular, React, React-Native, NodeJS
Operating Systems - Windows, Android, iOS, MacOS, Ubuntu
Devices - PupilLabs Core, Empatica E4, Emotiv Insight
Software - WEKA, NeuroPype, Node-RED, Lab Streaming Layer, Orange, Pupil Capture
Creative Tools – Adobe Photoshop, Adobe Illustrator, SmartDraw, draw.io

MEMBERSHIPS
Student member, Association for Computing Machinery (ACM)
Student member, Institute for Electrical and Electronic Engineers (IEEE)
Student member, IEEE Sri Lanka (IESL)