Vihanga Jayawickrama

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Personal Statement

I am a first-year PhD student in Computer Science and Engineering at Michigan State University, with a strong interest in developing socially impactful AI solutions. My research interests include AI for healthcare, computer vision, biometrics, and natural language processing (NLP), with a focus on building reliable, interpretable, and ethical machine learning systems. I am particularly drawn to research that addresses real-world challenges in healthcare, public safety, and security. I am excited to continue my research journey by contributing to interdisciplinary projects that drive meaningful social impact.

Education

PhD in Computer Science   *Michigan State University*
Department of Computer Science and Engineering   *August 2024 - Present*
Started Fall 2024
Current GPA: 4.0 (out of 4.0)

B.Sc. Engineering (Hons) in Computer Science and Engineering   *Univeristy of Moratuwa*
Department of Computer Science and Engineering   *August 2017 - July 2022*
Obtained First Class Honours with a CGPA of 3.97 (out of 4.20)

G.C.E. Advanced Level Education   *Mahamaya Girls' College, Kandy*
G.C.E. Advanced Level Examination 2016   *January 2008 - August 2016*
All Distinction (A) passes for Combined Mathematics, Physics, Chemistry, and General English
National Rank: 303 (out of 28764)
Z score: 2.1614

Diploma in CAD   *CADD Centre*
Diploma Program in Computer-Aided Design   *January 2017 - April 2017*
Three-month diploma program focused on the AutoCAD software

Research Experience

Survival Risk Prediction
Supervisor: Prof. Zijun Cui

- Worked on survival risk prediction of cancer patients using whole slide histopathology images.
- Focused on incorporating uncertainty quantification into deep learning models to improve the reliability and interpretability of survival predictions in support of clinical decision-making.
- Worked with Bayesian neural networks, deep ensembles, variational inference, and whole slide image embeddings.

Sentiment Analysis with Sinhala Facebook Data
Supervisors: Dr. Nisansa de Silva, Yudhanjaya Wijeratne

- Worked on sentiment analysis from the perspective of the reader using 1.8 million Facebook posts, leveraging user reactions as community-annotated sentiment labels.
- Designed two baseline ML models and adapted the popular Star Rating Model for sentiment prediction based on social media content.
- Trained and evaluated several state-of-the-art models in sentiment analysis; generated embeddings for Facebook posts in Euclidean and hyperbolic spaces to enhance model performance.

- Applied architectural modifications to existing best-performing models to further optimize sentiment prediction accuracy.
- Authored three conference papers and one journal article; presented at the ICTer Conference and published in the ICTer journal.
- Worked with Bi-LSTM and GRU networks, word2vec, fasttext, seq2seq, and Poincaré embeddings, and Capsule-B architectures.

Fake News Classification in Sinhala
Supervisor: Yudhanjaya Wijeratne

- Created the first publicly available annotated misinformation dataset for Sinhala and evaluated its performance using various machine learning models.
- Authored a white paper on the findings.
- Extended the misinformation detection study to Bengali, managing the data acquisition process.

WORK EXPERIENCE

Teaching Assistant (Algorithms and Data Structures) *August 2024 - Present*
Department of Computer Science and Engineering, Michigan State University

- Engaged in one-on-one student assistance in help rooms and office hours
- Graded student projects and invigilated course examinations
- Worked under Prof. Sebnem Onsay and Prof. Manni Liu

Lecturer (on Contract) *January 2023 - June 2024*
Department of Computer Science and Engineering, University of Moratuwa

- Conducted a series of lectures on Object Oriented Programming.
- Assisted a multitude of modules including Program Construction, Data Structures and Algorithms, Communication Skills, Theory of Computing, and Programming Fundamentals.
- Engaged in course content modification, Moodle page management, creation and grading of assignments, and student performance evaluations.
- Evaluated final year projects, semester projects, and industrial training programs.

Junior Researcher *May 2022 – December 2022*
LIRNEasia

- Engaged in a job classification research project, working on data annotation, topic modeling, and cosine distance-based text classification.
- Initiated a geotagging project involving geotag generation and classification.
- Performed a series of data collection, cleaning, and analyzation tasks.

Teaching Assistant (Theory of Computing) *August 2021 – December 2021*
Department of Computer Science and Engineering, University of Moratuwa

- Involved in the creation and grading of student assignments.
- Worked under Prof. Sanath Jayasena.

Teaching Assistant (Technical Writing) *July 2021 – September 2021*
Department of Computer Science and Engineering, University of Moratuwa

- Involved in the creation and grading of student assignments.
- Worked under Ms. Waruni Karunarathne and Ms. Hiroshi De Silva.

Junior Researcher (Intern) *October 2020 – June 2021*
LIRNEasia

- Engaged in a research project on ML-based misinformation classification in English, Sinhala, and Bengali languages.

PUBLICATIONS

- V. Jayawickrama, G. Weeraprameshwara, N. de Silva, and Y. Wijeratne, "Facebook for sentiment analysis: Baseline models to predict facebook reactions of sinhala posts," *The International Journal on Advances in ICT for Emerging Regions*, vol. 15, no. 2, 2022.

- G. Weeraprameshwara, V. Jayawickrama, N. de Silva, and Y. Wijeratne, "Sinhala sentence embedding: A two-tiered structure for low-resource languages," in *Proceedings of the 36th Pacific Asia Conference on Language, Information and Computation*, (Manila, Philippines), pp. 325–336, De La Salle University, Oct. 2022.

- G. Weeraprameshwara, V. Jayawickrama, N. de Silva, and Y. Wijeratne, "Sentiment analysis with deep learning models: A comparative study on a decade of sinhala language facebook data," in *2022 The 3rd International Conference on Artificial Intelligence in Electronics Engineering*, AIEE 2022, (New York, NY, USA), p. 16–22, Association for Computing Machinery, 2022.

- V. Jayawickrama, G. Weeraprameshwara, N. de Silva, and Y. Wijeratne, "Seeking sinhala sentiment: Predicting facebook reactions of sinhala posts," in *2021 21st International Conference on Advances in ICT for Emerging Regions (ICter)*, pp. 177–182, 2021.

- V. Jayawickrama, A. Ranasinghe, D. C. Attanayake, and Y. Wijeratne, "A corpus and machine learning models for fake news classification in sinhala," 2021.

AWARDS AND ACHIEVEMENTS

Dean's List *2018 - 2022*
Earned placement in the Dean's List, Faculty of Engineering, University of Moratuwa in Semesters 1, 2, 3, 4, 5, 6, 7, and 8

RealHack 2.0 *2019*
Finalist
Countrywide university-level Hackathon conducted by the University of Kelaniya

IQ Master *2018*
Runner Up
Open competition conducted by the Rotaract Club of University of Moratuwa

Australian Chemistry Quiz *2015*
High Distinction Pass
International competition conducted by the Royal Australian Chemical Institute

Australian Chemistry Quiz *2013*
High Distinction Pass with 4th place in Sri Lanka
International competition conducted by the Royal Australian Chemical Institute

International Mathematics and Science Olympiad *2008*
Bronze Medal
International Competition conducted by Department of Education, Indonesia

National Mathematics and Science Olympiad *2008*
Gold Medal
National Competition Organized by Department of Education, Sri Lanka

PAPER REVIEWS FOR CONFERENCES

Moratuwa Engineering Research Conference (MERCon) *2023, 2024*
International conference organized by the Engineering Research Unit, University of Moratuwa.

LANGUAGE PROFICIENCIES

English	TOEFL Score: 113
Sinhala	Native Language

ACTIVITIES AND MEMBERSHIPS

MoraSpirit Initiative *2019 - 2022*
Assistant Pillar Head, Editorial Pillar: March 2021 – April 2022
Editor: February 2020 – March 2021
Content Writer: March 2019 – February 2020

ACM Student Chapter of University of Moratuwa *2019 - 2020*
Marketing Lead: December 2019 – December 2020

IEEE WIE Affinity Group of University of Moratuwa *2019 - 2020*
Marketing Team Member: December 2019 – December 2020

CSE Student Club *2019 - 2020*
Vice Secretary: May 2019 – May 2020

IEEE Student Branch of University of Moratuwa *2018 - 2022*
Member: 2018 - 2022

Rotaract Club of University of Moratuwa *2017 – 2019*
Writer: 2017 – 2019

Prefects Guild of Mahamaya Girls' College, Kandy *2014 - 2016*
Senior Prefect: 2015 – 2016
Junior Prefect: 2014 - 2015

Interact Club of Mahamaya Girls' College, Kandy *2014 – 2015*
President: 2014 – 2015

PERSONAL INFORMATION

Full Name	Meegaha Gedara Vihanga Dewmini Jayawickrama
Citizenship	Sri Lankan
Interests	Poetry, Literature, Photography, Arts and Crafts, Hiking