Hirusha Wanigasingha

hirushanethni@sjp.ac.lk

1 Personal details and the date of the CV

- **Surname**: Wanigasingha, **First Name**: Hirusha

- Researcher ID (ORCID ID): 0009-0008-2050-9273
  Google Scholar
  GitHub
  Website
  LinkedIn

  Born 11.10.1999 in Sri Lanka.
  Lives in Colombo, Sri Lanka.

- Date of the CV: 01.12.2025

2 Profile

My primary aspiration is to deepen my expertise and contribute to cutting-edge research in the fields of Data Science and Artificial Intelligence. With a strong foundation in Computer Science and hands-on experience in developing machine learning models, I am driven to create scalable, intelligent systems capable of processing complex and dynamic datasets. My research interests include Sports Analytics, Bioinformatics, Nature-Inspired Algorithms, Machine Learning, Natural Language Processing, Computer Vision, and broader AI applications. I am enthusiastic about collaborating with academic and industry partners to drive impactful, data-driven innovations that address real-world challenges.

3 Degrees

- **2025 - Present** - M.Phil. in Computer Science, University of Sri Jayewardenepura, Sri Lanka (Reading)

- **2020 - 2024** - Bachelor of Science (Honors) Computer Science, Faculty of Applied Sciences, University of Sri Jayewardenepura, Sri Lanka. (GPA 3.63/4.0)

  - Dissertation title: Optimizing Feature Selection in Spam Email Detection using a Co-evolutionary Algorithm
    * Major : Nature Inspired Computing, Natural Language Processing, Machine Learning, Computer Science
    * Minor : Mathematics, Statistics
    * Supervisor: Prof. T.G.I. Fernando

- **2025** - Postgraduate Certificate Course on Research Methodology & Scientific Writing (Reading)

4 Research Outputs

- **Publications**

    - **Wanigasingha, N.H.**, HGL Harshini, MKA Ariyaratne, TGI Fernando, U. Dikwatta, and U.S. Samarasinghe. "GI Meets AI: Glycemic Index in the Age of AI, Computational Breakthroughs". Future Technology 5, no. 1 (October 26, 2025): 93–126. Accessed October 27, 2025. https://fupubco.com/futech/article/view/526.

    - **Wanigasingha, N. H.**, & Fernando, T. G. I. (2024). Optimizing Feature Selection in Spam Email Detection Using Co-Evolutionary Algorithms. In *Proceedings of the 8th SLAAI International Conference on Artificial Intelligence (SLAAI-ICAI)*, Ratmalana, Sri Lanka, pp. 1–6. Published by **IEEE**. DOI: *10.1109/SLAAI-ICAI63667.2024.10844981*

- **Preprints & Archives**

    - Katheesan, K., De Silva, P. H. H. P. N., **Wanigasingha, N. H.**, & Ariyaratne, M. K. A. (2023). Genetic Algorithm Based Cut Order Plan and Cut-Panel Nesting Optimization for Apparel Industry. *Journal of University of Bahrain.*
    Link: *https://journal.uob.edu.bh/handle/123456789/6238*

    - **Wanigasingha, N. H.**, Egodage, S. S., Ariyaratne, M. K. A., & De Silva, P. R. S. (2025). SerendibCoins: Exploring Sri Lankan Coins Dataset. *arXiv preprint.*
    DOI: *https://doi.org/10.48550/arXiv.2505.18634*

- **Abstract Publications**

    - **Wanigasingha, N. H.**, Ariyaratne, M. K. A., and Silva, R. M., "Computer vision - based volleyball analytics," presented at the Inst. Sports Medicine Research Symp., Sri Lanka, Nov. 2025.

    - **Wanigasingha, N. H.** and Fernando, T. G. I., "Optimizing feature selection in spam email detection using co-evolutionary algorithms," in Proc. Awarding Ceremony and 13th Annu. Gen. Meeting IASSL, Colombo, Sri Lanka, Apr. 2025, p. 6.

- **Manuscripts Under Review**

    - Dasunika, A. D. H., **Wanigasingha, N. H.**, Samarasinghe, U., & Ariyaratne, M. K. A. (2025). A Comparative Study on Nature-Inspired Algorithms Finding Optimal Policies in Reinforcement Learning. **Presented** to SLAAI International Conference on Artificial Intelligence (SLAAI-ICAI), 2025.

    - Gunaratne, U. B. R. A., Illangarathna, A. N. L., Praveen, E. D. C., **Wanigasingha, N. H.**, Silva, B. N., & Wijenayake, U. (2025). Augmented Reality Based Simulator for Custom Made Garments. **Accepted** in the IEEE International Conference on Data Science and Intelligent Network Computing.

    - **Wanigasingha, N. H.**, Ariyaratne, M. K. A., & Silva, R. M. (2025). Vision in Sports: A Comprehensive Survey on Object Detection and Tracking. Submitted to Research — SPJ.

    - Ariyaratne, W. S. S., **Wanigasingha, N. H.**, Ariyaratne, M. K. A., & Dikwatta, U. (2025). AI in Alzheimer's Disease Detection: A Systematic Review of Advancements and Trends. Submitted to *Advances in Artificial Intelligence and Machine Learning.*

5 Research Experience (Ongoing)

- **2024 - Present**: Research Projects: This project focuses on volleyball analysis using the YOLO model for object detection. It involves developing a deep learning-based tracking system to accurately identify players and ball movement in volleyball matches. The study integrates computer vision techniques to analyze player formations, tactical strategies, and movement patterns. The performance of the model is evaluated on real-world volleyball datasets, aiming to improve tracking accuracy and provide data-driven insights for sports analytics.
  Supervisors: Dr. M.K.A. Ariyaratne, Dr. Rajitha M. Silva

- **2025 - Present**: Systematic Review on Health Wearable Devices: Conducting a comprehensive review paper on the applications of health wearable devices for monitoring, prediction, and analytics. The study explores the integration of wearable sensor data with machine learning and deep learning techniques to address challenges in healthcare, such as early disease detection, personalized health monitoring, and activity recognition.
  Team Members: Prof. T. G. I. Fernando, Dr. M. K. A. Ariyaratne, **N.H. Wanigasingha** *and T. M. Embuldeniya*

- **2025 - Present**: Systematic Literature Review on Responsible AI: Conducting a comprehensive systematic literature review (SLR) on Responsible AI, focusing on the core principles of fairness, accountability, transparency, and ethics (FATE) in machine learning. The study aims to evaluate existing frameworks and methodologies for mitigating bias and ensuring trustworthiness in the deployment of AI systems.
  Team Members: Prof. K.M.V. Sachithra, **N.H. Wanigasingha***, U. S. Samarasinghe, and H.A.D.U. Perera*

6 Awards and Honours

- **Best Researcher Award- 2nd Runners up (2024)**
  Institute of Applied Statistics, Sri Lanka (IASSL) Best Research Awards 2024 - Undergraduate Category

- **Finnovation Lab Training Programme Participant (2025)**
  Selected and participated in the first-ever Finnovation Lab training programme, part of the Sri Lanka FinTech Summit 2025 (02nd September 2025). Received a two-day pass (valued at LKR 45,000) to attend the Sri Lanka FinTech Summit 2025 on 24th–25th September 2025.

- **Finalist - "I am a Researcher 2024" Competition**
  International Conference on Advances in ICT for Emerging Regions (ICTER), Marino Beach Hotel, Colombo, Sri Lanka.
  Awarded a two-day conference pass worth 30,000 LKR and finalist recognition November 2024.

- **Finalist - "I am a Researcher 2023" Competition**
  International Conference on Advances in ICT for Emerging Regions (ICTER), University of Colombo School of Computing, Colombo, Sri Lanka.
  Awarded a two-day conference pass worth 30,000 LKR and finalist recognition November 2023.

7 Work experience

- **Academic**

  - **March 2025 - Present**: Lecturer (On Contract Basis)s, Department of Computer Science, University of Sri Jayewardenepura, Sri Lanka.
    * Subjects Taught: Introduction to AI, Database Systems & Administration, Intelligent Systems (Practical) and Seminar.

  - **October 2025 - Present**: Visiting Lecturer, National Institute of Business Management (NIBM).
    * Subjects Taught: Statistics for Data Science

  - **Nov 2024 - Present**: Visiting Instructor, Faculty of Graduate Studies, University of Sri Jayewardenepura, Sri Lanka.
    * Main Tasks: Involved in a regular conduct of practical sessions for course such as Artificial Intelligence, Knowledge Representations, Intelligent Systems, Programming for Data Science and AI planning.

  - **March 2025 - July 2025**: Visiting Lecturer, IDM Nations Campus International.
    * Subjects Taught: Learning Machines and Intelligent Agents

  - **Aug 2024 - Feb 2025**: Teaching Assistantship, Department of Computer Science, University of Sri Jayewardenepura, Sri Lanka.
    * Main Tasks: Involving regular conduct of practical classes, supervising undergraduate students (1st, 2nd, 3rd, and 4th year), grading laboratory reports, and conducting workshops associated with C and Java programming languages, Database Management System, Knowledge Representation and Intelligent Systems

- **Administrative**

  - **Jan 2025 - Present**: Assistant Coordinator, M.Sc. Data Science & Artificial Intelligence, Faculty of Graduate Studies, University of Sri Jayewardenepura, Sri Lanka.
    * Assisted in coordinating the M.Sc. Data Science & AI program, including scheduling and communication with students and faculty.
    * Monitored student progress, attendance, and academic records to ensure program compliance and quality standards.
    * Facilitated communication between students, faculty, and administrative staff to resolve academic and administrative queries.

- **Industry**

  - **Feb 2024 – Aug 2024**: Machine Learning Engineer (Internship), Dialog Axiata PLC, Colombo, Sri Lanka.
    * Main Tasks: Developed end-to-end machine learning pipelines using Amazon SageMaker, ensuring scalable and efficient model training. Created an MLOps CI/CD template to automate the machine learning lifecycle, integrating continuous integration and deployment processes. Applied machine learning algorithms and deep learning frameworks such as Keras to develop predictive models. Implemented JumpStart in SageMaker Studio to streamline and accelerate the development of machine learning models. Conducted experiments using the CatBoost algorithm for churn prediction. Documented all stages of the machine learning pipeline and MLOps CI/CD template creation, ensuring clear and comprehensive technical documentation.

Tech Stack: Python, AWS Services: SageMaker, S3, Service Catalog, IAM, CI/CD Architecture, Keras, Scikit-learn, Git

8 Teaching Merits

- Bachelor's level:

  - Software Project Management (2025/2026)
  - Quality Assurance (2025/2026)
  - Introduction to AI (2025)
  - Database System and Administration (2025)
  - Learning Machines and Intelligent Agents (2025)
  - Statistics I for Data Science (2025)
  - Intelligence Systems (Practical) (2025)

- Master's level: (Practicals)

  - Nature Inspired Computing (2025)
  - Machine Learning (2025)
  - Programming for Data Science and AI (2025)
  - Knowledge Representation (2025)
  - Artificial Intelligence: Planning (2025)
  - Artificial Intelligence: Planning (2024)

9 Skills

Programming Languages:	Python, Java, C/C++, R, JavaScript
Machine Learning & AI:	Keras, TensorFlow, PyTorch, Scikit-learn, OpenCV, NLTK, Spacy, YOLO, NumPy, Pandas
Database Technologies:	MySQL, SQL
Cloud & AWS Services:	SageMaker, S3, CodeCommit, CodeBuild, CodePipeline, Service Catalog, IAM
Web Technologies:	React, HTML, CSS, JavaScript, XML, JSON, YAML
Operating Systems:	Linux (Ubuntu), Windows
Tools & Platforms:	JIRA, Git, GitHub, IntelliJ IDEA, PyCharm, VS Code, Docker, Jupyter Notebook, Power BI, Minitab, MATLAB
Documentation:	LaTeX, Markdown, Word, Google Docs
Other Skills:	Teaching, Research & Development, Coordinating, Time Management, Problem Solving, Prompt Engineering

10 Professional Memberships

- **Council Member**, Sri Lanka Association of Artificial Intelligence (SLAAI).

- **Member**, Institute of Electrical and Electronics Engineers (IEEE).

- **Toastmaster**, Toastmaster International, Lyceum Toastmasters Club, Nugegoda.

11   Additional Activities

- **Editor** - Astronomy Club, University of Sri Jayewardenepura, Sri Lanka.

- **Volunteering experience** - 306 C2 Leo Club, University of Sri Jayewardenepura.

- **Graphic Designer** - J'pura Flames, University of Sri Jayewardenepura, Sri Lanka.

- **Graphic Designer** - Aviation Club, University of Sri Jayewardenepura, Sri Lanka.

12   Referees

Dr. M.K.A. Ariyaratne
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