

EDUCATION

- **University of Maryland** College Park
PhD in Computer Science Aug. 2021 – Present
- **University of Maryland** College Park
MSc in Computer Science Aug. 2021 – Dec. 2024
- **University of Moratuwa** Moratuwa, Sri Lanka
BSc Honors in Electronic and Telecommunication Engineering Nov. 2014 – Dec. 2018

EXPERIENCE

- **Film and Scatterometry Technology Group** KLA
Image Processing Intern (full-time) May 2026 - August 2026
 - **AI Agents:** Data Curation Agent: Developed a lightweight LLM-based agentic system that automates tabular data manipulation, graph generation, trend analysis, and domain-specific analytics through natural language commands.
- **Digital Transformation** Veltrust Consulting
Advisor - AI Technologies July 2025 - present
 - **Digital Transformation:** Research and advisory on emerging AI technologies for digital transformation in fashion, healthcare, and community systems
- **Precision Sustainable Agriculture Network** USDA
Data Science Intern (full-time) June 2024 - August 2024
 - **Creating Agriculture Database:** Creating a large diverse database for in field and semi field plant data for weed classification, plant classification and segmentation.
- **Math & Algorithms Group** Nokia Bell Labs, BLSR
Graduate Intern (full-time) June 2022 - August 2022
 - **Corruption Robustness:** Creating robust training scheme for Convolutional Neural Networks in order to adapt to various corruptions present in the real-world during inferencing.
- **SUTD-MIT International Design Centre** Singapore University of Technology and Design, Singapore
Research Engineer (full-time) July 2019 - July 2021
 - **Anomaly Detection:** Outlier exposure based defect detection method for solder joints in PCBs.
 - **Hierarchical Deep Learning Models:** Bio-medical image classification with data hierarchy presenting within the dataset

PUBLICATIONS

Google Scholar Profile

- **Jayasekara H.**, Acquaye C., Jayaweera A., Scene-Graph Guided Conditioning for Text-to-Image Generation. *European Conference on Computer Vision, MUCG Workshop*, 2026.
- **Jayasekara H.**, Huynh C., Ren Y., Acquaye C., Shrivastava A., All-in-One Conditioning for Text-to-Image Synthesis. *International Conference on Pattern Recognition*, 2026.
- **Jayasekara H.**, Pham K., Saini N., Shrivastava A., Unified Framework for Open-World Compositional Zero-shot Learning. *IEEE Winter Conference on Applications of Computer Vision*, 2025.
- **Jayasekara H.**, Pham K., Saini N., Shrivastava A., An Integrated Approach to Open-World Compositional Zero-Shot Learning. *Advances in Neural Information Processing Systems, Workshop on Compositional Learning*, 2024.
- **Jayasekara H.**, Zhang Q., Yuen C., Woo C. W., Low J., Detecting Faulty Joints in Multi-Sliced PCB X-Ray Images with Outlier Exposure. *SN Computer Science Journal (Springer Nature)*, 2023.
- **Jayasekara, H.**, Jayasundara, V., Mohamed, A., Rajasegaran, J., Jayasekara, S., Seneviratne, S. and Rodrigo, R., Characterizing Electrocardiogram Signals using Capsule Networks. *Advances in Neural Information Processing Systems, LMRL Workshop*, 2020.

- Rajasegaran, J., Jayasundara, V., Jayasekara, S., **Jayasekara, H.**, Seneviratne, S. and Rodrigo, R., 2019. DeepCaps : Going Deeper with Capsule Networks. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2019.
- Jayasundara, V.*, **Jayasekara, H.***, Samarasinghe, T., and Hemachandra, K., Device-Free User Authentication, Activity Classification and Tracking using PassiveWi-Fi Sensing: A Deep Learning Based Approach, *IEEE Sensors Journal (Sensors)*, 2020.
- Jayasundara, V., Jayasekara, S., **Jayasekara, H.**, Rajasegaran, J., Seneviratne, S. and Rodrigo, R., 2019, January. TextCaps: Handwritten Character Recognition With Very Small Datasets. *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2019. (oral).
- **Jayasekara, H.**, Jayasundara, V., Mohamed, A., Rajasegaran, J., Jayasekara, S., Seneviratne, S. and Rodrigo, R., TimeCaps: Capturing Time Series Data with Capsule Networks. *ArXiv.*, 2019..

CURRENT SUBMISSIONS

- **Jayasekara H.***, Islam M. R.*, Huynh C., Shrivastava A., DGE: A Dynamic Metric and Grounded Evaluation Benchmarks for Text-to-Image and Image Editing Models., *NeurIPS*, 2026.
- **Jayasekara H.**, Shrivastava A., Constraint-Guided Competitive Attention for Implicit Compositional Diffusion., *WACV*, 2027.
- **Jayasekara H.**, Gamanayake C., Yuen C., U-Xuan T., Ho Lay S., Mabel T., Jane G., Fazila A., Hsu Pon P., Lee Chen E., Franklin T., Hong Wei W., Daniel T., Srinath S., Oh Hong C., Hierarchical Deep Learning Framework for Human Waste Image Classification., *ACM Transactions on Computing for Healthcare*.
- **Jayasekara H.**, Yu C., Effect of Training CNNs on Naturally Corrupted Images., 2025.

RESEARCH INTERESTS

- Machine Vision and Image processing
 - Object-Attribute Understanding and Generation via Multimodal Learning
 - Text alignment in Image Generation
 - Agentic Systems
 - Corruption Robustness
 - Anomaly Detection
- Signal processing
 - Bio-medical signal processing
 - Micro-Doppler signatures and applications with Wireless Communication technologies

SKILLS

- Deep learning frameworks: PyTorch, Keras, TensorFlow
- Deep learning Libraries: Transformers, Diffusers, vLLM
- Agentic frameworks: Langgraph, Deepagents, pydantic
- Database: MongoDB
- Have worked with workstations and servers with multiple GPUs