Hirunima Jayasekara

hirunima.github.io
Email : hirunima@umd.edu
Mobile : +1-240-6883121

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*
  GPA: 3.96/4
- **University of Moratuwa** — Moratuwa, Sri Lanka
  BSc Honors in Electronic and Telecommunication Engineering — *Nov. 2014 – Dec. 2018*
  GPA: 4.04/4.2 (First Class)
- **ESOFT-Metro Campus** — Colombo, Sri Lanka
  Diploma in Information Technology — *Jan. 2014 – Jun. 2014*
  Overall Grade: A

EXPERIENCE

- **AI Transformation Division** — 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 solder joint detection method.
  - **Hierarchical Deep Learning Models**: Bio-medical image classification with data hierarchy presenting within the dataset
- **Data Science Team** — Axiata Digital Lab,Colombo
  Data Engineer (full-time) — *February 2019 - July 2019*
  - **Predictive Model Creation**: Create and deploy predictive models for human behavioural analysis and business analysis.

PUBLICATIONS

Google Scholar Profile

- **Jayasekara H.**, Huynh C., Ren Y., Acquaye C., Shrivastava A., All-in-One Conditioning for Text-to-Image Synthesis., 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 (WACV)*, 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..
- Zhang Q., Zhang M., Gamanayake C., Yuen C., Geng Z., **Jayasekara H.**, Zhang X., Woo C. W., Low J., Liu X., Deep Learning Based Defect Detection for Solder Joints on Industrial X-Ray Circuit Board Images. *IEEE International Conference on Industrial Informatics (INDIN)*, 2020. (oral)
- Zhang Q., Zhang M., Gamanayake C., Yuen C., Geng Z., **Jayasekara H.**, Zhang X., Woo C. W., Low J., Liu X., Deep Learning Based Solder Joint Defect Detection On Industrial Printed Circuit Board X-ray Images. *Complex & Intelligent Systems*, 2022.

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., ICML, 2026.
- **Jayasekara H.**, Huynh C., Ren Y., Acquaye C., Shrivastava A., Shrivastava A., Scene Graph Based Diffusion For Spatial Understanding., CVPRW, 2026.
- **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., MICCAI, 2026.
- Dontu S., Hiramandala G., Thanigaivel N.K., Castillo A., Dharmawan A.G., Swaminath V., Ong K.W., Jain S., Gamanayake C., **Jayasekara H.**, Meghjani M., Tan U X., Yuen C., Soh G.S., and Alvarado P.V.Y, Autonomous Robotic platform for Twistlock Manipulation (ARTM) in wharf operations., Journal of Field Robotics, 2025
- **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
  - 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
- Machine learning frameworks: MATLAB 2016b, Spark-ml
- Database: MongoDB
- Have worked with workstations and servers with multiple GPUs