

KANCHANA RANASINGHE

kranasinghe@cs.stonybrook.edu · <http://kahnchana.github.io/>

EDUCATION

- Stony Brook University, NY, USA** Aug 2021 - Present
PhD in Computer Science; GPA: 3.95 / 4.00
- University of Moratuwa, Sri Lanka** Dec 2015 - Jan 2020
BSc in Engineering; GPA: 3.95/4.20; Awarded Most Outstanding Graduated of the Year

RESEARCH EXPERIENCE

- Apple, Cupertino, USA - Machine Learning Research Intern** May 2022 - Sep 2022
- Multi-modal self-supervised representation learning
 - Interpretability and robustness of vision language models
- MBZUAI, Abu Dhabi, UAE - Research Assistant** Nov 2020 - Aug 2021
- Representation learning: contrastive losses, self-supervised video analysis (ICCV '21, CVPR '22)
 - Interpretability, robustness, and adversarial attacks for vision transformers (NeurIPS '21, ICLR '22)
 - Generative modelling for multi-modal output spaces (ICLR '21)
- VeracityAI, Colombo, Sri Lanka**
- Machine Learning Engineer* Feb 2020 - Oct 2020
Associate Data Scientist Jan 2019 - Jan 2020
- Leading team of three associate data scientists
 - Vehicle damage detection system: efficient mobile models, instance segmentation
- FiveAI, Cambridge, UK - Research Intern** June 2018 - Dec 2018
- Perception team of self-driving startup
 - 3D orientation estimation: improve occluded object handling in videos with synthetic data

SELECTED PUBLICATIONS

- Perceptual Grouping in Vision-Language Models** (under review)
K Ranasinghe, B McKinzie, S Ravi, Y Yang, A Toshev, J Shlens
- Self-supervised Video Transformers** CVPR, 2022 (oral)
K Ranasinghe, M Naseer, S Khan, F Khan, M Ryou
- On Improving Adversarial Transferability of Vision Transformers** ICLR, 2022 (spotlight)
M Naseer, K Ranasinghe, S Khan, F Khan, F Porikli
- Intriguing Properties of Vision Transformers** NeurIPS, 2021 (spotlight)
M Naseer, K Ranasinghe, S Khan, M Hayat, F Khan, M Yang
- Orthogonal Projection Loss** ICCV, 2021
K Ranasinghe, M Naseer, M Hayat, S Khan, F Khan
- Conditional Generative Modeling via Learning the Latent Space** ICLR, 2021
S. Ramasinghe, K Ranasinghe, Salman Khan, Nick Barnes, and Stephen Gould
- Bipartite Conditional Random Fields for Panoptic Segmentation** BMVC, 2020 (oral)
S. Jayasumana, K Ranasinghe, M. Jayawardhana, S. Liyanarachchi and H. Ranasinghe
- Combined Static & Motion Features for Deep-Networks Based Activity Recognition in Videos**
IEEE Transactions on Circuits and Systems for Video Technology, vol. 29, no. 9, pp. 2693-2707, Sept. 2019.
S. Ramasinghe, J. Rajasegaran, V. Jayasundara, K Ranasinghe, R. Rodrigo and A. A. Pasqual,

PROFESSIONAL ACTIVITIES

- Conference Peer Reviewer:** CVPR, ICCV, ECCV, NeurIPS, BMVC, ICRA 2020 - 2022
- Journal Peer Reviewer:** IEEE Transactions on Circuits and Systems for Video Technology 2017 - 2018
- Teaching Assistant:** Stony Brook University, Computer Science Department 2021 - 2022

SELECTED AWARDS

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| Most Outstanding Graduannd of the Year - University of Moratuwa, Sri Lanka | 2020 |
| National Merit Scholarship - Ranked 13th in Sri Lanka at GCE Advanced Level Examination | 2014 |
| Ranked 296th / Represented Sri Lanka - International Mathematical Olympiad (IMO), Columbia | 2013 |
| Bronze Medalist / Represented Sri Lanka - International Mathematics Competition, South Korea | 2010 |
| National Champion / Represented Sri Lanka - IGNOU UNESCO Science Olympiad, India | 2011 |

SKILLS

Languages: Python **Frameworks:** PyTorch, Tensorflow
Interests: Video Analysis, Self-supervised Learning, Multi-modal Representation Learning

ADDITIONAL RESEARCH PROJECTS

Self Supervised Learning Mar 2020 - Oct 2020

- Research on state-of-the-art conditional generative modeling approaches, their performance in multi-modal spaces, and leveraging generative models for self-supervised learning
- Experimentation with a range of state-of-the-art generative adversarial networks (GANs) on standard image datasets and evaluating performance in terms of accuracy, speed, and computational overhead

Object Tracking and Segmentation Jan 2019 - Jan 2020

- Research on combining Siamese Trackers and recurrent neural networks (LSTM) to simultaneously exploit appearance and spatial information for multi-object tracking, developing unique approach for occlusion aware object tracking, and analyzing effectiveness of BEV space projections for spatial tracking
- Research on panoptic segmentation using conditional random fields, development of novel information fusion layer achieving state-of-the-art performance

Plant Disease Detection June 2017 - June 2018

- Developing of plant-leaf based disease detection system from multi-spectral image feeds (NIR/RGB spectra) and implementing transfer learning based training of CNNs on small datasets of domain-specific images
- Project deployed using mobile app with edge inference and recognized as a Top Initiative at National Tech Awards

HACKATHON EXPERIENCE

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| Finalists - Presidential Hackathon organized by the Government of Taiwan | Taiwan, 2019 |
| Asia-Pacific Runners-Up - Innovate FPGA organized by Intel and Terasic | International, 2018 |
| Champions & Best Data Scientist - Datathon organized by Axiata | Colombo, 2019 |
| Champions - CodeSprint 3.0 organized by IdeaMart & IIT | Colombo, 2018 |

INTERESTS / VOLUNTEER EXPERIENCE

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| Captain - University of Moratuwa Debating Team | 2016/2017 |
| President - OREPA Student Chapter (volunteer society) | 2019 |
| Secretary - Mathematics Society of University of Moratuwa | 2017/2018 |
| Executive Committee - Sri Lanka Model United Nations | 2015 |