

KANCHANA RANASINGHE

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

EDUCATION

Stony Brook University, NY, USA

Aug 2021 - Present

PhD in Computer Science

University of Moratuwa, Sri Lanka

Dec 2015 - Jan 2020

BSc in Engineering; Awarded Most Outstanding Graduand of the Year

Senior Thesis Title: "Realtime Multi-Object Tracking and Pixelwise Segmentation"

RESEARCH EXPERIENCE

Google Research, NYC, USA - Student Researcher

March 2024 - Dec 2024

- Continuous-space conditional random field (CRF) formulation for modeling natural image distribution
- Latent space CRF operation and integration with diffusion models for efficient text-to-image generation

Meta AI Research, NYC, USA - Research Scientist Intern

May 2023 - Dec 2023

- Spatial reasoning in multi-modal large language models (CVPR '24)
- Localization awareness in video-language models

Apple MLR, Cupertino, USA - Machine Learning Research Intern

May 2022 - Sep 2022

- Multi-modal self-supervised representation learning (ICCV '23)
- Interpretability and robustness of vision language models

MBZUAI, Abu Dhabi, UAE - Research Assistant

Nov 2020 - Aug 2021

- Representation learning: contrastive losses, self-supervised objectives (ICCV '21)
- Interpretability, robustness, and adversarial attacks for vision transformers (NeurIPS '21, ICLR '22)
- Generative modelling for multi-modal output spaces (ICLR '21)

Wenn ASA, Stavanger, Norway - Machine Learning Engineer (remote)

Jan 2019 - Oct 2020

- Leading team of three associate data scientists for vehicle damage detection project
- Focus on efficient mobile implementations, instance segmentation models, and active learning

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 AWARDS

Outstanding Demo Award at CVPR 2023

Burgert, Ranasinghe, Li, Ryoo, "Diffusion Illusions: Hiding Images in Plain Sight"

Most Outstanding Graduand of the Year

Class of 2020 at University of Moratuwa, Sri Lanka

SELECTED PUBLICATIONS

LatentCRF: Continuous CRF for Efficient Latent Diffusion

under review

K Ranasinghe, S Jayasumana, A Veit, A Chakrabarti, D Glasner, M S Ryoo, S Ramalingam, S Kumar

Learning to Localize Objects Improves Spatial Reasoning in Visual-LLMs

CVPR, 2024

K Ranasinghe, S N Shukla, O Poursaeed, M S Ryoo, T Y Lin

Language-based Action Concept Spaces Improve Video SSL

NeurIPS, 2023

K Ranasinghe, M S Ryoo

Perceptual Grouping in Contrastive Vision-Language Models K Ranasinghe, B McKinzie, S Ravi, Y Yang, A Toshev, J Shlens	ICCV, 2023
Self-supervised Video Transformers K Ranasinghe, M Naseer, S Khan, F Khan, M S Ryoo	CVPR, 2022 (oral)
Intriguing Properties of Vision Transformers M Naseer, K Ranasinghe, S Khan, M Hayat, F Khan, M Yang (<i>listed among top 15 most cited papers at NeurIPS 2021</i> - link)	NeurIPS, 2021 (spotlight)
Orthogonal Projection Loss K Ranasinghe, M Naseer, M Hayat, S Khan, F Khan	ICCV, 2021

OTHER PUBLICATIONS

Unsupervised Domain Adaptive Segmentation using Domain-Agnostic Text C Mata, K Ranasinghe, M S Ryoo	ECCV, 2024
LLaRA: Supercharging Robot Learning Data for Vision-Language Policy X Li, C Mata, J Park, K Kahatapitiya, Y Jang, J Shang, K Ranasinghe, R Burgert, M Cai, Y Lee, M S Ryoo	CoRL workshop, 2024
Hierarchical Text-to-Vision Self Supervised Alignment for Improved Histopathology Representation Learning H Watawana, K Ranasinghe, T Mahmood, M Naseer, S Khan, F S Khan	MICCAI 2024
Too Many Frames, not all Useful: Efficient Strategies for Long-Form Video QA J Park, K Ranasinghe, K Kahatapitiya, W Ryoo, D Kim, M S Ryoo	NeurIPS workshop, 2024
Language Repository for Long Video Understanding K Kahatapitiya, K Ranasinghe, J Park, M S Ryoo	NeurIPS workshop 2024
Diffusion Illusions: Hiding Images in Plain Sight R Burgert, X Li, A Leite, K Ranasinghe, M Ryoo	SIGGRAPH, 2024
Peekaboo: Text to Image Diffusion Models are Zero-Shot Segmentors R Burgert, K Ranasinghe, X Li, M S Ryoo	CVPR workshop, 2023
On Improving Adversarial Transferability of Vision Transformers M Naseer, K Ranasinghe, S Khan, F Khan, F Porikli	ICLR, 2022 (spotlight)
Conditional Generative Modeling via Learning the Latent Space S Ramasinghe, K Ranasinghe, S Khan, N Barnes, S Gould	ICLR, 2021
Bipartite Conditional Random Fields for Panoptic Segmentation S. Jayasumana, K Ranasinghe, M. Jayawardhana, S. Liyanaarachchi and H. Ranasinghe	BMVC, 2020 (oral)
Combined Static & Motion Features for Deep-Networks Based Activity Recognition in Videos, S. Ramasinghe, J. Rajasegaran, V. Jayasundara, K Ranasinghe, R. Rodrigo and A. A. Pasqual, IEEE Transactions on Circuits and Systems for Video Technology, vol. 29, Sept. 2019.	
Micro Actions and Deep Static Features for Activity Recognition, S. Ramasinghe, J. Rajasegaran, V. Jayasundara, K. Ranasinghe, R. Rodrigo and A. Pasqual, International Conference on Digital Image Computing: Techniques and Applications (DICTA), Sydney, Australia, 2017.	

PATENTS

Kanchana Ranasinghe, Muhammad Muzammal Naseer, Salman Khan, Fahad Khan, “**System and Method for Self-supervised Video Transformer.**” US Patent US20240169692A1 filed on 11/21/2022.

TEACHING

Stony Brook University, NY, USA

- Teaching assistant for CSE 101 course on Introduction to Digital Intelligence
- Teaching assistant for CSE 215 course on Foundations of Computer Science course
- Supporting for graduate level computer vision seminar CSE 656

University of Moratuwa, Sri Lanka

- Teaching assistant for undergraduate course on Introduction to Computer Vision
- Supporting for undergraduate level computer vision seminar

SERVICE

Reviewing

- Conference reviewer: CVPR, ICCV, ECCV, NeurIPS, ICLR, ICML, ICRA 2022 - present
- Journal reviewer: IJCV, TCSVT 2021 - present

Mentoring

- Mentor for undergraduate computer science students at Women in Engineering in Sri Lanka 2023
- Mentor for machine learning competition teams at University of Moratuwa, Sri Lanka 2023
- Mentor undergraduates from University of Moratuwa, Sri Lanka in computer vision research projects and academic writing 2023 - present

OTHER AWARDS

Graduate Fellowship - Stony Brook University, NY, USA 2022

National Merit Scholarship - Ranked 13th (2.83 z-score) in Sri Lanka at GCE A/L Examination 2014