

Kumara Kahatapitiya

Department of Computer Science
Stony Brook University
Stony Brook, NY 11794

cs.stonybrook.edu/~kkahatapitiy
kkahatapitiy@cs.stonybrook.edu

Research Interests

Video Understanding, Diffusion Models for Video Editing and Generation, Language + Vision

Education

Stony Brook University, Stony Brook, NY

Ph.D, Computer Science, 2019 - 2024 (expected)

GPA: 4.0/4.0, Thesis: Video Representations: A View on Inference and Label Efficiency

University of Moratuwa, Sri Lanka

B.Sc. (Hons.), Electronic & Telecommunication Engineering, 2014 - 2018

GPA: 4.05/4.20

Employment

Stony Brook University, Stony Brook, NY

Research Assistant, Summer 2020 - Present

Teaching Assistant, Fall 2019 - Spring 2020

Meta Platforms, Inc., Menlo Park, CA

Research Scientist Intern, Summer 2024

Qualcomm AI Research, Amsterdam, Netherlands

Research Intern, Summer 2023

Google DeepMind, New York City, NY

Student Researcher, Spring 2022 - Spring 2023

Wormpex AI Research, Bellevue, WA

Research Intern, Summer 2021

Publications

Preprints

- LLaRA: Supercharging Robot Learning Data for Vision-Language Policy
Xiang Li, Cristina Mata, Jongwoo Park, [Kumara Kahatapitiya](#), Yoo Sung Jang, Jinghuan Shang, Kanchana Ranasinghe, Ryan Burgert, Mu Cai, Yong Jae Lee, Michael S. Ryoo
arXiv 2024 [preprint] [code]

2. Too many frames, not all useful: Efficient Strategies for Long-form Video QA
Jongwoo Park, Kanchana Ranasinghe, [Kumara Kahatapitiya](#), Wonjeong Ryoo, Donghyun Kim, Michael S. Ryoo
arXiv 2024 [preprint]
3. Language Repository for Long Video Understanding
[Kumara Kahatapitiya](#), Kanchana Ranasinghe, Jongwoo Park, Michael S. Ryoo
arXiv 2024 [preprint] [code]
4. Understanding Long Videos in One Multimodal Language Model Pass
Kanchana Ranasinghe, Xiang Li, [Kumara Kahatapitiya](#), Michael S. Ryoo
arXiv 2024 [project-page] [preprint] [code]

Peer-reviewed Articles

5. Object-Centric Diffusion for Efficient Video Editing
[Kumara Kahatapitiya](#), Adil Karjauv, Davide Abati, Yuki M. Asano, Fatih Porikli, Amirhossein Habibian
ECCV 2024 [project page] [paper]
6. VicTR: Video-conditioned Text Representations for Activity Recognition
[Kumara Kahatapitiya](#), Anurag Arnab, Arsha Nagrani, Michael S. Ryoo
CVPR 2024 [paper] [poster] [talk]
7. Grafting Vision Transformers
Jongwoo Park, [Kumara Kahatapitiya](#), Donghyun Kim, Shivchander Sudalairaj, Quanfu Fan, Michael S. Ryoo
WACV 2024 [paper] [poster]
8. SWAT: Spatial Structure Within and Among Tokens
[Kumara Kahatapitiya](#), Michael S. Ryoo
IJCAI 2023 [paper] [code] [slides]
9. Token Turing Machines
Michael S. Ryoo, Keerthana Gopalakrishnan, [Kumara Kahatapitiya](#), Ted Xiao, Kanishka Rao, Austin Stone, Yao Lu, Julian Ibarz, Anurag Arnab
CVPR 2023 [paper] [code] [teaser]
10. Weakly-guided Self-supervised Pretraining for Temporal Activity Detection
[Kumara Kahatapitiya](#), Zhou Ren, Haoxiang Li, Zhenyu Wu, Michael S. Ryoo, Gang Hua
AAAI 2023 [paper] [code] [talk] [poster]
11. StARformer: Transformer with State-Action-Reward Representations for Visual Reinforcement Learning
Jinghuan Shang, [Kumara Kahatapitiya](#), Xiang Li, Michael S. Ryoo
ECCV 2022 [paper] [code] [poster]
T-PAMI [paper]
12. MS-TCT: Multi-Scale Temporal ConvTransformer for Action Detection
Rui Dai, Srijan Das, [Kumara Kahatapitiya](#), Michael S. Ryoo, Francois Bremond
CVPR 2022 [paper] [code]
13. Swift: Adaptive Video Streaming with Layered Neural Codecs
Mallesh Dasari, [Kumara Kahatapitiya](#), Samir Das, Aruna Balasubramanian, Dimitris Samaras
NSDI 2022 [paper] [code] [slides]
14. Coarse-Fine Networks for Temporal Activity Detection in Videos
[Kumara Kahatapitiya](#), Michael S. Ryoo
CVPR 2021 [paper] [code] [talk] [poster]

15. Exploiting the Redundancy in Convolutional Filters for Parameter Reduction
[Kumara Kahatapiya](#), Ranga Rodrigo
WACV 2021 [paper] [code] [talk]
16. Feature-dependent Cross-Connections in Multi-Path Neural Networks
Dumindu Tissera, Kasun Vithanage, Rukshan Wijesinghe, [Kumara Kahatapiya](#), Subha Fernando, Ranga Rodrigo
ICPR 2020 [paper]
17. Context-Aware Automatic Occlusion Removal
[Kumara Kahatapiya](#), Dumindu Tissera, Ranga Rodrigo
ICIP 2019 [paper] [code]

Distinctions

Finalist (1/30) for Adobe Research Fellowship, 2022
Nomination for Microsoft Research PhD Fellowship, 2022
Nomination for Google PhD Fellowship, 2022
Gold Medalist, Electronic & Telecommunication Engineering, University of Moratuwa, 2018
Dean's List Recognition (7/8 semesters), University of Moratuwa, 2014-2018
National Inter-University Statistics Champions, Sri Lanka, 2015
Presidential Recognition for the excellence in national examinations, Sri Lanka, 2009, 2012

Academic Service

Reviewer at CVPR, ICCV, ECCV, T-PAMI, IJCV, NeurIPS, ICML, AAAI, WACV

Open-source Projects

X3D-Multigrid [code]
Optimal Transport in NumPy [code]

References

Michael S. Ryoo, SUNY Empire Innovation Associate Professor
Department of Computer Science, Stony Brook University, Stony Brook, NY
mryoo@cs.stonybrook.edu

Dimitris Samaras, SUNY Empire Innovation Professor
Department of Computer Science, Stony Brook University, Stony Brook, NY
samaras@cs.stonybrook.edu

Amirhossein Habibian, Director of Engineering
Qualcomm AI Research, Amsterdam, Netherlands
ahabibian@qti.qualcomm.com

Dmitry Kalashnikov, Staff Software Engineer
Google DeepMind, New York City, NY
dkalashnikov@google.com