Dominick Reilly

dreilly1@charlotte.edu dominickrei.github.io dominickrei

Education

University of North Carolina at Charlotte *Aug 2022 - Present*
Ph.D. Student in Computer Science
Advisor: Dr. Srijan Das

University of North Carolina at Charlotte *Jan 2019 - May 2022*
Bachelor of Science in Computer Science, GPA: 4.0

Experience

University of North Carolina at Charlotte *Aug 2022 - Present*
Research Assistant - Charlotte Machine Learning Lab

- Video understanding in large vision-language models using cross-perspective data (1st and 3rd person) for exocentric video understanding of daily living activities. [2]
- Multi-modal (RGB + Human Pose + Human Object Interactions) Large Vision Language Model (LVLM) for understanding daily living actions from video. Curriculum-based progressive training for integrating multiple modalities into the LVLM embedding space. [3]
- Multi-modal (RGB + Human Pose) and viewpoint agnostic video transformers for understanding subtle appearance and motion cues in human activities. [8]
- Self-supervised learning and masked autoencoders for training ViTs on small, out-of-domain data distributions. [9]

Honda Research Institute, California *Jun 2024 - Sep 2024*
Student Researcher - Perception Team

- Training vision-language models on procedural activity datasets containing multiple perspectives (egocentric & exocentric), and transferring them to single-perspective datasets.
- Learning pose-augmented RGB representations in CNNs for weakly-supervised action and error detection in procedural activity videos. [4]

Inria, Sophia Antipolis, France *Jan 2024 - Jun 2024*
Research Intern - STARS Team (Chateaubriand Fellow)

- Incorporating the human pose modality into vision-language models (CLIP) for better zero-shot understanding of daily living actions from video. [6] [1]
- Improving temporal action detection with gating mechanisms to improve feature selection. [7]

University of North Carolina at Charlotte *Jul 2021 - Jul 2022*
Research Assistant - Data Privacy Lab

- Safeguarding face and iris images from deep-learning based re-identification attacks. [11]
- Created interactive webpage demonstrating safeguards on face and iris images. Try the demo for yourself at http://3.223.148.187/. [10]

Publications (C)onference, (P)reprint, (W)orkshop

1. **(C)** Arkaprava Sinha, **Dominick Reilly**, Francois Bremond, Pu Wang, Srijan Das, "SKI Models: Skeleton Induced Vision-Language Embeddings for Understanding Activities of Daily Living," Proceedings of the AAAI Conference on Artificial Intelligence (AAAI), 2025.
2. **(P) Dominick Reilly**, Manish Kumar Govind, Srijan Das, "From My View to Yours: Ego-Augmented Learning in Large Vision Language Models for Understanding Exocentric Daily Living Activities," arXiv:2501.05711 (Under Review), 2024.
3. **(P) Dominick Reilly**, Rajatsubhra Chakraborty, Arkaprava Sinha, Manish Kumar Govind, Pu Wang, Francois Bremond, Le Xue, Srijan Das, "LLAVIDAL: A Large LAnguage VIsion Model for Daily Activities of Living," arXiv:2406.09390 (Under Review), 2024.
4. **(P)** Seth Z. Zhao, Reza Ghoddoosian, **Dominick Reilly**, Isht Dwivedi, Nakul Agarwal, Behzad Dariush, "Pose-Aware Weakly-Supervised Action Segmentation," (Under Review), 2024.
5. **(P)** Ali Khaleghi Rahimian, Manish Kumar Govind, Subhajit Maity, **Dominick Reilly**, Christian Kümmerle, Srijan Das, Aritra Dutta, "Fibottention: Inceptive Visual Representation Learning with Diverse Attention Across Heads," arXiv:2406.19391 (Under Review), 2024.
6. **(W)** Mahmoud Ali, Di Yang, Arkaprava Sinha, **Dominick Reilly**, Srijan Das, Gianpiero Francesca, Francois Bremond, "Quo Vadis, Video Understanding with Vision-Language Foundation Models?," Workshop on Video-Language Models (NeurIPS), 2024.
7. **(W)** Aglind Reka, Diana Laura Borza, **Dominick Reilly**, Michal Balazia, Francois Bremond, "Introducing Gating and Context into Temporal Action Detection," Workshop on Affective Behavior Analysis in-the-wild at (ECCV), 2024.
8. **(C) Dominick Reilly**, Srijan Das, "Just Add π! Pose Induced Video Transformers for Understanding Activities of Daily Living," IEEE/CVF Conference on Computer Vision and Pattern Recognition Conference (CVPR), 2024.
9. **(C)** Srijan Das, Tanmay Jain, **Dominick Reilly**, Pranav Balaji, Soumyajit Karmakar, Shyam Marjit, Xiang Li, Abhijit Das, Michael Ryoo, "Limited Data, Unlimited Potential: A Study on ViTs Augmented by Masked Autoencoders," IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2024.
10. **(C)** Muhammad Saleem, **Dominick Reilly**, Liyue Fan, "DP-Shield: Face Obfuscation with Differential Privacy," International Conference on Extending Database Technology, 2022.
11. **(C) Dominick Reilly**, Liyue Fan, "Comparative Evaluation for Differentially Private Image Obfuscation," IEEE International Conference on Trust, Privacy and Security in Intelligent Systems, and Applications (IEEE TPS), 2021.

Academic Activities

- Reviewer for CVPR 2025, AAAI 2023/24/25

Awards

1. The Chateaubriand Fellowship (awarded by the Embassy of France), 2023
2. Best poster award in Mathematics and Computer Science, UNC Charlotte Undergraduate Research Conference, 2020