

Dominick Reilly

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Research Focus

My current research focuses on video understanding, specifically on learning stronger visual representations for activities of daily living videos recorded from exocentric viewpoints.

Education

University of North Carolina at Charlotte

August 2021 - Present

Doctor of Philosophy, Computer Science

Advisor: Dr. Srijan Das

University of North Carolina at Charlotte

January 2019 - May 2021

Bachelor of Science, Computer Science

Overall GPA: 4.0

Experience

University of North Carolina at Charlotte

August 2022 - Present

Research Assistant - Charlotte Machine Learning Lab

- Proposed the first pose induced video transformer, improving video representation learning for activities of daily living by integrating 2D and 3D pose information into RGB. Introduced two plug-in modules, explicitly addressing the challenges of ADL and achieving state-of-the-art results without additional computational overhead during inference.
- Novel training paradigm for ViTs that concurrently optimizes a self-supervised auxiliary task alongside the primary task, outperforming conventional self-supervised + fine-tuning techniques. Established the superior efficacy of our approach, especially in limited data scenarios.

University of North Carolina at Charlotte

July 2021 - July 2022

Research Assistant - Data Privacy Lab

- Conducted research on differentially private image obfuscation methods for safeguarding face and iris images, addressing practical privacy concerns and emphasizing rigorous privacy guarantees. Published at IEEE TPS 2021.
- Created a demo demonstrating differentially private image obfuscation. This work was published at EDBT 2022: <http://3.223.148.187/>.

Publications

1. **Dominick Reilly**, Srijan Das, "Just Add π ! Pose Induced Video Transformers for Understanding Activities of Daily Living," arXiv:2311.18840 (Under review), 2024.
2. 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.
3. Muhammad Usama Saleem, **Dominick Reilly**, Liyue Fan, "DP-Shield: Face Obfuscation with Differential Privacy," International Conference on Extending Database Technology (EDBT), 2022.

4. **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 at AAAI 2024, AAAI 2023, AI4HC 2023

Awards

1. The Chateaubriand Fellowship (awarded by the Embassy of France to U.S. Ph.D. students to conduct research in France), 2023
2. Best poster award in Mathematics and Computer Science, UNC Charlotte Undergraduate Research Conference, 2020