

# Curriculum Vitae

## Dominick Reilly

Department of Computer Science  
University of North Carolina at Charlotte  
Charlotte, NC 28223

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## Education

### University of North Carolina at Charlotte

*August 2021 - Present*

Doctor of Philosophy, Computer Science  
Advisor: Dr. Min C. Shin

### University of North Carolina at Charlotte

*January 2019 - May 2021*

Bachelor of Science in Computer Science, Minor in Statistics

**Honors:** *Summa Cum Laude* (GPA: 4.0)

**Notable Coursework:** Machine Learning, Natural Language Processing, Computer Vision, Linear Algebra, Time Series Analysis, Applied Regression, Statistics I & II, Calculus I-III

## Skills

### Proficient

Python, PyTorch, Keras, Scikit, Slurm, Git

### Familiar

Flask, HTML/CSS, JavaScript, Matlab, C, Tableau, R

## Experience

### University of North Carolina at Charlotte, Charlotte NC

*August 2021 - Present*

Research Assistant - Video and Image Analysis Lab, Data Privacy Lab

- Developed and evaluated machine learning models for classifying the social interaction of stroke survivors from pre-generated speech features and sparsely labeled training data
- Collaborated with software engineers to implement an audio feature extraction pipeline onto a wearable device. Features were log Mel-spectrograms and ECAPA-TDNN speaker embeddings
- *With Data Privacy Lab:* Assisted in writing workshop demo manuscript and software for my work on differentially private image obfuscation

### University of North Carolina at Charlotte, Charlotte NC

*August 2020 - July 2021*

Undergraduate Research Assistant - Data Privacy Lab

- Designed, implemented, and evaluated image obfuscation mechanisms satisfying rigorous mathematical privacy guarantees, namely differential privacy (DP)
- Designed and conducted experiments evaluating the efficacy of DP image obfuscation mechanisms against practical privacy attacks and standard utility measures
- Gained experience in scientific writing and presenting. I designed and presented one poster, wrote a scientific paper, and gave numerous paper presentations to lab members

**University of North Carolina at Charlotte, Charlotte NC**

*August 2019 - July 2021*

Undergraduate Research Assistant - Video and Image Analysis Lab

- Optimized and implemented state of the art deep learning models to localize and segment objects of interest in videos containing many biological objects
- Designed algorithms to improve orientation estimation of object tracking system. This work resulted in a 90% reduction in the estimated orientation error of tracked objects
- Assisted in leading a team of undergraduate students joining the project over summer semester

## **Publications**

1. **Dominick Reilly**, Liyue Fan, "Comparative Evaluation for Differentially Private Image Obfuscation," IEEE International Conference on Trust, Privacy and Security in Intelligent Systems, and Applications, to appear, 2021.

## **Presentations**

1. **Dominick Reilly**, "SocialBit: A Non-invasive and Robust Solution for Measuring Social Interaction," EXPLORE - Community Event, UNC Charlotte (2021)
2. **Dominick Reilly**, "SocialBit: A Non-invasive and Robust Solution for Measuring Social Interaction," Graduate Research Seminar, UNC Charlotte (2021)

## **Attended Conferences**

1. IEEE International Conference on Trust, Privacy and Security in Intelligent Systems, and Applications, Dec 2021 (*as author*)
2. IEEE Automatic Speech Recognition and Understanding Workshop, Dec 2021 (*as non-author*)

## **Awards, Notable Achievements**

1. Received best poster award in the Mathematics and Computer Science Discipline at UNC Charlotte's undergraduate research conference for my poster, "Evaluating Provably Private Obfuscations for Eye and Face Images" (2020)
2. Chancellor's List (2019-2021)