Christopher T. Morse

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Education

University of Virginia — Charlottesville, VA
Ph.D. in Computer Science — Expected May 2027
Cumulative GPA: 3.90 / 4.00
Technical GPA: 3.86 / 4.00

University of Minnesota – Twin Cities — Minneapolis, MN
Bachelor of Arts in Computer Science, Music Minor — Expected May 2021
Cumulative GPA: 3.90 / 4.00
Technical GPA: 3.86 / 4.00

Honors and Awards

2nd Place; University of Nebraska REU Research Symposium — Summer 2019
UROP Research Award Recipient — Summer 2020
UMN College of Liberal Arts Dean's List — Fall 2017 – Present

Work Experience

Research Assistant, University of Minnesota – IRV Lab — Winter 2019 - Present
- Developed a streamlined method for paired diver image generation to combat data scarcity.
- Investigated a method for synthetic image generation for data augmentation.
- Evaluated object detection models, organized the resulting data, and generated figures.
- Assisted with pool trials, experimentation, and dataset organization.

Teaching Assistant, University of Minnesota – Department of CS&E
CSCI 2011 : Discrete Structures of Computer Science — Fall 2019
CSCI 1133 : Intro. to Computing and Programming Concepts — Fall 2018, Spring 2019
- Conducted laboratory sections to encourage student collaboration and participation.
- Hosted office hours to further enhance students' understanding of the course material.
- Assisted with discussion sections, grading, and exam proctoring.

REU Research Assistant, University of Nebraska – NIMBUS Lab — Summer 2019
- Analyzed the benefits of network optimization and data augmentation on UAV detection.
- Coordinated with graduate students and faculty mentors to organize and complete tasks.
- Created and presented a research poster for the UNL Summer Research Symposium.

Projects

UROP Research Project: Pool2Ocean — Summer 2020
Synthetic Data Generation for Underwater Object Detection Using CycleGAN
- Implemented a generative approach for data augmentation to aid underwater detections.
- Improved average precision by 43% after including synthetic images in the training set.
- Created and presented a research poster for the UMN Virtual Research Symposium.

REU Research Project: Real-Time Unmanned Drone Detection — Summer 2019
Optimization Through Data Augmentation and Transfer Learning
- Utilized transfer learning and data augmentation to build resilience through blurry frames.
- Developed 'ABLAIS,' a system for reproducing bounding box labels on altered images.
- Modified an existing implementation of RetinaNet to enhance real-time drone detection.

Publications

M. J. Islam, C. Edge, Y. Xiao, P. Luo, M. Mehtaz, **C. Morse**, S. S. Enan, and J. Sattar, "Semantic Segmentation of Underwater Imagery: Dataset and Benchmark." Accepted to the *2020 IEEE International Conference on Intelligent Robots and Systems (IROS).*