

Education

- **Worcester Polytechnic Institute** Worcester, MA
M.Sc. Computer Science May 2021
 - Coursework: Machine Learning, Deep Learning, Computer Vision, Artificial Intelligence, Cryptography, Computer Architecture, Algorithm Design & Analysis, Theory of Computing, and Computer Networks
- **Worcester Polytechnic Institute** Worcester, MA
B.Sc. Computer Science Cum Laude May 2020
 - Coursework: Software Engineering, Operating Systems, Systems Programming, Object-Oriented Design, Databases, Machine Organization & Assembly, etc.

Projects

- **Learning Deep Social Interactions to Identify Positive Climate** Worcester, MA
M.Sc. Thesis May 2020 - Present
 - Applied Deep Learning to affective computing for automated classroom observation evaluation
 - Designed graph convolution architecture to apply on social network representations of the scene for capturing CLASS details associated with positive climate
 - Constructed pipeline for assembling network representation of social scenes to achieve performance difference demonstrated in simulation
 - Fine-tuned state of the art computer vision embedding networks for participant tracking on limited classroom data in a privacy conscious manner
- **Enhanced Residual Networks for Context-based Image Outpainting** Worcester, MA
Team Project January 2020 - May 2020
 - Modified generative networks with residual pathways and conjoined local and global discriminators to improve on localized feature consistency in image outpainting task on Places365-Standard
 - Published findings and code demonstrating qualitative improvements in internal consistency and more efficiently meeting state of the art performance
- **Automated Corrosion Assessment and Data Collection** Cape Canaveral, FL
U.S. Army Research Lab Collaboration January 2020 - May 2020
 - Developed iOS application for efficient on-site data collection, editing, and viewing
 - Deployed RESTful API with support for multi-dimensional data submissions, user account registration and authentication, visualization tools, and download endpoints via web interface
 - Prototyped CNN and SVM classification models for remote corrosion rating per ASTM D1654
- **Augmented Reality for Improving Human-Swarm Interaction** Worcester, MA
B.Sc. Capstone Project August 2019 - March 2020
 - Developed ARGoS-based swarm control system on the Magic Leap headset with mixed-modality control options, combining gesture and voice recognition
 - Combined control system with visualization layer to enable easy swarm-wide debugging
 - Published findings, including an outlined user study plan for evaluating methods against existing tablet-based system

- Forgery Recognition Through Handwriting Style Emulation** Worcester, MA
Team Project August 2019 - December 2019
 - Analysed state-of-the-art machine learning algorithms for handwriting style extraction and synthesis
 - Designed reinforced GAN for synthesis and Siamese network for forgery generation and evaluation
- Chess Piece Image Classification** Worcester, MA
Team Project August 2019 - December 2019
 - Used data generation techniques to build robust dataset coverage of objects
 - Implemented CNN using Keras and evaluated multiple computer vision preprocessing techniques
 - Achieved 94% classification accuracy while maintaining invariance to rotation, scale, translation, etc.
- Brigham & Women's Hospital Kiosk** Worcester, MA
Assistant Lead Software Engineer January 2018 - May 2018
 - Designed, developed, and tested pathfinding kiosk software as part of an Agile team
 - Conducted market research through interviews and surveys for usage patterns and requirements
 - Created process maps and diagrams based on business architecture solutions using case diagrams, activity diagrams, and UML flowcharts
 - Authored well-engineered solutions using test-driven methodologies

Work Experience

- Worcester Polytechnic Institute** Worcester, MA
Teachers Assistant August 2020 - October 2020
 - Held office hours and graded assignments for Mobile & Ubiquitous Computing
- Worcester Polytechnic Institute** Worcester, MA
Graduate Research Assistant May 2020 - August 2020
 - Collaborated with Professor Jacob Whitehill for proofing tracking-based CLASS prediction models in simulation
- Proofpoint** San Francisco, CA
Software Engineering Intern June 2019 - August 2019
 - Developed internal CLI tool for deployment of a Docker-based testing environment to improve and abstract all individual testing cases
 - Automated product backend upgrade testing jobs in Jenkins
- Cloudflare** San Francisco, CA
Operations Intern June 2018 - August 2018
 - Designed system for identifying, scoring, and generating optimal sales leads using internal contact data supplemented with additional information scraped from networking platforms
 - Developed scripts used to periodically evaluate client's site status information with 100x efficiency

Skills

Languages: Python, Java, Go, C, C++, C#, Bash, MATLAB, R, SQL, Lisp, L^AT_EX

Software: Linux, Git, Jupyter Notebook, Docker, Kubernetes, CUDA, Make, CMake, GDB, VirtualBox, Unity, Jenkins, Gradle, TravisCI, Valgrind, Wireshark, Jira, Trello

Frameworks: NumPy, PyTorch, Tensorflow, Keras, SciKit, SciPy, OpenCV, Pandas, Matplotlib

Compute Services: Google Cloud Platform (GCP), Amazon Web Services (AWS), Slurm-based Linux clusters

Certifications: Human Subjects in Social & Behavioral Research by CITI

Topics: Deep Learning, Computer Vision, Graph Convolutional Networks, Embeddings, Timeseries Processing, Reinforcement Learning, Distributed Robotics Systems, Human-Swarm Interaction, State Estimation

Awards: Dean's List: Fall 2017, Fall 2018, Spring 2020