Seth Ockerman

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Education

Grand Valley State University Aug. 2019 - (Expected) May 2023

- Bachelors of Science in Computer Science
- Fredrick Meijers Honors College Student
- Minors: Mathematics, Writing
- GPA: 3.96/4.0

Relevant Courses

Data Structures and Algorithms (CIS 263), Artificial Intelligence (CIS 365), High Performance Computing (CIS 677), Data Communications (CIS 457), System Security (CIS 458), Applied Machine Learning (CIS 378), Operating Systems (CIS 452), Computer Organization and Assembly Language (CIS 351)

Research Experience

Improving AI Model Selection For Digital Agriculture Datasets May 2022 - Present
The Ohio State University— Advised by Professor Christopher Stewart

- Funded through the competitive Big-10 Summer Research Opportunities Program
- Seeking to quantify the influence of discipline specific datasets on the AI model selection process and improve model selection for complex image datasets
- Achieved 82% accuracy at predicting final neural network test accuracy using data obtained after only 3% of required convergence training time
- Led a team of 3 in the writing of an ArXiv paper detailing our summer investigation results

Predicting COVID-19 Case Counts Using Twitter Image Data July 2020 - Sep. 2022
Grand Valley State University — Advised by Professor Erin Carrier

- Funded by the GVSU 2021 Student Summer Scholars Grant and the 2022 MI STEM Forward Grant
- Used CNNs, Bash, & Python to create a 116k image dataset of masked persons
- Trained a custom CNN which outperformed existing neural networks at social media mask detection
- Performed time series analysis using VARMA, ARIMA, and LSTMs
- Improved Covid Spike prediction accuracy through social media image analysis

Improving the Accessibility of Video Games Oct. 2019 - Aug. 2020
Grand Valley State University — Research Assistant under Professor Ira Woodring

- Investigated developmental methods to increase video game accessibility to people with disabilities
- Performed literature review of concurrent accessibility research
- Contributed towards a game boy emulator in C demonstrating accessibility standards

Publications

Ockerman, Seth and Erin Carrier (2022). "Predicting COVID-19 Case Counts Using Twitter Image Data". In: *To appear in IEEE ICMLA 2022*.

Ockerman, Seth et al. (2022). *A Case for Dataset Specific Profiling*. DOI: 10.48550/ARXIV.2208.03315. URL: https://arxiv.org/abs/2208.03315.

Ockerman, Seth, John Wu, Zhang Zitchen, et al. (2023). "A Reflection on AI Model Selection for Digital Agriculture Image Datasets". In: *To appear in AAAI 23*.

Presentation and Teaching Experience

Lab Assistant — GVSU Aug. 2022 - Present

– Assist Professor Erin Carrier in teaching undergraduate Computational Science (CIS 161)

– Help facilitate undergraduate labs and answer student questions

Research Ambassador — GVSU Jan. 2022 - Present

– Advocate for the benefits of undergraduate research through classroom presentations

– Facilitate research events such as Student Scholars Day and Undergraduate Research Fair

Computer Science Tutor — GVSU CIS Success Center Aug. 2020 - Present

– Tutor for Computational Science (CIS 161), Computer Science I (CIS 162), Computer Science II (CIS 163), and System Level Programming and Utilities (CIS 241)

Poster Presentations

Benchmarking Computational Models for Data Driven Science July 2022

The Ohio State Summer Research Symposium — Advised by Professor Christopher Stewart

– Designed and presented a poster detailing a selection of my summer 2022 SROP research findings

– Created multiple figures that visually demonstrated the influence of dataset domain on realative CNN model performance

– Presented early results at early model performance prediction using GBMs

Detecting Face Mask Usage Trends in Social Media with Machine Learning July 2020

Michigan State Mid-Sure — Advised by Professor Erin Carrier

– Designed and presented a poster detailing early research findings

– Presented early results detailing the creation of a new social media based mask image dataset

– Detailed initial findings from the design and training of a novel mask detection CNN model

Skills

Languages:	Python, Java, C++, C, C#, Bash
Tools and Frameworks:	Git, NumPy, TensorFlow, Keras, Docker, Linux, CUDA, Open-MPI

Honors and Awards

– GVSU Dean's List: 2019 - Present

– GVSU Faculty Scholarship: 2019 - Present

– GVSU Award for Excellence Scholarship: 2019 - Present

– GVSU Excellence in Computer Science Scholarship: 2021

– GVSU School of Computing First Year Endowed Scholarship: 2019