

COLE WOOD DIIANNI

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EDUCATION

University of Wisconsin - Madison

Madison, WI

MS Computer Sciences, Machine Learning, GPA: 3.94

Sept 2021-Cur.

- **Programming Coursework:** Computer Vision, Learning Based Image Synthesis & Manipulation, Advanced Deep Learning, Machine Learning, Matrix Methods in Machine Learning

Carleton College

Northfield, MN

BA Computer Sciences, GPA: 3.82

Sept 2017-June 2021

- **Programming Coursework:** Data Science, Algorithms, Linear Algebra, Numerical Analysis, Programming Languages Design & Implementation, Computability & Complexity, Software Design

EXPERIENCE

University of Wisconsin - Madison

Madison, WI

Computer Vision/Computer Science Researcher

Sept 2021-Cur.

- Investigated color-word-associations of contrastive language-image pretraining (CLIP) model to compare human interpretations and artificial intelligence (AI) embeddings (correlation coefficient of 0.77 on color-word-association histograms)
- Developed generative models to correct for covariate shift during cancer prediction model deployment with 88% accuracy on OOD dataset using python
- Performed membership inference attacks on convolutional neural networks (CNN) to reconstruct models' training sets using a generative adversarial network (GAN)
- Organized data processing and analysis pipelines, allowing attack to transfer for various datasets and model architectures
- **Advisor:** Dr. Yin Li, Dr. Somesh Jha
- **Utilized:** Computer Vision, Neural Network, CNN, GAN, OOD-Detection, Image Classification, Supervised Learning

Carleton College

Northfield, MN

Machine Learning/Computer Science Researcher

Jun 2019-June 2021

- Conducted exploratory research investigating the effects of menstrual cycle hormones on insulin sensitivity in individuals with type I diabetes by analyzing blood glucose and insulin time series data
- Utilized dynamic time warping (DTW) to cluster time series data of individuals' daily activities, identifying average daily patterns
- **Advisor:** Dr. Dave Musicant
- **Utilized:** Time Series Data, Clustering, Regression Models, Dynamic-time-warping

Ottawa Hospital Research Institute

Ottawa, ON

Computer Vision/Computer Science Researcher

Jun 2020-Aug 2020

- Predicted localized gene expression within tissue samples by training a convolutional neural network on H&E slide images and spatial transcriptomics data
- **Advisor:** Dr. Theodore Perkins

TEACHING ASSISTANT

University of Wisconsin - Madison

Madison, WI

Intro to Artificial Intelligence (Head TA)

Sept 2022-Cur

University of Wisconsin - Madison

Madison, WI

Programming I (Head TA)

Sept 2021-June 2022

Carleton College

Northfield, MN

Programming Languages Design & Implementation

Sept 2020-Mar 2021

PROJECTS

Keystrokes as a Password - Carleton College

Lead Machine Learning Engineer

Sept 2020-Mar 2021

- Designed a two-factor authentication method to identify users based on typing patterns using a recurrent neural network
- Developed and implemented a keystroke-based password authentication system that achieved a true positive rate of 95% and a false positive rate of 22%

LEADERSHIP

Carleton Student Association

Northfield, MN

Class Representative

Mar 2018-Mar 2021

- Established a seminar series covering topics such as budgeting, investing, and insurance to teach students important life skills

SKILLS

Software Languages: (proficient): Python, Java, C, R (familiar): SQL, HTML, CSS, LaTeX

Technologies: (proficient): Pytorch, Tensorflow, CNN, GAN, Deep Learning, Clustering, Classification (familiar): Neural Radiance Field (NERF), Diffusion Model, Transformer Networks, NLP, RNN, Hadoop, Spark, Map-Reduce