Wenhao He

wenhaohe8@gmail.com GitHub LinkedIn **+1 347-824-4797**

Skills

Languages: Python, SQL, JavaScript, HTML, CSS, C/C++, LaTeX
Libraries: Numpy, PyTorch, Pandas, Sci-kit Learn, Scipy, PySpark, OpenCV, Matplotlib
Frameworks: ROS, Hadoop, PyTorch, Tensor-Flow, React, Flask, Pygame, NodeJS
Developer Tools: Jupyter, PyCharm, Visual Studio Code, IntelliJ IDEA, GitHub, Magicavoxel, Git, Docker
Cloud/Databases: AWS, MongoDB, MySQL
OS: Windows, Linux, MacOS

Education

- **University at Buffalo, The State University of New York** *Aug 2022 - Feb 2024*
  Master of Science in Engineering Science focus on Artificial Intelligence
  Coursework: Machine Learning, Deep Learning, Computer Vision, Reinforcement Learning
- **University at Buffalo, The State University of New York** *Aug 2018 - May 2022*
  Bachelor of Science in Computer Science
  Coursework: Data Structures, Computer Architecture, Computer Networking, Web Application

Projects

YouTube Video Summarizer Web Application: Python, JavaScript, HTML/CSS, Flask *Feb 2024 - Mar 2024*
A web app for transcribing, summarizing, and translating YouTube videos globally

- Transcribed and summarized YouTube content, enhancing global content access
- Engineered a faster Flask backend, **improving response speed by 50%**
- Enabled 15-language transcription and summary with Google Translate API
- Optimized audio processing, **reducing time by 30%** with PyDub and Librosa

Audio Cloning: Librosa, PyTorch, Matplotlib, Python *Aug 2023 - Feb 2024*
Developing an AI model to replicate a judge's voice from the Brown v. Board case

- Supervised by **Dr. David Doermann**
- Collaborated with a team of 4 and developed audio cloning model
- Replicate judge's voice with **90% accuracy** for reading court decisions, enhancing the authenticity of digital records
- Bringing court documents to life and **preserving authentic historical sounds** through modern techniques

Monocular Depth Estimation in Single Image: PyTorch, OpenCV, Matplotlib, Python *Feb 2023 - May 2023*
Leveraged Deep Learning for 3D distance analysis from 2D images

- Collaborated in a team of 4, leveraging the **EfficientNet-B5 network** for robust feature extraction
- Trained on **NYU-Depth V2 dataset** with **1,449 labeled and 400k+ unlabeled pairs**, improving model depth
- Measured distance between photographer and object in 3D using an existing 2D image

Multiple-agent Playing GoMoku Board Game: PyTorch, Matplotlib, Python *Mar 2023 - May 2023*
A Reinforcement Learning project trains agents to play GoMoku board game

- Crafted a Monte Carlo Tree Search(MCTS) algorithm as own model, with a **100% win rate** over pure MCTS
- Trained agents using a custom MCTS model and AlphaZero, achieving competitive self-play outcomes
- Reduced training time by **76.67%** compared to AlphaZero across 100 episodes

Detection on Fruit/Vegetables in 2D Images: PyTorch, OpenCV, Matplotlib, Python *Mar 2023 - May 2023*
Conducted a Computer Vision project for detecting fruit and vegetables in 2D images

- Achieved **<0.05 training loss** and **>98% test accuracy** identifying **100+ fruit/vegetable classes**
- Crafted image-based fruit/vegetable counting algorithm, **>95% accurate** across scale variations
- Enhanced classification precision by **15%** with advanced edge detection in feature extraction