

# Wenhao He

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## EDUCATION

### •University at Buffalo, The State University of New York

Aug 2022 - May 2024

*Master of Science in Engineering Science focus on Artificial Intelligence*

**Coursework:** Machine Learning, Deep Learning, Computer Vision, Reinforcement Learning, Pattern Recognition

### •University at Buffalo, The State University of New York

Aug 2018 - May 2022

*Bachelor of Science in Computer Science*

**Coursework:** Data Structures, Computer Networking, Algorithms, Systems Programming, Computational Linguistics

## EXPERIENCES

### CAN International Corp

New York, NY

#### Software Engineer Internship

Apr 2024 - Present

- Developed a full-stack CAN membership app with job searching and mentor-mentee matching, and chat features
- Implemented secure data storage, authentication, and real-time data fetching with Firebase
- Created a platform connecting high school and college students for tutoring and college applications, supporting 500+ users
- Enhanced user experience by optimizing avatar loading algorithms, reducing processing time from 5 minutes to a few seconds
- Leveraged advanced search and filtering capabilities for job postings and mentor profiles, allowing users to efficiently find and connect with relevant opportunities and mentors
- Integrated robust error handling and logging mechanisms to quickly identify and resolve issues, improving the overall reliability and stability of the application

## PROJECTS

### Audio Cloning: Project Leader & Software Engineer

Aug 2023 - Feb 2024

Developed SV2TTS model to replicate judge's voice from the Brown v. Board case

- Implemented a **three-stage pipeline deep learning SV2TTS** to clone voices unseen during the training
- Applied UMAP for efficient dimensionality reduction, preserving key characteristics of voice data
- Conducted experiments on 10k texts, including both seen and unseen texts, to enhance audio generation
- Achieved 90% voice replication accuracy through auditory comparison and heatmap analysis of voice waveforms by dozens of participants, enhancing digital record authenticity

### Costumer Maximum Open Credit Prediction System: Software Engineer

Aug 2023 - Jan 2024

ML model to estimate customer open credit limits using comprehensive financial data

- Preprocessed data from a bank customer dataset, implementing cleaning and transformation techniques
- Performed EDA on 50k rows of bank customer data using Numpy and Pandas, and Hadoop to gain insights into key variables for credit predictions
- Developed, compared, and evaluated six different machine learning models using RMSE and  $R^2$  to estimate credit limits
- Applied and tuned Ridge Regression and SVR models to predict credit scores, achieving an accuracy of 88% and proposing recommendations to improve client credibility based on transition trends

### Monocular Depth Estimation in Single Image: Software Engineer

Feb 2023 - May 2023

Implemented encoder-decoder CNN structure for 3D distance estimation from 2D images

- Implemented an encoder-decoder CNN with EfficientNet-B5 encoder and a 12-layer decoder for monocular depth estimation
- Trained on the NYU-Depth V2 dataset with 1,449 labeled and over 400,000 unlabeled pairs to improve model accuracy
- Enhanced training data quality with real-time image processing, achieving a 50% reduction in loss compared to the Kaggle baseline model
- Reduced information loss by minimizing the use of pooling layers, resulting in a decrease in loss from 4.5 to 2.5 when optimizing the batch size to 16

## TECHNICAL SKILLS

**Cloud/Databases:** MongoDB, MySQL, AWS SageMaker, AWS EC2, Google Firebase, Amazon DynamoDB

**Frameworks:** Python(Tensor-Flow), Python(Scikit-learn), PyTorch, Matplotlib, Numpy, Pandas, Apache Hadoop, Apache Spark, JavaScript(React/React Native), Python(Flask), OpenCV, Node.JS

**Deep Learning:** Transformer, GPT(Generative Pre-trained Transformer), CNN(Convolutional Neural Networks), RNN(Recurrent Neural Networks), GAN(Generative Adversarial Networks), Autoencoders, DQN(Deep Q-Networks)

**Developer Tools:** GitHub, Git, Docker, Jupyter Notebook, PyCharm, Visual Studio Code, IntelliJ IDEA, Google Cloud Platform (GCP), Kubernetes, Figma, Slack