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 Azure and 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, Microsoft Azure, Firebase, Spark
Frameworks: Python(Tensor-Flow), Python(Scikit-learn), PyTorch, Matplotlib, Numpy, Pandas Hadoop, JavaScript(React/React Native), Python(Flask), OpenCV, Node.JS
Machine Learning: Regression (Linear, Logistic, Ridge, Lasso, Elastic Net, Support Vector, Neural Network), Decision Tree, Convolutional Neural Networks (CNN), Recurrent Neural Networks (RNN), Autoencoders, Support Vector Machines (SVM), k-Nearest Neighbors (k-NN), Principal Component Analysis (PCA), K-Means Clustering
Developer Tools: GitHub, Git, Docker, Jupyter Notebook, PyCharm, Visual Studio Code, IntelliJ IDEA, Google Cloud Platform (GCP), Kubernetes, Figma, Slack