Zerui Wang

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About me

Passionate second-year undergraduate pursuing a Bachelor of Computer Science at the University of Western Australia. Proficient in Python. Enthusiastic about machine learning, computer vision, and anomaly detection. Extensive coursework in these areas, including Coursera's Computer Vision, Machine Learning, and Deep Learning.
Skilled in building neural networks using TensorFlow and PyTorch for pattern recognition. Expertise in image processing, object detection, and feature extraction. Intrigued by anomaly detection, particularly in video streams.

Education

The University of Western Australia **Expected Graduation: 12.2023**
Bachelor of Science
Coursework:

- CITS1401 - COMPUTATIONAL THINKING WITH PYTHON (79)
- CITS1402 - RELATIONAL DATABASE MANAGEMENT SYSTEMS (67)

Technical Skills

Tools: Git, Jupyter Notebook, VS Code, Anaconda, PyCharm
Programming Skills: Python (NumPy, Pandas), C, C++
Systems/Platforms: Linux, Windows, MacOS, IBM Watson, GCP, AWS, PyTorch Lightning, TensorFlow Serving
CV/ML Libraries: OpenCV, Pillow, Scikit-learn, TensorFlow, PyTorch

Projects

Real-Time Anomaly Detection in Surveillance Videos

- Developed a real-time anomaly detection system for surveillance videos using OpenCV for video processing and feature extraction.
- Trained machine learning models (e.g., SVM, Random Forest) to classify normal vs. anomalous frames.
- Enhanced security measures and reduced false alarms by automatically detecting anomalies in real-time.

Video Enhancement for Medical Imaging

- Designed a video enhancement pipeline for medical imaging videos, involving noise reduction, image registration, motion correction, and temporal filtering.
- Developed a CNN to enhance specific features in medical videos, contributing to improved quality for medical research and diagnosis.

Face Recognition Analysis

- Analyzed facial recognition using geodesic and 3D Euclidean distances between facial landmarks for various expressions.
- Quantified facial asymmetry and evaluated similarity metrics using Python libraries like NumPy.
- Contributed insights into enhancing facial recognition technology's accuracy and reliability, impacting security, access control, and surveillance industries.