Mo(Max) Zhou

Boulder, CO | maxzhoumo@gmail.com | 312-956-5517 | LinkedIn:/max-mz

EDUCATION

MS Computer Science	Jun 2025
University of Colorado Boulder	GPA: 3.957
BE Information Security	Jun 2022
Nanjing University of Posts and Telecommunications	GPA: 83.87/100

SKILLS

Languages: Python, C, C++, JavaScript, TypeScript
Libraries: pytorch, numpy, pandas, tensorflow
Model Architectures: CNN, RNN, LSTM, Transformer, Decision Tree, Random Forest
Experience: CV, NLP, ML, Kubernetes, Docker, PostgreSQL, ORM, Redis, Minio, GCP, REST, gRPC, protobuf, Git, Hadoop, Spark, Object-oriented Programming

PROJECT EXPERIENCE

Distracted Driver Detection   Apr 2024
https://github.com/momoaolig/Distracted-Driver-Detection
- Utilizing CNN, Transformer and Hybrid model to classify the action of driver in the picture and compare their performance.
- Dataset: State Farm Distracted Driver Detection from Kaggle; Model: ResNet50, VGG16, Vision Transformer(ViT), Swin Transformer, ResNet50+ViT, ResNet50+Swin; Framework: Pytorch(GPU), Tensorflow
- Results: ResNet50 with fine-tuning has the highest accuracy: 99.18
- Hybrid Model: remove the last fully connected layer of Resnet50 to make it serve as a feature extractor; set the patch size and image size of transformers and input the feature map from resnet to make the final decision; set up a transition layer to merge the channels to 3 if the transformer does not have num_channels parameter.

Neural Networks   Jan 2024
- Designed and implemented neural networks architectures including perceptron, fully-connected NN and CNN, tested performance with different layers and different activation functions.
- Deployed different regularization strategies to address encountered overfitting. Evaluated qualities and time costs of different strategies.
- Applies pre-trained models(VGG, ResNet) from keras on image classification tasks and did fine-tuning to achieve better performance.
- Analyzed trends involved through experiment by visualizing the data with matplotlib and seaborn. Plotted histograms and scatter plots of data and learning curves for training and validation splits.

Chat as a Service   Dec 2023
- Designed and implemented database schemas with PostgreSQL. Utilizing ORM (SQLAlchemy) to avoid direct operations on SQL. Developed corresponding SQLAlchemy database models and Pydantic schemas.
- Developed services including operations on accounts, applications, organizations, etc.
- This project is following the Github workflow.

Music Separation on Kubernetes   Nov 2023
- Implemented Flask server to accept API requests, queue tasks to workers with Redis queues, store music files in Minio raw data bucket and download the separated tracks from tracks bucket. Generated a unique identifier for each song for later retrieve.
- Implemented worker program to receive the task and corresponding mp3 file from Redis queue and Minio bucket, do the separation with demucs and push the split tracks into Minio tracks bucket.
- Created docker images for Rest server and worker and deployed all the parts on Kubernetes. Created an ingress to expose the REST service.

RELEVANT COURSEWORK

Machine Learning, Neural Network and Deep Learning, Natural Language Processing, Datacenter Scale Computing, Data Structure, Object Oriented Programming and C++, Embedded System and Development, Database Systems, Computer Communications and Networks, Operating System Internals and Design Principles, Computer Organization and Architecture, Fundamentals of Electric & Electronic Technology