Pengpeng Zhang

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Education

Shenzhen University, Integrated Circuit Design and Integrated System, *Bachelor* 2012.09 - 2016.07

Work Experience

Guangzhou Joyy Information Technology Co.,Ltd., Speech Algorithm Engineer 2022.04 - Now
PFU Shanghai Co., Ltd., AI Algorithm Engineer 2020.04 - 2022.04
Shanghai Haijiao Network Technology Co., Ltd., Algorithm Engineer 2019.04 - 2019.08

Projects

- **Project 1：Mispronunciation Detection and Diagnosis(independent responsibility)**

Under the **Wenet** speech recognition framework to build the company's end-to-end phoneme recognition platform independently, to optimize the model with open source voice data and the company's own data , introduced prior information to the model, and greatly reduced the insertion and substitution errors of the model. The PER(phoneme error rate) is about **3%**, and the FAR(false alarm rate) is **7%**

- **Project 2: Chinese Mandarin and English Speech Synthesis(independent responsibility)**

Utilised MFA(montreal forced aligner) to align labeled text with audio, Jieba to segment text, pypinyin to process Chinese characters into pinyin and convert them into phonemes, convert phonemes into Mel-spectrum based on **Tacotron2** neural network, and with the **Multi-Band MelGAN** model to synthesize Mel-spectrum into audio
Under the **Flask** to deploy the model on the network as the server side, provided a RESTful API interface to respond to HTTP requests from clients, use nginx for load balancing and reverse proxy, and Gunicorn as the wsgi http server to process HTTP requests

- **Project 3: Detection and Identification of Dishes**

Responsible for the training and deployment of dish recognition models. The dish detection model depends on **SSD** network to detect the target dish in the plate, and the detected target frame is used to crop the image to get the dish image, the dish recognition model uses **DCN** optimized **ResNet50** network to extract the feature vector of the dish, with **Triplet Loss**. Then compare this feature vector with the feature vector in the dish library to achieve the dish recognition, and the accuracy of the dish recognition is above **99%**.
Deployed models trained on TensorFlow framework to Windows machines using C++, and convert C++ interface to C interface to generate DLL(dynamic link library) files for Python programs to call. Besides, deployed the models on Nvidia Jetson Nano for edge computing.

Campus

Utility Model Patent: 《A smart home system》
Freshmen Scholarship
Second prize of National Undergraduate Electronic Design Competition
Third prize of Freescale Smart Car Competition in South China

Competition

IFlytek COVID-19 Voice Recognition Challenge Rank: 15/549
Kaggle Lung Cancer Detection Rank: 110/1149

Skills

- Familiar with C/C++, Python, Linux Shell
- Proficient in using CMake, LaTex, OpenCV, Kaldi, Docker
- Proficient in using deep learning framework PyTorch
- English CET6 certificate, basic English paper reading ability