Binwei YAO

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Education

Shanghai Jiao Tong University (SJTU), Shanghai, China — Sept 2018 – Jun 2022
B.Eng in Software Engineering
Overall GPA: 86.5 / 100 Major GPA: 89.7 / 100
A+ Courses: Natural Language Processing, Machine Learning, Introduction to Computer System, Internet Application Development Technology, etc.

Publications

- **Binwei Yao***, Chao Shi, Likai Zou, Lingfeng Dai, Lu Chen, Mengyue Wu, Zhen Wang, Kai Yu. D^4: a Chinese Dialogue Dataset for Depression-Diagnosis-Oriented Chat, *submitted to EMNLP 2022*
- Tao Liu*, Shuai Fan*, Xu Xiang, Hongbo Song, Shaoxiong Lin, Jiaqi Sun, Tianyuan Han, Siyuan Chen, **Binwei Yao**, Sen Liu, Yifei Wu, Yanmin Qian and Kai Yu. MSDWild: Multi-modal Speaker Diarization Dataset in the Wild, *accepted by Interspeech 2022*

Research Projects

D^4: a Chinese Dialogue Dataset for Depression-Diagnosis-Oriented Chat — Nov 2020 – Present
Research Intern, Advisor: Prof. Mengyue Wu, Prof. Lu Chen, Prof. Kai Yu — X-Lance Lab, SJTU

- Proposed the first Chinese benchmark dialogue dataset, including 1,339 simulated multi-turn conversations with diagnosis records in the depression-diagnosis scenario, combines task-oriented dialogue and chit-chat with ample emotional support.
- Devised a novel three-phase approach in collecting diagnostic dialogues to collect clinical sound data in a simulated method
- Conducted experiments by *PyTorch* on dialog generation, symptom summarization, and depression risk classification tasks on SOTA pre-trained natural language generation models such as BART, CPT, etc. to validate further the dataset's purpose in constructing a close-to-clinical and up-to-standard depression diagnosis dialogue system.
- Performed multi-scale evaluation demonstrated that a more empathy-driven and diagnostic-accurate consultation dialogue system trained on our dataset could be achieved compared to rule-based bots.
- The work has been submitted to *EMNLP 2022*.

MSDWild: Multi-modal Speaker Diarization Dataset in the Wild — Nov 2021 – Mar 2022
Research Intern, Advisor: Prof. Kai Yu — X-Lance Lab, SJTU

- Released a benchmark dataset for multi-modal speaker diarization in the wild, which covers rich real-world scenarios and languages, and conducted baseline experiments on the dataset using audio-only, visual-only, and audio-visual speaker diarization.
- Assisted multi-model video collecting and filtering from the Internet.
- The work has been accepted by *Interspeech 2022*.

Environmental Target Recognition and 3d Location Estimation — Mar 2020 – Aug 2020
Research Intern, Advisor: Prof. Weiyao Lin — Department of Electronic Engineering, SJTU

- Reproduced the basic image super-resolution model-SRCNN and performed multi-camera calibration in the space close to unmanned supermarkets.
- Implemented the front end of the system for real-time image acquisition and obtained the human pose detection results by Openpose as the input of the three-dimensional position estimation model.

Internship

AISpeech Information Technology Co., Ltd. Suzhou, China — Jul 2021 – Sept 2021
Summer Intern, Dialogue and Multimodal Group

- Implemented a ruled-based depression-diagnosis dialogue system to collect the user‘s depressive symptoms through fixed questions and provide a diagnostic report.
- Implemented the language generation model based on the state machine and the language understanding model based on similarity calculation and extracted core depressive symptoms into semantic slots to control the dialogue flow in a user-specific way.
- Developed an Android App by *Java* equipped with the diagnosis dialogue system, which combines speech inputs and text inputs.

Side Projects

MobileNet: MobileNetV2 inference optimization implemented by *Cuda*.

- Optimized the convolution function by assigning fine-grained computing tasks to multiple threads.
- Reduced memory malloc and memcpy by sharing memory between input and output and completing the data movement before the inference.

Chatbot: A chatbot implemented by *PyTorch*

- Implemented a chatbot by a hierarchy model with RNN as the utterance encoder, the Transformer encoder layer as the context encoder, and attention plus RNN as the decoder.

Naive-Gdocs: A shared document collaboration platform based on the distributed file system with the frontend by *React*, the backend by *Spring Boot*, and the distributed file system by *Go* .
Amoy-Interst: An interest-based social website which has the frontend by *React*, the backend by *Spring Boot* and a automatic CI-CD environment based on *Jenkins* and *Docker*.
KV-Store: A key-value storage system based on log-structured merge-tree in the disk and skiplist cache in memory by *C++*.

Extracurricular Experience

The Robmaster Robot Club of SJTU, *Member* Dec 2018 – Sept 2019

- This community is mainly composed of robmaster robot enthusiasts, aiming to make mobile shooting robots by hand, including mechanical structure, circuit control and vision algorithm.
- Participated in the national competition of Season 2019 to assist vision alogrithm coding and the team won the second prize.

The Youth Volunteer Service Team of SJTU, *Member* Dec 2018 – Sept 2019

- This community is mainly composed of students who organize a series of campus and off-campus volunteer activities such as campus services, community co-construction, poverty alleviation, etc.
- Planned, organized and participated in volunteer activities including hospital guidance and sports event services.

Awards

Intelligent Foundation - Industry-Education Integration Collaborative Education Scholarship, for students who have an excellent performance in AI-related courses. Nov 2021
University-level B Scholarship for the 2020-2021 Academic Year, for top 10% students. Nov 2021
University-level B Scholarship for the 2019-2020 Academic Year, for top 10% students. Nov 2020
Meritorious Winner of the 2020 Mathematical Contest In Modeling, for top 13% teams. Apr 2020

Technical Skills

Programming Languages: Proficient in *Python*, *C++*, *Java* , *Javascript*; Capable of *Cuda*, *Go* and *Shell*.
Tools: Proficient in *PyTorch*, *Spring* , *Flask*, *React* and *Vue*; Familar with *Linux* and *git*.