Binwei YAO

https://bigbinnie.github.io | binweiyao@outlook.com | ⌂ GitHub: BigBinnie

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, *conditionally accepted by EMNLP 2022 due to ethical concerns to be addressed in final version*
- 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   Sept 2021 – June 2022
Research Intern, Advisor: Prof. Mengyue Wu, Prof. Lu Chen, Prof. Kai Yu   X-Lance Lab, SJTU

- Proposed the first Chinese benchmark dialogue dataset for depression diagnosis, including 1,339 simulated multi-turn conversations with diagnosis records, which combines task-oriented dialogue and chit-chat with ample emotional support.
- Devised a novel three-phase approach in data collection to collect clinical sound data in a simulated method
- Conducted experiments by *PyTorch* and *HuggingFace* on response generation, topic prediction, dialog summary, and severity classification tasks on SOTA pre-trained natural language generation models such as BART, CPT, etc. to validate the dataset's performance 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 conditionally accepted by *EMNLP 2022* due to ethical concerns.

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-modal 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-screening agent to collect users' 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 regular matching
- Extracted core depressive symptoms into semantic slots and stored collected symptoms in the dialogue state 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

- The 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

- The 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*.