MOU, XIANGYANG

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PROFILE SUMMARY

Ph.D student in the area of natural language processing, multimodality and human-computer interaction, with strong programming skills of Python, Matlab, Android, JavaScript, HTML and C/C++; doing research and applications on QA systems and cognitive systems by leveraging deep learning techniques

EDUCATION

- Rensselaer Polytechnic Institute (RPI) Troy, NY
  Ph.D candidate in Computer System Engineering **Aug 2017 – Current**
- Washington University in St. Louis (WUSTL) St. Louis, MO
  Master of Science in Electrical Engineering **Jan 2015 – May 2016**
- Xidian University (XDU) Xi'an, China
  Bachelor of Engineering in Electronic Information Engineering **Sept 2010 – Jul 2014**

RECENT PROJECTS

Flexible Platform For Multiple Roles in Developing Dialogues for Language Learning **Mar 2019 – Current**

- Designed a dialogue engine, optimized it for the second language learning, and published it as an online service with Flask, Socket.io and RabbitMQ
- Implemented RESTful APIs of the dialogue service for daily developments, testing and downstream applications
- Developed user-friendly tools and graph-based data visualization with Bootstrap and Vis.js for easy editing

Machine Teaching for Goal-oriented Dialogue System **Oct 2018 – May 2019**

- Adopting a Markov model for dialogue manager and task manager
- Using supervised learning and weak supervised learning techniques to train the model with less data
- Leading 20 undergraduates to improve the dialogue system to be more domain-adaptive

A Framework of Collecting and Fusing Multi-Modal Data for Cognitive Analysis **May 2018 – August 2019**

- Built a frame that can automatically detect and fuse multimodal data including multiuser location, speech, gesture, head pose and screen data
- Modularized the system and optimized the logic flow so that it is easy to scale up, add additional modalities and support multiple users scenarios in real time
- Provided utilities and API to serve as an infrastructure and offered support to multiple real-time applications

Mobile Eye Gaze Tracking **Sept 2017 – May 2018**

- Developed an Android app for raw data collection, image preprocessing and online demo
- Used TensorFlow to train a model for eye gazing tracking, with model designed speficifically for mobile device
- Implement the simplified iTracker deep learning model on Android device
- Achieved an accuracy of more 60% on a 5-inch screen for 3x3 grid test.

Remote Accessible Home Surveillance System – MalloryEye **Jan 2017 – Mar 2017**

- Built and maintained an AWS server and developed a project website for online access and management
- Developed Python programs on server to control a local camera for taking and uploading pictures
- Used CNN to do cat detection and prevent cats from entering kitchen and jumping onto dinning table

Android App Development

- Online Ultimate Tic Tac Toe on Google Play **Mar 2017**

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- Kismat Konnect – Dating App for South Asian Area **Aug 2016 – Oct 2016**

Cocktail Party Hearing Aid by Microphone Array **May 2015 – Aug 2015**

- Established a parallel-computing structure among computers and designed a parallel-computing algorithm, improving the computational ability 160 times
- Adopted cross-correlation algorithm, bringing a thousandfold increase in wave shifting speed with higher accuracy
- Optimized data process flow and achieved required real-time signal process

Peer-to-Peer Loan Analyzer **Aug 2014 – Dec 2014**

- Collected and cleansed semi-structured raw data from hundreds of online personal loan platforms
- Provided modeling for platform reliability and safety analysis

Exercise Detection System Based on the MEMS Accelerometer **Jan 2014 – Jun 2014**

- Designed a wearable hardware device with possessor, sensors, Bluetooth module and power
- Recognize dynamic patterns of different exercise including walking, running, falling and leaning
- Developed a matching Android App to collect data from wearable device, creating user-friendly interface in step counting, fall alerts, and related functions

TEACHING EXPERIENCE

- Embedded Control (ENGR 2350) Jan. 2018 – May 2018
- Image Processing (ECSE 4540) Jan. 2018 – May 2018
- Embedded Control (ENGR 2350) Sept. 2017 – Dec. 2017
- Computer Graphics (ECSE 4750) Sept. 2017 – Dec. 2017
- Analysis and Programming Implementation Tutor Jul. 2016 – Aug. 2016
- Introduction to Electronic Circuits Teaching Assistant Jan. 2016 – May 2016
- Digital Signals Processing Teaching Assistant Jan. 2016 – May 2016

PUBLICATION & POSTER

[7] **Xiangyang Mou**, Mo Yu, Shiyu Chang, Yufei Feng, Li Zhang, and Hui Su.
"Complementary Evidence Identification inOpen-Domain Question Answering". In *ACL*, 2020 (Under Review)
[6] **Xiangyang Mou**, Brandyn Sigouin, Ian Steenstra, and Hui Su.
"Multimodal Dialogue State Tracking By QA Approachwith Data Augmentation". In *AAAI DSTC8 Workshop*, 2019
[5] **Xiangyang Mou**, Sylvia Hua, Nikhilas Murthy, and Hui Su.
"A Flexible Platform for Multiple Roles in Developing Dialogues for Language Learning". In *IBM AI Horizons Colloquium*, 2019
[4] Rahul R. Divekar, **Xiangyang Mou**, Lisha Chen, Maira G. Melina A. Guerra, and Hui Su.
"Embodied Conversational AI Agents in a Multi-modal Multi-agent Competitive Dialogue". In *IJCAI*, 2019
[3] Rahul R. Divekar, Jeffrey O. Kephart, **Xiangyang Mou**, Lisha Chen, and Hui Su.
"You talkin'to me? A practical attention-aware embodied agent". In *INTERACT*, 2019
[2] David Allen, Rahul R. Divekar, Jaimie Drozdal, Lilit Balagyozyan, Shuyue Zheng, Ziyi Song, Huang Zou, Jeramey Tyler, **Xiangyang Mou**, Rui Zhao, Helen Zhou, Jianling Yue, Jeffrey O. Kephart, and Hui Su
"The Rensselaer Mandarin Project—a Cognitive and Immersive Language Learning Environment". In *AAAI*, 2019
[1] **Xiangyang Mou**, Lisha Chen, Rui Zhao, Gyanendra Sharma, Dong Hu, Junjie Ding, Hui Su, Jeff Kephart.
"A Systematic Way of Collecting and Fusing Multi-Modal Data for Cognitive Analysis Tasks". In *IBM AI Horizons Colloquium*, 2018

INDUSTRY EXPERIENCE

- Externship in IBM Sept. 2019 – Nov 2019