Zhengyu Wu

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EDUCATION

Shanghai Jiao Tong University (SJTU) Sept. 2015 - Jun. 2020 (expected)

School of Electronic Information and Electrical Engineering Shanghai, China

- B.S. Software Engineering
- GPA: 3.65/4.0

University of California, San Diego (UCSD) Jul. 2019 - Sept. 2019

Summer Research Internship, Department of Cognitive Science La Jolla, USA

AREAS OF INTEREST

Data Science, Machine Learning, Software Engineering

PUBLICATIONS

Li, Xuecheng, **Zhengyu Wu**, and Ting Han. "Gamification-Based VR Rowing Simulation System." International Conference on Human-Computer Interaction. Springer, Cham, 2019. Paper

Xibai Li, **Zhengyu Wu**, Yan Sun, et al. A Method to Diagnose Discoid Lateral Menisci on Radiographs Using Image Processing Tools and Machine Learning. Knee Surgery, Sports Traumatology, Arthroscopy (Under review)

Zhengyu Wu, Liwei Lin, Ruhui Ma. A Novel Sybil Attack Detection Scheme Based on Edge Computing for Mobile IoT Environment. (Manuscript)

RESEARCH EXPERIENCE

Pain Detection via EEG Signals, Face Videos, Human Postures Jul. 2019 - Sept. 2019

Supervised by Prof. Virginia de Sa (UCSD)

- Programmed LED flashing patterns with Arduino to represent unique numbers which matched the fps of a GoPro video camera
- Recognized LED patterns in video frames by computer vision methods
- Synchronized EEG signals and video frames which would contribute to further publications
- Helped build and test a two-stage multi-task deep learning model by PyTorch for pain detection in face videos which achieves state-of-the-art results on McMaster Dataset

Gamification-Based VR Rowing Simulation System Oct. 2018 - Jan. 2019

Supervised by Prof. Ting Han (SJTU)

- Wrote C# programs to connect VR helmet and VR handles with a mechanical rowing machine
- Explored new paths in rowing training using human computer interaction and is of great relevance in the application of gamification theory in sports training
- Published a paper on International Conference on Human-Computer Interaction 2019

Diagnose A Kind of Knee Disease by Machine Learning Methods Apr. 2018 - Sept. 2018

Supervised by Prof. Yan Sun (SJTU)

- Employed an object detection model, YOLO, to crop radiographs
- Processed images by morphological methods like eroding and dilating operations and used Canny and Sobel operators to realize image fringe detecting and picking up
- Flipped, rotated and translated x-ray images for data augmentation
- Submitted a paper to Knee Surgery, Sports Traumatology, Arthroscopy

Visual Question Answering Model Based on GAN Nov. 2017 - Nov. 2018

Supervised by Prof. Ruhui Ma (SJTU) **National Undergraduate Innovation Program**

- Proposed a deep learning model based on GAN which projected answers along with fusions of image features and question features into a latent space for semantic alignment

- Achieved state-of-the-art BLEU results on short answers of VQA 2.0 dataset

Detecting Sybil Attack in Mobile IoT Oct. 2016 - Oct. 2017

Supervised by Prof. Ruhui Ma (SJTU) **31th Program of Research Practice of SJTU**

- Proposed a novel detection scheme based on cloud computing against Sybil attack in IoT
- Completed the entire code work in C++ and test the designed scheme in a simulation environment

SELECTED COURSE PROJECTS

Commodity Trade System Apr. 2019 - Jun. 2019

- This WEB system simulated a commodity trade system including Trader UI, Trader gateway, Broker UI and Broker gateway
- The system had many features such as real-time message notification, separating large orders, authentication and authorization
- Technical stack included React, SpringBoot, MYSQL, MongoDB, Redis, Kafka and Docker
- Demo video is available on Youtube

Smart Garden APP Jun. 2018 - Sept. 2018

- Smart Garden APP allows users to manage the nozzles of their private gardens by their cellphones
- The application was based on React Native (front end), SpringBoot (back end) and Mysql (Database)
- Sensors are distributed in a garden to get real-time temperature and moisture according to which an algorithm is applied to coordinate nozzles automatically in the garden
- Demo video and source code are available now

Key-Value Database Jun. 2017 - Sept. 2018

- Implemented a key-value database by C++ which supported basic CRUD operations
- The database had a B plus tree data structure to store data and provided many features like cache, buffer, and space recycle
- Source code are available here

HONORS & AWARDS

Wish Company Scholarship (**Top 2%, 12,000 CNY**)	2018
4th Place in Odyssey of the Mind Competition Finals in Iowa, USA	2018
Academic Excellence Scholarship of SJTU (**Top 10%, twice**)	2016&2018
Excellent Student Cadre of SJTU (**Top 0.5%, twice**)	2016&2017
Second National Prize in China Undergraduate Mathematical Contest in Modeling (**Top 1%**)	2017

MISCELLANEOUS

Leadership

- President of Building Management Committee in SJTU, Class Monitor

Skills

- Computer Skills: Python, C++/C, PyTorch, MATLAB, Latex, MYSQL, SpringBoot