Zhengyu Wu

Mobile: (+86) 15821929510 Email: zhengyuwu1997@gmail.com

Homepage: https://zhengyu-wu.github.io

EDUCATION

Shanghai Jiao Tong University (SJTU) Sep. 2015 to Jun. 2020 (expected)

School of Electronic Information and Electrical Engineering Shanghai, China

- B.S. Software Engineering
- Major GPA: 3.62/4.3
- Related Courses: Linear Algebra (90/100), Probability and Statistics (94/100), Computer Vision (96/100)

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

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

AREAS OF INTEREST

Data Mining, Machine Learning, Software Engineering

PUBLICATIONS

Xuecheng Li, Zhengyu Wu, Ting Han. Gamification-Based VR Rowing Simulation System. HCI (2) 2019: 484-493 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 Jul. 2019 to Sept. 2019

Supervised by Prof. Virginia de Sa (University of California, San Diego)

- 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

VR Rowing Simulation System Oct. 2018 to 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 April. 2018 to Sept. 2018

Supervised by Prof. Yan Sun (SJTU)

- Employed an object detection model called YOLO (You Only Look Once) to crop radiographs
- Processed images by morphology methods like eroding and dilating operations and used Canny and Sobel operators to realize image fringe detecting and picking up
- Flipped, rotated and translated images to increase training data and test data

- Submitted a paper to Knee Surgery, Sports Traumatology, Arthroscopy

Visual Question Answering Model Based on GAN Nov. 2017 to 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 to 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 to 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 to 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 to 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
Academic Excellence Scholarship of Shanghai Jiao Tong University (**Top 10%, twice**)	2016&2018
Excellent Student Cadre of Shanghai Jiao Tong University (**Top 0.5%, twice**)	2016&2017
Second National Prize in China Undergraduate Mathematical Contest in Modeling (**Top 1%**)	2017
4th Place in Odyssey of the Mind Competition Finals in Iowa, USA	2018

MISCELLANEOUS

Social work

- President of Building Management Committee in SJTU, Class Monitor

Skills

- Computer Skills: C++/C, Python, Matlab, Mysql, PyTorch, SpringBoot, Latex
- Standardized Tests: TOFEL: 96, GRE: 321 (V: 152, Q: 169, AW: 3)