Zehao (Zach) Guan

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EDUCATION

Carnegie Mellon University, School of Computer Science   Pittsburgh, PA
M.S. in Artificial Intelligence and Innovation, GPA: 3.83/4.0   05/2020
- Coursework: Natural Language Processing, Deep Learning, AI Engineering, Scalable Machine Learning.

Zhejiang University, College of Information and Electronic Engineering   Hangzhou, China
B.E. in Information Engineering, GPA: 3.7/4.0   06/2018
- Coursework: Data Structure & Algorithms Design, Database System, Object Oriented Programming, Computer Networks, Computer Architecture, Numerical Analysis, Machine Learning, Data Mining.

SKILLS

- **Programming Languages:** Python, Java, SQL, C/C++, JavaScript, Assembly, Verilog HDL.
- **Tools:** Linux, MySQL, OpenCV, TensorFlow, PyTorch, spaCy, NLTK, Qt Creator, MATLAB.

EXPERIENCE

University of Michigan, **Electronic Engineering and Computer Science Dept.**   Ann Arbor, MI
Research Assistant   07/2017 - 10/2017
- Developed C++ based integrated system of remote control and wearable device for athletic swimmers.
- Connected sensors, Bluetooth and micro-controller on Arduino to collect and transmit biometric data.
- Wrote an Android App to receive data from Bluetooth and multi-thread programs to establish connections.
- Utilized Eagle to redesign schematics and circuit layout for real-time and efficient signal communications.

Nokia Siemens Networks Co., Ltd.   Hangzhou, China
Software Engineer Trainee   08/2016 - 11/2016
- Implemented image segmentation and feature extraction by OpenCV to build face recognition model.
- Applied Convolutional Neural Network on TensorFlow by Python and embedded the whole framework in Raspberry Pi Linux system for dataset training and classification with accuracy higher than 90%.
- Designed MySQL database to manage customized information and wrote display interface by JavaScript.
- Created an open source platform for mobile development on IoT and applied for Utility Model Patent.

PROJECTS

Question Generation & Answering System   Carnegie Mellon University, 09/2018 - 11/2018
- Designed Q&A system to generate/answer questions from Wikipedia articles based on linguistic features.
- Applied sentence segmentation, Porter stemming and tokenization by spaCy, parsed POS taggers and NER recognition by dependency tree, transformed declarative sentences to ranked binary/WH questions.
- Utilized scikit-learn to preprocess and vectorize input sentences, identified question types and coreference resolution, compared Jaccard similarity and tf-idf relevance to select top candidates for answering.

Introduction to Computer System Labs   Carnegie Mellon University, 05/2018 - 08/2018
- Simulated the hit, miss or eviction behaviors of a cache memory and calculated frequencies of trace file.
- Wrote a simple Linux shell to interpret basic commands of job control and implemented I/O redirection.
- Utilized segregated free linked list with LIFO and best-fit policy to realize an explicit memory allocator.
- Created a sequential HTTP proxy that caches web objects to handle client requests and serve transactions.

Library Books Management System   Zhejiang University, 03/2018 - 05/2018
- Established a library books management system and fulfilled basic functions such as input books storage, books information inquiry, borrowing, returning and student cards registration.
- Designed SQL Server and JDBC based database and GUI by Java to manage data of books effectively.

Mobile Communication Intelligent Home System   Zhejiang University, 09/2017 - 01/2018
- Adopted Zigbee to communicate between sensors, gateway and cloud platform with data in JSON format.
- Wrote Python codes to transmit data from terminals and PHP scripts to query contents of cloud platform.
- Built MySQL database to store data and Qt interface to test sand table with sensors and appliance models.