Minxue Niu

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Education

2015 – Present **Undergraduate**, *Shanghai Jiao Tong University*, Average Score 86.4/100.
Computer Science, IEEE Honor Class, member of Zhiyuan Honor Program(for top 5% engineering students)

Fall 2017 **Exchange Student**, *The University of Texas at Austin*, GPA 3.92/4.0.
Passed 3 upper-level CS courses: Principles of Computer Systems, Algorithms and Complexity, Artificial Intelligence.

Research Experience

2018.5 – Present **Human Relationship Understanding with Natural Conversations**, *SJTU*.
Advanced Data and Programming Technology (ADAPT) Lab, Advised byProf. Kenny Zhu
• Built a movie character dialogue dataset with relationship labels from raw scripts with 3000+ sessions of 1000+ pairs. Designed scene splitting and conversation extraction algorithms.
• Designed rules for extracting address terms based on related works, wrote user interface to help with human annotation and achieved an accuracy of 92.1%.
• Extracted features including subject-object relations, punctuations, and address terms, Linguistic Inquiry and Word Count(LIWC) and Dictionary of Affect in Language(DAL). MLP network achieved an accuracy of 68% with those features, compare to 73% with a Hierarchical LSTM.

Summer 2017 **Emotion recognition and Depression Detection based on EEG Signals**, *SJTU*.
Brain-like Computing and Machine Intelligence (BCMI) Lab, Advised byProf. Baoliang Lv
• Applied traditional models like SVM/LSTM/CNN and tried fusion of multimodal data on previous dataset. Improved the model by period interception and noise composition.
• Carried out multiple emotion arousal experiments with EEG recording equipments.
• Designed cognitive and emotional experiments for depression diagnosis, and enhanced with VR material.

Projects

2017 **Expanded PintOS, an Operating System**, *UT Austin*.
• Implemention of CPU scheduling, synchronization between multiple threads (with locks and semaphores), the entire virtual memory mechanism, and file system improvement and consistency.

2016 **Mini Search Engine with Text and Picture Searching**, *SJTU*.
• Built from scratch including web crawler, indexing, page ranking, image processing, etc.
• Crawlled 50000 webpages and 50000 pictures with BeautifulSoup, lxml and multiprocessing.Built dictionary and index with lucene, and used Hadoop to improve processing efficiency.
• Implemented Canny and SIFT algorithm for picture similarity calculation, and designed search algorithms for edge smoothing .

2016 **FPGA Implementation of Monocyclic/Multicyclic CPU**, *SJTU*.
• Implemented a timer with button debouncer on 8 digital pipes on a DE2 board in Verilog.
• Implemented ALU, storage, controller for a simple monocyclic CPU, which can execute 20 basic MIPS instructions. Designed and Implemented I/O interface to display its functions with the LED digital tubes. Tested with oscillometer and simulation programs.
• Expanded the CPU to a 5-segment pipeline version.

2013 – 2014 **Decision Over the Irrationality of the Roots of the Indicator Equations in The Form of $a^x + b^x = c^x$**, *No.2 high school attached to East China Normal University*.
A math project related with number theory. First Prize in Shanghai Teenagers' Innovation Competition.

Awards

2016,2017 **Zhiyuan Scholarship of Honor**, *Exclusively for members of Zhiyuan Honors Program*.

2016,2017 **Academic Excellence Scholarship**, *SJTU*.

Experience and Activities

- **Vice President, Association Union,** *Shanghai Jiao Tong University*
  - Managing more than 100 members and serving more than 300 student clubs/associations in my university.
  - Hold all kinds of activities with tens of thousands of participants: shows, concerts, festival celebrations, fairs, information sessions, etc.
- **Soprano, school chorus team,** *Shanghai Jiao Tong University*
- **Car Racing Team,** *Shanghai Jiao Tong University*
  - Car body group, worked on producing car shell with wood, glass fibre and finally cabon fibre. Also helped with propaganda and management.
  - Best Team Member Prize for 2017.