ANQI SHEN

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EDUCATION

University of Illinois at Urbana-Champaign Aug. 2015 – Present

- *Bachelor of Science in Computer Engineering* **GPA:** 3.97/4.0
- **Skills**: C, C++, Python, SystemVerilog, LC-3, x86, JavaScript, Pascal, Arduino

HONORS & AWARDS

- Jeewan Singh Ghuman Scholarship – top 0.2% 10/2018
- Dean's List – top 1% 12/2015, 12/2016, 12/2017, 05/2018

PROJECTS

Project 1: A Pipelined Implementation of the RV32I Processor Oct. – Dec. 2018

Supervised by Associate Professor Rakesh Kumar

- Implemented a five-stage (IF, ID, EX, MEM, WB) pipelined processor for RV32I, which can execute all RV32I instructions except FENCE, ECALL, EBREAK, and CSRR instructions
- Resolved data hazards by supporting forwarding logic from EX, MEM and WB stages to ID stage
- Tested 6 types of predictors to improve the performance of the processor and finally used a tournament predictor combined local branch predictor with g-share predictor
- Realized a BTB with 4-way associativity to store target addresses for the branches
- Implemented two-level cache hierarchy and each cache has 2-way associativity
- Finally got the processor ranking top 10 in the class

Project 2: Failure Detection of Applications Aug. 2018 – Present

Supervised by Research Prof. Zbigniew Kalbarczyk

- Filtered out the node events using RE2 lib with the data collected from supercomputers' syslog and application information
- Mapped all the node events for each application and outputted the data in a separate file
- Currently trying different models using Edward Library based on the dataset

Project 3: Building Website on Recommendation and Lease of Housing around the School Feb. – May.2018

Supervised by Assistant Prof. Aditya Parameswaran

- Collected real housing information from website of housing rental company around the school
- Provided three kinds of login ID for users and judged the correctness of the password through SQL query
- Stored housing ID (primary key of housing entity) and user ID (primary key of user entity) into a table
- Used SQL query to support inserting new housing information by renting agent, deleting released housing information and finding all the housing information that matches the users' requirement
- Added Google map API to better provide the location of each housing information

Project 4: News Discriminator Based on Machine Learning Jan. – Mar.2018

Supervised by Leading instructor Mike Tamir

- Implemented a pipeline model to conduct data pre-processing, transferring words to vectors and classifier
- Tried different combinations among TF_IDF, Doc2Vec and Word2Vec to transfer strings into vectors

- Tried five different classifiers and tuned their parameters to get the best performance
- Used Logistic Regression, SVM, XGBoost, Random Forest and Neural network

Project 5: Building Operating System Nov. – Dec. 2017

Supervised by Research Prof. Zbigniew Kalbarczyk

- Loaded GDT into the skeleton OS to boot it up and then set up own IDT with 32 exception handles, three interrupt handlers, keyboard, RTC and PIT, and system call linkage
- Initialized PIC to cascade mode and set up paging
- Established a read-only EXT2 File System to access files and implemented eight system calls, including execute, halt, open, close, read and write, to support the function of an OS
- Implemented scheduling with PIT and added some extra functionalities such as going through history commands the user have entered to the terminal, supporting mouse as another input, supporting audio output and supporting two modes image output: modeX and text mode

Project 6: Doodle Jump implemented in FPGA Apr. – May. 2017

Supervised by Assistant Prof. Zuofu Cheng

- Prepared all the images needed for the game through Photoshop and built palette
- Converted images into a binary file through Python and loaded binary file into the SRAM of FPGA
- Built a frame buffer to make the background of the game scroll smoothly
- Programmed System Verilog to control game progress and wrote keyboard interface to make users control directions through the keyboard
- Implemented the protocol of PS2 mouse in System Verilog

INTERN & EXTRACURRICULAR ACTIVITIES

Alibaba Group *Intern Development Engineer* Jun. – Aug. 2018

- Compiled three libraries (libjpeg, zlib, isa-l) in different docker environments and wrote test scripts to test the performance of different versions of libraries
- Wrote tools to test network performance of VM
- Implemented hot plug of CPU of VM

Shanghai OHSA Data Technology Co., Ltd *Intern Development Engineer* Dec. 2017 – Jan. 2018

- Built maps through JavaScript and CSS to display alarm status in office buildings
- Test the existing PC background and collected daily alarm data

Undergraduate Teaching Assistant of University of Illinois at Urbana-Champaign

Undergraduate Teaching Assistant for course *Computer Systems Engineering* Jan. 2018 - Present

- Assisted classmates in solving their confusions about operation system concepts mentioned in lectures
- Helped classmates smoothly complete experiment and understand operation

Undergraduate Teaching Assistant for course *Digital Systems Laboratory* Aug. 2017 – Present

- Answered classmates' doubts about experiment and project to facilitate them in experiment completion

PATENT

Self-monitoring intelligent safety belt based on Arduino *Patent #: ZL 2014 2 0651899.9*

- Wrote code of Arduino and built physical model to realize the self-check of six important judgment points of high altitude operation safety belt and then to send out the check result