

YIFAN HAO

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OVERVIEW

Senior undergraduate student applying for graduate school for Fall 2017

EDUCATION

B.S.E in Computer Engineering (Dual Degree Program) Sep 2015 - Apr 2017
University of Michigan - Ann Arbor
Cumulative GPA: 3.93 / 4.00

B.S in Electrical and Computer Engineering (Dual Degree Program) Sep 2013 - Aug 2017
Shanghai Jiao Tong University - Shanghai

RESEARCH EXPERIENCE

Undergraduate Researcher Aug 2016 - Present
Embedded System Lab, University of Michigan

- Design a full fledged microwave radar module for a city scale sensing platform
- Assist in developing an operating system and firmware dedicated for Cortex-M series hardware
- Implement frequency sampling algorithm in C and send data through I2C bus

Undergraduate Researcher

Cross Layer Architecture Lab, University of Michigan Sep 2015 - May 2016

- Optimize the answer pattern filter in OpenEphyra in JAVA to increase the accuracy and efficiency of QA system
- Design a pipelined multi-thread command center structure and prototype it in Python
- Implement the service interfaces in C++ to make the services compatible with command center

WORKING EXPERIENCE

Teaching Assistant Aug 2016 - Present

System Design based on Microprocessor (EECS 373)

- Help students with software (C and ARM assembly), hardware (FPGA) debugging and course project implementation
- Answer embedded system design technical or course questions in course forum and grade exam papers

System Verification Group R&D Intern

May 2016 - Aug 2016

Cadence Design System Inc.

- Debug and maintain the existed regression test on new platform (ARM v-8) in Verilog
- Assist in porting Incisive tools from x86 to ARM v-8 architecture in C
- Implement a new code generation tool to the Incisive simulator in C
- Develop regression test automation tool in Shell and Perl script

PROJECT EXPERIENCE

I-Oo-I - an Out of Order N-way Superscalar Processor Oct 2016 - Dec 2016

- Design an N-way out of order superscalar MIPS R10K processor based on Alpha 64 architecture using SystemVerilog
- Implement several features including separate LSQ, tournament predictor, early branch recovery and victim cache
- Design and implement an automation testing infrastructure to perform nightly synthesizing and testing

Alpheus - BLE Low Power Water Level Measuring System

Apr 2016 - Aug 2016

- Work as embedded system technical lead in a multidisciplinary group
- Design embedded C program and PCB for device function based on nRF51822 (ARM v8)

Super Tank Blitz - Game System based on ARM and FPGA

Feb 2016 - Apr 2016

- Design hardware interface in Verilog for AMBA APB bus and peripherals including Xbee, OLED, RFID, Nintendo controller
- Implement embedded application code and peripheral module drivers in embedded C
- Design a wireless communication protocol based on TCP to achieve zero packet loss rate
- Implement interaction between microprocessor and peripheral in I2C, SPI and UART serial bus
- Design and Implement user interface with Python and Tkinter package. The UI interacts with camera in robot car
- Design PCB with Eagle and debug the board with Salae logic analyzer and oscilloscope

Linux Kernel Component Design

Jan 2016 - Apr 2016

- Implement concurrent program using Mesa Monitor (C++11 interface) and Semaphore
- Implement operating system kernel library including mutex, condition variable
- Implement kernel code for external pager, MMU and interrupt handler in C++
- Implement a multithreaded secure network file system server based on TCP protocol.

SKILLS

Operating System and Platform: Linux, ARM

Programming Language: C++, C, Java, Verilog, Shell, Perl, Python, Matlab

Tools: Virtuoso, Xilinx ISE, Logic Analyzer, Oscilloscope, Git, PCB Design

COURSES

EECS 470 Computer Architecture

EECS 482 Operating System

EECS 373 System Design based on Microprocessor