Jesse Zhang

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EDUCATION

Bachelor of Science, Computer Engineering
University of Illinois at Urbana-Champaign
Relevant Coursework:

- Computer Architecture
- Computer Organization & Design
- Computer Systems Engineering
- Computer Security & Lab
- Operating Systems Design

PUBLICATIONS

Kim, M., **Zhang, X.**, Milenkovic, O. (2016). MetaCRAM: an integrated pipeline for metagenomic taxonomy identification and compression. *BMC Bioinformatics.* 17:94.

WORK EXPERIENCE

Apple - *Software Engineering Intern* Summer 2016

- Developed a proof-of-concept iOS app for retail store inventory management
- Interacted with SAP systems on the backend
- Participated in designing the service calls and the overall program flow

Fulcrum GT – *Software Engineering Intern* Summer 2015

- Launched Epoch, a legal time entry solution, at ILTA 2015
- Primary iOS backend developer – responsible for designing and implementing data models and asynchronous program flow for Epoch
- Explored various iOS frameworks and APIs to achieve features such as location tracking, geo-fencing, and physical activity tracking

ECE 391 – *Course Staff* August 2015 - Now

PROJECTS

Pipelined CPU with Cache Subsystem – *SystemVerilog*

- Designed and coded the 5 stages of the pipeline
- Created L1 and L2 caches with 4-way set-associativity and true LRU replacement policy as well as components such as eviction write buffer, victim cache, and hardware prefetching

Linux-like Operating System – *x86 Assembly, C*

- Supports various drivers such as the EXT2 filesystem, IDE controller, PIT, PIC, and keyboard
- Implemented the system calls necessary for the C Standard Library as well as the C runtime

TAGE Branch Predictor – *C++*

- From the paper *A case for (partially) tagged Geometric History Length Branch Prediction* by Andre Seznec and Pierre Michaud
- Modified the GEM5 simulator's built-in out-of-order ARM processor's branch predictor to use the TAGE prediction scheme

HackedReality | BoilerMake 2014 Winner – *C, Java, Objective-C*

- Virtual reality simulator using Google Cardboard (Android phone), Pebble smartwatch, and a PS2 DDR Dancepad
- Reverse-engineered the dancepad IO to mimic an omni-directional treadmill with dynamic directional remapping of the buttons
- Used the magnetometer and accelerometer in the phone to track the user's orientation

EXT9000 – *C* *Work in progress*

- An interactive parser for the EXT2/3 and FAT filesystems

TECHNICAL SKILLS

Programming Languages: C, Assembly, Swift, SystemVerilog, C++, Perl, Java
Languages: Mandarin Chinese, English