ANDREW X ZHONG

2511 Hearst Ave #201, Berkeley, CA 94709 ● (217) 550-2869 ● andrewxz@berkeley.edu ● `www.ocf.berkeley.edu/andrewxz`

EDUCATION

University of California, Berkeley - Berkeley, CA
Master of Engineering, Computer Science - Visual Computing and Computer Graphics   05/2014

University of Illinois at Urbana-Champaign - Urbana, IL
Bachelor of Science, ECE with *Highest Honors*, Overall: 3.89/4.0, Technical: 3.92/4.0   05/2013

Related Coursework: Algorithms, Data Structures, Computer Graphics, Computer Vision, Machine Learning, Parallel Computing, Operating Systems, Computer Architecture, Web Development, Database, Leadership

SKILLS

Languages: Java, C/C++, Python, OpenGL, CUDA, OpenMP, HTML, CSS, Ruby, JavaScript, SQL, VHDL, Verilog, x86
Applications: Android, Google App Engine, OpenCV, Kinect, Eclipse, Git, MATLAB, ModelSim, Blender

EXPERIENCE

Qualcomm Research Silicon Valley - Augmented Reality (Prof. Björn Hartmann), Santa Clara, CA 09/2013 - 05/2014
- Designed a user interface framework that delivers an interactive indoor navigation experience through 3D augmented graphical views aligned with indoor objects
- Demonstrated our application in the CITRIS Invention Lab at Berkeley, providing augmented navigation, interactive device instructions, demo products display and device reservation lookup for lab visitors and apprentices
- Developed on the Android mobile platform powered by OpenGL graphics, orientation sensors and a position simulator

Qualcomm Inc. - Graphics System Design Intern, San Diego, CA   05/2013 - 08/2013
- Initiated and developed text processing and pattern matching tools for massive netlist and log files
- Performed MIPI DSI (Display Serial Interface) modeling and video stream simulations

Coordinated Science Laboratory - Diagnosing Performance Violations at System Level Using Data Mining (Prof. Shobha Vasudevan), Urbana, IL   10/2012 - 05/2013
- Localized the latency and throughput violations using a concurrent pattern mining approach
- Applied domain knowledge to filter out up to 92.8% of transaction traces, increasing mining efficiency

Beckman Institute - Brain-controlled Programmable Embedded System, Urbana, IL   01/2013 - 05/2013
- Designed an EEG-signal-controlled tablet prototype with 2.5 s response time and 95% reliability
- Earned Research Award in Senior Design Hall of Fame

Qualcomm Inc. - Algorithm and System Design Intern, San Diego, CA   06/2012 - 08/2012
- Implemented the color processing algorithm based on 3D look-up table gamut mapping for Mirasol Display
- Optimized memory placement algorithm and reduced look-up table size by a factor of 4

PUBLICATIONS

Improving User Experiences in Indoor Navigation with Augmented Reality, *Technical Report No. UCB/EECS-2014-74*
Diagnosing Root Causes of System Level Performance Violations, *ACM/IEEE ICCAD 2013*
Troubleshooting Performance Violations at System Level Using Data Mining, *Poster at DAC 2013*

PROJECTS

Machine Learning - CS Berkeley   01/2014 - 05/2014
- Applied logistic regression, SVM, decision trees, random forests, neural networks, K-means, PCA and etc. on various supervised/unsupervised classification/regression problems
- Predicted day of the week with 98.84% accuracy with 15 months of daily traffic data in the bay area

Parallel Computing - CS Berkeley   01/2014 - 05/2014
- Parallelized matrix multiplication, particle simulation and Knapsack problem with OpenMP, MPI, CUDA or UPC
- Implemented a generic parallelized framework of A* search with both CUDA and OpenMP

Augmented Object Detector - Android App - CS Berkeley   09/2013 - 02/2014
- Detected objects from Android camera video stream with Haar training
- Rendered the detected objects in a 3D virtual scene on top of camera view with OpenGL ES 2

Operating Systems - CS Berkeley and ECE UIUC   01/2013 - 02/2014
- Developed a multi-threaded HTTP server that supports asynchronous IO and thread-safe caching
- Built a Linux-based OS in C and x86: paging, interrupts, system calls, program loader, page allocator, multiple terminals, scheduling, signals, sound and mouse support, shell extensions and GUI
- Achieved 4th place out of 30 teams in the Microsoft Operating System Design Competition

Computer Graphics and Computer Vision - CS Berkeley   09/2012 - 12/2012
- Coded in C++ from scratch: a ray tracer that implements Phong shading, refraction and .obj file inputs
- Developed in OpenGL: uniform subdivision, adaptive tessellation, obj & mtl inputs, vertex shading
- Explored homography rectification, 3D reconstruction, edge detection, texture and digit recognition

Pipelined Processor Design - ECE UIUC   09/2013 - 02/2014
- Designed and verified datapath, control and cache of a 5-stage pipelined processor based on LC3b
- Achieved 2nd place out of 22 teams in the AMD Processor Design Competition

HONORS

Eta Kappa Nu, Tau Beta Pi, National Society of Collegiate Scholars, IEEE, SIAM

Highest Honors at Graduation, O. Thomas and Martha S. Purl Scholarship, Deans List

First Prize in National Physics Contest in Jiangsu, China, 2007