ANDREW X ZHONG

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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

Zhejiang University - Hangzhou, China
Chu Kochen Honors College, Overall: 3.96/4.0 09/2008 - 06/2010

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

SKILLS

Languages: C/C++, Python, Java, OpenGL, CUDA, OpenMP, HTML, CSS, JavaScript, SQL, VHDL, Verilog, x86
Applications: OpenCV, Motion Capture (VICON), Google Cloud Platform, Android, Kinect, MATLAB, ModelSim

EXPERIENCE

Magic Leap Inc. - Lead Engineer in Performance and Data, Mountain View, CA 11/2015 - Present
- Streamlined perception algorithm batch verification and metrics visualization on local cluster/public cloud
- Motion capture / ground truth data generation and syntheses / spatial and temporal calibration

Apple Inc. - Performance Analysis Engineer, Cupertino, CA 06/2014 - 11/2015
- Performed use cases performance validation and trade-off analysis for next-generation mobile system-on-chips (SoCs)
- Implemented SoC models and interface layers to agent models/RTL and software simulation platforms in C/C++
- Initiated a trace-based system performance/traffic pattern analysis and visualization tool powered by python and sqlite3

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*

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, Dean's List

First-Class Scholarship for Outstanding Merits, 2008-2009

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

PROJECTS

Data Visualization Framework on VR Systems - AT&T VR Mobile App Hackathon - San Francisco 06/2015

- Designed an immersive virtual reality framework for real-time data visualization on Gear VR with Unity Game Engine
- Enabled users to literally walk into big data represented by dots and curves, zoom, pinch and travel in 4 dimensions

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 09/2013 - 11/2013

- 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 09/2012 - 12/2012

- 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