Nicholas Kelly

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Objective

To advance my education and experience in Computer/Electrical and Software engineering.

Education

Jan 2014 - May 2016

University of Texas at Austin — Austin, TX
M.S. in Computer Architecture and Embedded Systems (3.92 GPA) - Spring 2016

Sept 2009 - Jun 2013

Oregon State University — Corvallis, OR
B.S. in Electrical/Computer Engineering (3.91 GPA) - Spring 2013

Experience

Jun 2016 - Present

CPU Core Architect — Intel | Hillsboro, OR

- Micro-architecture development for (inner-core) memory-system and various other areas within core (e.g. front-end)
- Core-wide performance modeling/infrastructure (C++) and data analysis
- Primary contributor for several infrastructure/analysis tools used frequently, across teams
- Guiding adoption and education of industry-standard SW/CI practices

Jan 2015 - May 2016

Graduate Research Assistant — Prof. Mattan Erez | UT Austin | Austin, TX

- Resiliency characterization through error injection and simulation (C++, Python, Verilog)

May 2015 - Aug 2015

Validation Intern — ARM | Austin, TX

- Interconnect power and clocking validation/coverage

Jul 2014 - Jan 2015

Post-Silicon Validation Intern — Intel | Austin, TX

- Validation for emulator debug tools

Jun 2013 - Dec 2013

Electrical Engineering Intern — NACCO Materials Handling Group, Inc. | Fairview, OR

- Embedded Development (C/C++, ARM, ONFI Flash, SPI/I2C/UART, CANBus, WiFi)
- PCB Design, Layout, and Assembly
- .NET development (Windows, ASP.NET, C, SQL, CSS, Javascript)

Apr 2012 - Sept 2012

Software Development Intern — Mentor Graphics | Wilsonville, OR

- Perl, Tcl/tk, and shell scripting; C/C++ development
- GUI (Tcl/tk) and CGI (Perl) development

Oct 2012 - Jun 2013

Web Developer, EECS Research Project — Oregon State University | Corvallis, OR

- Facebook application development
- Data visualization and web interface (Javascript, Java servlets)

Jun 2011 - Jun 2013

Student Web Developer — OSU Libraries | Corvallis, OR

- Development of content (forms, pages, modules) using Drupal/PHP/Javascript
- Page design using HTML/CSS
- General routine tasks and maintenance work on pages

Qualifications

Computer Arch.

CPU simulation and various forms of data collection using C++17

Visualization and anaylsis in Python/Pandas/Jupyter

Scripting with Shell, Python, Ruby, Perl, and Tcl

Embedded assembly and/or C development (PIC, AVR, MSP430, ARM)

VLSI design with Verilog/SystemVerilog/UVM and various EDA tools

Software

Continuous integration with TeamCity/GitHub/GitLab, for JS/TS, Python, Ruby, and C++

Unit-test frameworks, linting, coverage, and static-analysis within JS/TS, Python, Ruby, and C++

Runtime and memory profiling of C++ programs (VTune, valgrind, jeprof)

Software-engineering practices (e.g. testing, OO, design patterns, etc.) teaching in industry

Electrical

Embedded assembly and/or C development (PIC, AVR, MSP430, ARM)

VLSI design with Verilog/SystemVerilog/UVM and various EDA tools

Analog circuit simulation (HSPICE, Spectre)

Circuit ayout for PCBs (Eagle, CircuitMaker) and silicon (Cadence)

Coursework in embedded systems, graphics, computer architecture, and analog/digital circuits

Knowledge of electrical parts, processes, and troubleshooting

Web Development

Front-end web development, including Javascript/jQuery, CSS/SASS, and HTML5

Back-end web development, including C#, ASP.Net, Perl (CGI), Python, PHP/Drupal, Angular/Typescript/Node.js, and JSP/Servlets

Databases, including MSSQL, mySQL, PostgresSQL, SqlLite, and MongoDB

GUI development, with GTK+, Qt, Tcl/tk, and iOS

Game development, with Objective-C (iOS) and Actionscript 2.0/3.0

Additional

Communication and support skills, across teams

Able to learn new material quickly

Selected Projects

Jan 2014 - June 2016

Computer Architecture and Embedded (UT)

- x86 (subset of ISA) processor in structural-verilog (SystemVerilog, Python, x86)
- Realtime GPU Raytracing
- Lightcuts and Illumination
- An analysis of 3DIC Kogge-stone Adders
- Auto-Multithreading extension for Node.js and V8
- GPU Power virus (genetic algorithm, code generator)
- SDF scheduling genetic algorithm to optimize towards energy usage
- Development of custom RTOS for TI Launchpad (ARM)

Sept 2012 - Jun 2013

VLSI/Analog Design and Simulation Projects (OSU)

- Simulation of power-gating and near-threshold effects on power and delay for XOR gate
- Designed bike POV circuit using SystemVerilog, ModelSim, and Cadence Encounter (Place-and-route)
- Design, simulation (HSPICE/Spectre), and layout (Cadence) of OTAs for different specifications

2009 - Present

Web and Game Development

- "The Wave", activity tracking with Facebook integration (Java servlets)
- "Rundezvous", running/biking/hiking tracking (PHP)
- "Boxarrific", iOS reaction game (Objective-C)
- "Artisan", iOS drawing/tracking game (Objective-C)
- Various Flash-based games (Actionscript 2.0/3.0)
- Personal websites (C#, ASP.Net; PHP; HTML5, JS, CSS)

Publications

Conferences

- Chang, C.; Lym, S.;**Kelly, N.**; Sullivan, M. B.; Erez, M., "Evaluating and Accelerating High-Fidelity Error Injection for HPC," In Proceedings of The International Conference for High Performance Computing, Networking, Storage, and Analysis (SC). Dallas, TX. November, 2018.
- Meier, R.;**Kelly, N.**; Almog, O.; Chiang, P., "A Piezoelectric Energy-Harvesting Shoe System for Podiatric Sensing" Engineering in Medicine and Biology Society (EMBC), 2014 36th Annual International Conference of the IEEE , pp.622,625,26-30 August 2014.

Workshops

- Chang, C.; Lym, S.;**Kelly, N.**; Sullivan, M. B.; Erez, M., "Hamartia: A Fast and Accurate Error Injection Framework," Workshop on Silicon Errors in Logic–System Effects (SELSE). Boston, MA. April, 2018.

References available on request