

Nicholas Kelly

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Objective

To advance my education and experience in Computer Engineering so that I can contribute to the field of Computer Architecture.

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

Relevant Experience

Jun 2016 - Present	CPU Core Architect — Intel Hillsboro, OR <ul style="list-style-type: none">▪ 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 <ul style="list-style-type: none">▪ Resiliency characterization through error injection and simulation (C++, Python, Verilog)
May 2015 - Aug 2015	Validation Intern — ARM Austin, TX <ul style="list-style-type: none">▪ Interconnect power and clocking validation/coverage

Qualifications

Computer Arch.	CPU simulation and various forms of data collection using C++17 Visualization and analysis 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
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

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. Additional experience and qualifications available in alternate (e.g. web) resumes.