Qiuyun Wang

Resume

Professional Goals

To obtain an engaging software engineering position working on the interaction of big data analytical applications and system hardware in a challenging environment that allows me to utilize and advance my professional skills.

Education

2012-Dec.2016 **Ph.D. Candidate in Computer Engineering**, *Duke University*, NC, GPA: 3.76.
Adviser: Dr. Benjamin Lee

- Thesis: Design and implementation of efficient system scheduling policies for big data workloads regarding of current hardware challenges, e.g. heterogeneous processors, non-uniform memory systems and application interference

2009-2012 **M.S. in Embedded Systems and Information Processing**, *Université Paris Sud (Paris XI)*, France, Rank 3/43.

Second Degree **Magistère in Information Systems and Techonology** (A selective 3-year M.S. degree, joint program of Université Paris XI and Ecole Normale Supérieure (ENS) Cachan)

2006-2009 **B.S. in Optoelectronic Information Engineering**, *Huazhong University of Science and Technology (HUST)*, China, GPA: 87/100.

2006 **China National College Entrance Exam**, *Top 1%*.

Research Experience

Jan. 2014 - Nov. 2014 **Application Colocation Framework on Shared Hardware with Cooperative Games**, *Duke University*.
Designed an end-to-end interference-aware task collocation framework for datacenters. Profiled Spark big data analytics on Intel server platforms to characterize application resource contention. Adopted a recommendation system to predict colocation preferences. Implemented and evaluated task scheduling mechanisms with the solution to a cooperative game.

Aug. 2012 - Dec. 2013 **Coordinating NUMA Policies and Queueing Dynamics in Blade Servers**, *Duke University*.
Performed power modeling for DRAM and inter-processor communication technologies. Implemented delay-scheduling in a queueing simulator to model online task schedulers for large-scale server systems. Built a model to coordinate hardware configurations (inter-processor communication technologies) and management software design (schedulers).

Aug. 2013 - Jun. 2014 **Datacenter Workloads Characterization and Simulation Methodologies**, *Duke University*.
Prepared a web search engine for English Wikipedia with Apache Solr interface. Deployed graph analytical framework to process big datasets. Explored task schedulers and data placement strategies. Built work-flow from detailed cycle-accurate simulator to high-level event-driven simulator to model workloads' sensitivity to hardware architecture.

Work Experience

Jun. 2014 - Nov. 2014 **Oracle Corporation**, *Intern at RAPID Project Group*, Belmont, CA, US.
Worked on performance analysis for RAPID project, a hardware-software co-design system targeting large-scale data management and analysis.

Mar. 2012 - Aug. 2012 **Ecole Polytechnique Fédérale de Lausanne (EPFL)**, *Research Intern*, Launsanne, Switzerland.
Worked on system performance analysis in the HiperCore group. Debugged and profiled the performance of a Freescale P5020 development system (Power Architecture) for high-performance computing benchmarks.

213 Hudson Hall, Duke University – Durham, NC 27705
+1 (734)604-8298 • qw33@duke.edu • people.duke.edu/~qw33

Jun. 2011 - Oct. 2011 **Laboratory of Signal and Systems (LSS), Supélec, CNRS**, *Research Intern*, France.
Implemented maximum a-posterior estimator via belief propagation in MATLAB. Reconstructed overcomplete input signals performed by oversampled filter banks from noisy quantized transmission channels.

Mar. 2011 - May. 2011 **Ecole Normale Supérieur Cachan (ENS) Cachan**, *Research Intern*, France.
Developed the software hardware interface for a robot, designed for autistic infants. Cross-compiled a Linux kernel for an embedded processor (OMAP). Developed display and network interfaces.

Publications

2015 **"Cooper: Task Colocation on Shared Hardware with Cooperative Game Theory"**, *In submission*, Qiuyun Wang, Songchun Fan, Seyed Zahedi, Benjamin Lee.

2014 **"Modeling Communication Costs in Blade Servers"**, *Proc. 8th Workshop on Power-Aware Computing and Systems (HotPower) , October 2015, Monterey, CA, USA*, Qiuyun Wang, Benjamin Lee, Best Paper to appear in Operating Systems Review.

2012 **"MAP Estimation of the Input of an Oversampled Filter Bank from Noisy Subbands by Belief Propagation"**, *International Conference on Acoustics, Speech and Signal Processing (ICASSP 2012), Kyoto, Japan*, Qiuyun Wang, M. Abid, M. Kieffer and B. Pesquet-Popescu.

Presentations

2015 **Modeling Communication Costs in Blade Servers**.
ACM Symposium on Operating Systems Principles 2015 (SOSP 2015)

2014-2015 **Datacenter Simulation Methodologies**.
International Symposium on Computer Architecture 2015 (ISCA 2015)
International Symposium on Performance Analysis of Systems and Software (ISPASS 2015)
International Symposium on Microarchitecture (MICRO 2014)

2014 **NUMA-aware Task Placement Strategies for Datacenters**.
ECE Graduate Student Workshop, Duke University

Computer Skills

Proficient, C/C++,JAVA, LINUX, WINDOWS, BASH, PYTHON, R, MATLAB, Git, SVN, LaTeX, MS office, MARSSx86, DRAMSim2, BigHouse Simulator, Spark Big Data Analytics, MapReduce.

Less Proficient, GNU Linear Programming Kit, SIMD, OpenMP, MPI, OpenCL, VHDL, Mentor Graphics, Cadence, Oracd/Pspice, ModelSim.

Graduate Courses

- Datacenter Architecture
- Parallel Computer Architecture
- Heterogeneous Computing
- Operating Systems
- Neural Networks and Statistic Learning
- Mathematical Finance
- Network on Chip Design
- Advanced Computer Architecture
- Compiler Construction (Teaching Assistant)
- High Performance Computing
- Networking and Quality of Service
- Computational Microeconomics
- Electronics Design for Embedded Systems

Course Projects

2013 Spring **Compiler Construction**, *Duke University*.
Built a Tiger to MIPS compiler using the SML functional programming language. Implemented register allocation via graph coloring and register spilling.

2012 Fall **Operating System**, *Duke University*.
Built a persistent file system with safe management mechanism that supports concurrent reads and writes by multiple users. Implemented the caching and an efficient eviction policy.

Honors and Awards

2013 Grace Hopper Celebration, GHC Twitter scholarship recipient

2012 Graduate Fellowship, Duke University, graduate school

2010 Outstanding Graduates, Huazhong University of Science & Technology

2007 Excellent Student Leader Scholarship, Huazhong University of Science & Technology

2007 Excellent Activist of Sports and Arts Scholarship, Huazhong University of Science & Technology

Activities

2014 - 2015 **President of ACM-W**, *Supporting, celebrating and advocating for Women in Computing*, Duke University.
Organize speaker events, regular meetings, social events to connect women in computing in Duke University.

2013 - 2014 **Treasury of ACM-W**, *Duke University*.
Served as Secretary/Treasurer, web design and maintenance.

2007 **Young volunteers association**, *China*.
Taught mathematics and physical education at primary schools and junior high schools in underprivileged mountain areas in China. Won the honor of *"Excellent Social Practice Team"*, Huazhong University of Science & Technology, 2008.

Languages

English **Fluent** *Studied in an American University for more than three years*

French **Fluent** *Studied in a French University for three years. TFI exam 670/900, 2012*

Chinese **Native**