

Qiuyun LLULL

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Objective: seeking an opportunity to bring my cross-layer computer architecture and system knowledge to a full-time software engineering position.

EDUCATION

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| | Duke University | Durham, North Carolina |
| MAY 2017 (EXPECTED) | Ph.D. in COMPUTER ENGINEERING GPA: 3.8 Advisor: Dr. Benjamin C. Lee | |
| | Thesis: Hardware Resource Management and Performance Modeling for Data Center Applications | |
| MAY 2016 | M.S. in COMPUTER SCIENCE GPA: 3.8 | |
| | Université Paris Sud (Paris XI) | Orsay, France |
| JUNE 2012 | M.S. in EMBEDDED SYSTEMS AND INFORMATION PROCESSING Rank:3/43 | |
| | Huazhong University of Science and Technology (HUST) | Wuhan, China |
| JUNE 2010 | B.E. in OPTOELECTRONIC INFORMATION ENGINEERING GPA: 87/100 | |

WORK EXPERIENCE

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| Jun. 2014 - Nov. 2014 (6 months) | Research Intern at Oracle Labs RAPID Group, under the supervision of Dr. Evangelos Vlachos Worked on performance analysis for the RAPID project, a hardware-software co-design system targeting large-scale data management and analysis. Keywords: Database, Runtime Systems, Scalable Design, Hardware-software Co-design, Optimization | Redwood Shores, California |
| Mar. 2012 - Aug. 2012 (6 months) | Research Intern at Ecole Polytechnique Fédérale de Lausanne (EPFL) Processor Architecture Laboratory, under the supervision of Dr. Paolo Ienne Worked with HiperCore group on debugging and performance profiling of a Freescale P5020 development system (Power Architecture) for high-performance computing workloads. Keywords: Software Performance Analysis, Processor Architecture, Linux Kernel, Embedded Systems | Lausanne, Switzerland |

RESEARCH EXPERIENCE

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| 2012-present | Research Assistant at Duke University | Durham, North Carolina |
| Application Colocation Framework on Shared Hardware | | <i>Paper accepted at HPCA 2017</i> |
| <ul style="list-style-type: none">Designed and implemented a game theory based managing mechanism for data center task colocation problems with resource contention. Built a contention prediction model with recommendation systems. Experimented with Apache Spark machine learning applications and Intel Platform.Keywords: Java, Distributed Systems, Networking, Scheduler Design, Recommendation Systems | | |
| Coordinated NUMA-aware Scheduler for Blade Servers | | <i>Paper published at HotPower 2015</i> |
| <ul style="list-style-type: none">Implemented delay-scheduling mechanism in a discrete-event simulator to model online task schedulers for a NUMA memory system. Built a model for communication power and energy costs.Keywords: Java, C++, Discrete-event Simulator, Performance and Power Models, Scale-out Design | | |
| Sensory Offloading for Wearable Device | | <i>Paper accepted at HotMobile 2017</i> |
| <ul style="list-style-type: none">Designed and implemented a distributed framework that supports communication-free offloading for wearable devices. Trained offline activity recognition models with raw sensing data collected on both phone and watch. Implemented online prediction and verification components on the phone. Extended wearable battery life by 2x.Keywords: Wearables, Activity Classification, Model Training, R Machine Learning Packages | | |
| Core Allocation for Parallel Applications | | <i>Paper submitted to ISCA 2017</i> |
| <ul style="list-style-type: none">Designed a distributed core allocation mechanism for heterogeneous data center running parallel applications. Built and verified a fast performance prediction model for applications with large datasets. Demonstrated the efficiency and envy-freeness of the allocation results with proposed mechanism and utility function.Keywords: Cluster Management, Resource Allocation, Distributed Algorithms, Performance Prediction | | |
| Datacenter Workloads Performance Characterization | | <i>Tutorial presented at ISCA 2015, MICRO 2014</i> |
| <ul style="list-style-type: none">Deployed a set of data center applications (Solr Search Engine, Apache Spark with machine learning libraries, Graphlab) on cycle-accurate processor and memory simulators. Deployed HDFS, Mesos and Spark on a local cluster. Tuned the configuration and optimized the performance for big data workloads.Keywords: Solr Web Search, Nutch Web Crawler, Spark, Graph Processing, Mesos, Data Center Infrastructure | | |

- 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.
- **Keywords:** C, Embedded Processor, Software-hardware Interface Programming, Robotics

PUBLICATIONS AND PRESENTATIONS

1. **Qiuyun Llull**, Songchun Fan, Seyed Zehadi and Benjamin Lee: **Cooper: Task Colocation with Cooperative Games**, *To appear in IEEE HPCA 2017 Symposium on High Performance Computer Architecture*.
2. Songchun Fan, **Qiuyun Llull**, Benjamin Lee: **Telepath: Sensory Offloading for Wearable Devices**, *To appear in ACM HotMobile 2017 Workshop on Mobile Computing Systems and Applications*.
3. **Qiuyun Wang** and Benjamin Lee: **Modeling Communication Costs in Blade Servers**, *ACM HotPower 2015 Workshop on Power-Aware Computing and Systems*; paper selected for Operating Systems Review, Dec. 2015.
4. **Qiuyun Wang***, Tamara Lehman*, Seyed Zahedi* and Benjamin Lee: **Datacenter Simulation Methodologies**, *ACM/IEEE ISCA 2015 Symposium on Computer Architecture*; *MICRO 2014 Symposium on Microarchitecture*.
5. **Qiuyun Wang**, M. Abid, M. Kieffer and B. Pesquet-Popescu: **MAP Estimation for Oversampled Filter Bank from Noisy Subbands by Belief Propagation**, *IEEE ICASSP 2012, Conference on Acoustics, Speech and Signal Processing*.

HONORS AND AWARDS

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| 2013 | Grace Hopper Celebration, Twitter Scholarship |
| 2012 | Graduate Fellowship, Duke University, Graduate School |
| 2010 | Outstanding Graduates, Huazhong University of Science & Technology (HUST) |
| 2008 | Excellent Social Practice Team (Supporting Education Program), HUST |
| 2007 | Excellent Student Leader Scholarship, HUST |

SKILLS

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| Programming Languages: | C/C++, JAVA, Python, Bash |
| Data Analysis: | R, MATLAB |
| OS and Tools: | LINUX, ANDROID, Git, SVN, LATEX, GNU Linear Programming |
| Simulators: | Marssx86, QEMU, Drsim2, BigHouse |
| Big Data Framework: | Hadoop, Apache Spark, Apache Solr |
| Less Proficient skills: | SML, SIMD, OpenMP, MPI, OpenCL, VHDL, Mentor Graphics, Cadence, Pspice, ModelSim |
| Spoken Languages: | English (Fluent), French (Fluent), Chinese (Native) |

COURSE PROJECTS

- 2013 | **Operating Systems:** Deployed a genetic algorithm in Java to solve market allocation problems for datacenters equipped with heterogeneous processors.
- 2013 | **Compiler Construction:** Built a Tiger to MIPS compiler using the SML functional programming language. Implemented register allocation via graph coloring and register spilling.
- 2012 | **Introduction to Operating Systems:** In Java, built a persistent file system with safe management mechanism that supports concurrent reads and writes by multiple users. Implemented caching and an efficient eviction policy.

GRADUATE COURSES AND TEACHING EXPERIENCE

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| Datacenter Architecture | Advanced Computer Architecture | Parallel Computer Architecture |
| Compiler Construction (TA) | Heterogeneous Computing | High Performance Computing |
| Operating Systems | Networking and Quality of Service | Neural Networks and Statistical Learning |
| Probability and Statistics | Mathematical Finance | Computational Microeconomics |

SERVICE AND OUTREACH EXPERIENCE

- 2015 | **Student Advocacy Group**, Duke University: served as PhD student advisor to consult graduate school issues for junior PhD students.
- 2014 | **President of ACM-W**, Duke University: ACM supports, celebrates and advocates for women in computing. As ACM-W's president, I organized speaker events and mentor programs.
- 2013, 2015 | **Treasury/Committee of ACM-W**, Duke University: served as Secretary/Treasurer and web designer.