

# 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

	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	
JUNE 2012	Université Paris Sud (Paris XI) M.S. in EMBEDDED SYSTEMS AND INFORMATION PROCESSING   Rank:3/43	Orsay, France
JUNE 2010	Huazhong University of Science and Technology (HUST) B.E. in OPTOELECTRONIC INFORMATION ENGINEERING   GPA: 87/100	Wuhan, China

## WORK EXPERIENCE

Jun. 2014 - Nov. 2014 (6 months)	<b>Research Intern at Oracle Labs</b> 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. <b>Keywords:</b> Database, Runtime Systems, Scalable Design, Hardware-software Co-design, Optimization	Redwood Shores, California
Mar. 2012 - Aug. 2012 (6 months)	<b>Research Intern at Ecole Polytechnique Fédérale de Lausanne (EPFL)</b> 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. <b>Keywords:</b> Software Performance Analysis, Processor Architecture, Linux Kernel, Embedded Systems	Lausanne, Switzerland

## RESEARCH EXPERIENCE

2012-present	<b>Research Assistant at Duke University</b> <b>Application Colocation Framework on Shared Hardware</b> • 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. • <b>Keywords:</b> Java, Distributed Systems, Docker, Networking, Recommendation Systems	Durham, North Carolina <i>Paper accepted at HPCA 2017</i>
	<b>Sensory Offloading for Wearable Device</b> • 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. • <b>Keywords:</b> Wearables, Activity Classification, Model Training, R Machine Learning Packages	<i>Paper submitted to HotMobile 2017</i>
	<b>Coordinated NUMA-aware Scheduler for Blade Servers</b> • 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. • <b>Keywords:</b> Java, C++, Discrete-event Simulator, Communication Technologies, Scale-out Design	<i>Paper published at HotPower 2015</i>
	<b>Datacenter Workloads Performance Characterization</b> • 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. • <b>Keywords:</b> Solr Web Search, Nutch Web Crawler, Spark, Graph Processing, Mesos, Data Center Infrastructure	<i>Tutorial presented at ISCA 2015, MICRO 2014</i>
	<b>Mobile Background Service Management and Memory Optimization</b> • Designed a pre-launching mechanism for Android background applications to improve app launch time and system memory utilization. Implemented it with Android Monkey tool and CPU/memory monitor. • <b>Keywords:</b> Android, Background Service, Android Monkey, RAM Monitor, Bash Shell Script	

2011 | Research Assistant at Ecole Normale Supérieur Cache (ENS)

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

## COURSE PROJECTS

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2013	<b>Operating Systems:</b> Deployed a genetic algorithm in Java to solve market allocation problems for datacenters equipped with heterogeneous processors.
2013	<b>Compiler Construction:</b> Built a Tiger to MIPS compiler using the SML functional programming language. Implemented register allocation via graph coloring and register spilling.
2012	<b>Introduction to Operating Systems:</b> 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.

## PUBLICATIONS AND PRESENTATIONS

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1. **Qiuyun Llull**, Songchun Fan, Seyed Zehadi and Benjamin Lee: **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**, *in submission*.
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 of the Input of an Oversampled Filter Bank from Noisy Subbands by Belief Propagation**, *IEEE ICASSP 2012, Conference on Acoustics, Speech and Signal Processing*.

## 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, Dramsim2, 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)

## 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

## GRADUATE COURSES AND TEACHING EXPERIENCE

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Datacenter Architecture	Advanced Computer Architecture (TA)	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

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2015	<b>Student Advocacy Group</b> , Duke University: served as PhD student advisor to consult graduate school issues for junior PhD students.
2014	<b>President of ACM-W</b> , 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	<b>Treasury/Committee of ACM-W</b> , Duke University: served as Secretary/Treasurer and web designer.