

Qing Xie

Email: xqing@usc.edu Phone: 213-740-4460

EEB 337, 3740 McClintock Ave., Los Angeles CA 90089

Education

PhD Student, Electrical Engineering	GPA: 3.93/4.0	Aug. 2009~ present
University of Southern California, Los Angeles, CA.		Advisor: Massoud Pedram
Master of Science, Physics	GPA: 3.76/4.0	Sep. 2007~ Jun. 2009
Northeastern University, Boston, MA		Advisor: Alain Karma
Bachelor of Science, Physics	GPA: 3.44/4.0	Sep. 2003~ Jun. 2007
Fudan University, Shanghai, P. R. China		

Current Research Interests

- Hybrid Electrical Energy Storage (HEES) system: architecture, configuration, management, and implementation
- System-level dynamic power management
- Thermal-aware design and control optimization in embedded systems
- Energy efficiency optimization for circuits operating in the near-threshold regime
- CMOS circuits reliability simulation flow
- Statistical static timing analysis for circuits operating in the near-threshold regime
- Mobile cloud computing

Technical Skills

- Hardware Tools: Cadence Virtuoso/Spectre, Synopsys HSPICE, LT Spice, ModelSim, SimpleScalar.
- Programming Languages: Verilog HDL, C/C++, SPICE, HTML.
- Operating Systems: Unix, Linux, Windows.
- Other Development Tools: Matlab

Working Experience

- Summer Internship at NVIDIA Corp (twice) Summer 2012 & 2013
Power architecture and thermal management design for Tegra chips
- Research Assistant at University of Southern California Sep. 2011 ~ present
Under the supervision of Professor Massoud Pedram.
- Teaching Assistant at University of Southern California Sep. 2011 ~ May. 2012
EE477L VLSI circuit design; EE577a VLSI system design.
- Research Assistant at Northeastern University May. 2009~Jun. 2009
Under the supervision of Professor Alain Karma.
- Teaching Assistant at Northeastern University Sep.2007~ May. 2009

Honors and Awards

- Best Paper Nomination in 23rd ACM Great Lakes Symposium on VLSI May 2013
- Best Paper Award in 30th IEEE International Conference on Computer Design Nov. 2012
- Young Student Support Award in Design Automation Conference Jun. 2011
- University of Southern California Viterbi School Fellowship 2010~2014
- Northeastern University Graduate Scholarship 2007~ 2009
- Peoples' Scholarship at Fudan University (3 times) 2003~ 2006
- National Scholarship for Natural Science (3 times) 2003~ 2006
- Freshman Scholarship at Fudan University Sep. 2003
- Third prize in National Physics Olympiad Contest (national wide) Dec. 2002
- Representative of Anhui Province to attend National Physics Olympiad Contest Oct. 2002
- First prize in National Physics Olympiad Contest (Anhui Province) Oct. 2002

Conference Publications

1. **Qing Xie**, Tiansong Cui, Yanzhi Wang, Shahin Nazarian, and Massoud Pedram, "Semi-Analytical Current Source Modeling of Near-Threshold Operating Logic Cells Considering Process Variations", to appear in *International Conference on Computer Design (ICCD)*, Oct., 2013.
2. **Qing Xie**, Jeamin Kim, Yanzhi Wang, Donghwa Shin, Naehyuck Chang, and Massoud Pedram, "Dynamic Thermal Management in Mobile Devices Considering the Thermal Coupling between Battery and Application Processor", in *Proc. of Int'l Conference on Computer Aided Design (ICCAD)*, Nov., 2013.
3. **Qing Xie**, Yanzhi Wang, and Massoud Pedam, "Variability-Aware Design of Energy-Delay Optimal Linear Pipelines Operating in the Near-Threshold Regime and Above," in *Proc. of Great Lakes Symposium on VLSI (GLSVLSI)*, May., 2013. **[Best Paper Candidate]**
4. **Qing Xie**, Siyu Yue, Donghwa Shin, Naehyuck Chang, and Massoud Pedram, "Adaptive Thermal Management for Portable System Batteries by Forced Convection Cooling," in *Proc. of Design Automation and Test in Europe (DATE)*, Mar., 2013.
5. Donghwa Shin, Woojoo Lee, Yanzhi Wang, **Qing Xie**, Naehyuck Chang, and Massoud Pedram. "Online Estimation of the Remaining Energy Capacity in Mobile Systems Considering System-Wide Power Consumption and Battery Characteristics," in *Proceedings of Asia South Pacific Design Automation Conference (ASP-DAC)*, Jan., 2013.
6. **Qing Xie**, Di Zhu, Yanzhi Wang, Younghyun Kim, Naehyuck Chang, and Massoud Pedram, "An Efficient Scheduling Algorithm for Multiple Charge Migration Tasks in Hybrid Electrical Energy Storage Systems", in *Proc. of Asia South Pacific Design Automation Conf. (ASP-DAC)*, Jan., 2013.
7. Di Zhu, Yanzhi Wang, Siyu Yue, **Qing Xie**, Naehyuck Chang and Massoud Pedram, "Maximizing Return on Investment of a Grid-Connected Hybrid Electrical Energy Storage System", in *Proceedings of Asia South Pacific Design Automation Conference (ASP-DAC)*, Jan., 2013.
8. Mehdi Kamal, **Qing Xie**, Massoud Pedram, Ali Afzali-Kusha, and Saeed Safari, "An Efficient Reliability Simulation Flow for Evaluating the Hot Carrier Injection Effect in CMOS VLSI Circuits," in *Proc. of the Int'l Conf. on Computer Design (ICCD)*, Oct., 2012. **[Best Paper Award]**

9. Younghyun Kim, Sangyoung Park, **Qing Xie**, Yanzhi Wang, Naehyuck Chang, and Massoud Pedram, "Networked Architecture for Hybrid Electrical Energy Storage Systems," in *Proc. of the 49th Design Automation Conference (DAC)*, Jun., 2012.
10. **Qing Xie**, Xue Lin, Yanzhi Wang, Massoud Pedram, Donghwa Shin and Naehyuck Chang, "State of Health Aware Charge Management in Hybrid Electrical Energy Storage Systems," *Proceedings of Design Automation and Test in Europe (DATE)*, Mar., 2012.
11. Yanzhi Wang, **Qing Xie**, Massoud Pedram, Younghyun Kim, Naehyuck Chang and Massimo Poncino, "Multiple-Source and Multiple-Destination Charge Migration in Hybrid Electrical Energy Storage Systems," in *Proceedings of Design Automation and Test in Europe (DATE)*, Mar., 2012.
12. **Qing Xie**, Yanzhi Wang, Younghyun Kim, Donghwa Shin, Naehyuck Chang and Massoud Pedram, "Charge Replacement in Hybrid Electrical Energy Storage Systems," in *Proceedings of Asia South Pacific Design Automation Conference (ASP-DAC)*, Feb., 2012.
13. Younghyun Kim, Sangyoung Park, Yanzhi Wang, **Qing Xie**, Naehyuck Chang, Massimo Poncino and Massoud Pedram, "General Balanced Reconfiguration Architecture for Electrical Energy Storage Banks," in *Proceedings of IEEE/ACM International Conference on Computer Aided Design (ICCAD)*, Nov., 2011.
14. **Qing Xie**, Yanzhi Wang, Younghyun Kim, Naehyuck Chang and Massoud Pedram, "Charge Allocation for Hybrid Electrical Energy Storage Systems," in *Proceedings of IEEE/ACM/IFIP International Conference on Hardware-Software Codesign and System Synthesis (CODES+ISSS)*, Oct., 2011.
15. Yanzhi Wang, Younghyun Kim, **Qing Xie**, Naehyuck Chang and Massoud Pedram, "Charge Allocation for Hybrid Electrical Energy Storage Systems," in *Proceedings of IEEE/ACM International Symposium on Low Power Electronics and Design (ISLPED)*, Aug., 2011.
16. Yanzhi Wang, **Qing Xie**, Ahmed C. Ammari, and Massoud Pedram, "Deriving a near-optimal power management policy using model-free reinforcement learning and Bayesian classification," in *Proc. of the 48th Design Automation Conf. (DAC)*, Jun. 2011.

Journal Publications

17. **Qing Xie**, Yanzhi Wang, and Massoud Pedram, "Designing Soft-Edge Flip-Flop-Based Linear Pipelines Operating in Multiple Supply Voltage Regimes", submitted.
18. **Qing Xie**, Younghyun Kim, Yanzhi Wang, Jaemin Kim, Naehyuck Chang, and Massoud Pedram, "Principles and Efficient Implementation of Charge Replacement in Hybrid Electrical Energy Storage Systems", in revision.
19. Yanzhi Wang, Xue Lin, Younghyun Kim, **Qing Xie**, Massoud Pedram, and Naehyuck Chang. "Single-source, single-destination charge migration in hybrid electrical energy storage systems," submitted.
20. **Qing Xie**, Yanzhi Wang, Younghyun Kim, Naehyuck Chang, and Massoud Pedram, "Charge allocation for hybrid electrical energy storage systems," in *IEEE Trans. on Computer Aided Design*, Jul 2013.
21. Sangyoung Park, Jaehyun Park, Donghwa Shin, Yanzhi Wang, **Qing Xie**, Naehyuck Chang and Massoud Pedram, "Accurate Modeling of the Delay and Energy Overhead of Dynamic Voltage and Frequency Scaling in Modern Microprocessors," in *IEEE Trans. on Computer Aided Design*, May 2013.

Thesis

- **Qing Xie**, and Alain Karma, "Regulation of Conductance of Ion Channels in Ventricular Cells".
- **Qing Xie**, Ruanchen Dong, and Yongli Ma, "Equation of States and Ground State of Trapped Superfluid Fermion Gas at the ECS-BEC Crossover".

Miscellaneous

- "Charge Management Optimization of Hybrid Energy Storage Systems" at University Booth in Design Automation Conference, 2013. [<http://www.youtube.com/watch?v=XcMs6tJtekI>]
- "Hybrid Electrical Energy Storage Systems" at University Booth in Design Automation Conference, 2012. [<http://www.youtube.com/watch?v=6NoxyRoj5jw>]