GANG QU

Dept. of Electrical and Computer Engineering
1417 A. V. Williams
University of Maryland
College Park, MD 20742

gangqu@eng.umd.edu
Voice: (301)405-6703
Fax: (301)314-9281
http://www.ece.umd.edu/~gangqu

Notarization: I have read the following and certify that this curriculum vitae is a current and accurate statement of my professional record.

Signature _____ Date _____

1. Personal Information

Current Position: Associate Professor (promoted in July 1, 2006)
Department of Electrical and Computer Engineering (50%) and
Institute for Systems Research (50%)

a. Educational Background

2000 Ph.D.	Computer Science, University of California, Los Angeles, California. Dissertation: "*Constraint-Based Intellectual Property Protection: Theory and Practice*".
1998 M.S.	Computer Science, University of California, Los Angeles, California. Thesis: "*Scheduling Problems for Reducing Energy on Variable Voltage Systems*" (**Outstanding Master of Science Award**).
1996 M.A.	Mathematics, University of Oklahoma, Norman, Oklahoma.
1994 M.S.	Applied Mathematics, University of Science and Technology of China, Hefei, Anhui, P.R.China.
1992 B.S.	Pure Mathematics (major) and Non-linear Science (minor), University of Science and Technology of China, Hefei, Anhui, P.R.China. (**Outstanding Bachelor of Science Award**).

b. Honors and Awards

May 2011	Research and Scholarship Summer Award Winner for academic year 2010-2011, The Graduate School, University of Maryland, College Park.
May 2007	Member of ACM SIGDA Low Power Technical Committee.
September 2006	Best Paper Awards, *17th IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP'06)*.
August 2006	ACM Recognition of Service Awards by ACM SIG Governing Board. In appreciation for Contributions to ACM General Co-Chair GLSVLSI'06.
September 2005	ACM Recognition of Service Awards by ACM SIG Governing Board. In appreciation for Contributions to ACM Program Co-Chair GLSVLSI'05.

September 2002	George Corcoran Award for teaching and educational leadership. University of Maryland, College Park.
August 2001	Best Student Paper Awards, *ACM SIGMOBILE International Conference on Mobile Computing and Networking.*
June 1999	Dimitris N. Chorafas Foundation Award, University of California, Los Angeles.
June 1999	36th ACM/IEEE Design Automation Conference Graduate Scholarship Award.
January 1999	NCR Fellowship, National Cash Register Company, University of California, Los Angeles.

Students' Honors and Awards

May 2011	Distinguished Teaching Assistant Award, Center for Teaching Excellence, University of Maryland, College Park. (**Chi-en Yin**)
January 2010	Future Faculty Fellow, A. James Clark School of Engineering, University of Maryland, College park. (**Junjun Gu**)
November 2009	*Cyber Security Awareness Week 2009 Embedded System Challenge* contest, 4th place, Polytechnic Institute of NYU. (**Chi-en Yin** and **Junjun Gu**)
June 2008	ACM/IEEE Design Automation Conference (DAC) Young student support program (**Junjun Gu**)
August 2007	Best Presentation Award. MERIT program, University of Maryland, College Park. (**Malcom Taylor**)
July 2006	University Booth. ACM/IEEE Design Automation Conference. (**Lin Yuan** and **Kun Lin**)
March 2006	10th Annual March Madness for the Mind E-Team exhibition, National Collegiate Inventors and Innovators Alliance. (**Lin Yuan** and **Kun Lin**)
May 2005	Runner-up of the New Venture Challenge Competition, University of Maryland, College Park. (**Daniel Senai, Kun Lin, Ogbonia Orji** and **Josef Yeager)**
December 2004	Runner-up of the CRA outstanding undergraduate awards. Computer Research Associates. (**Jane Lin**, the highest finish by a UMD student)
August 2003	Best Project Award, Maryland Engineering Research Internship Teams (MERIT) program, University of Maryland, College Park. (**Jane Lin** and **Matt Schmidt**)
June 2003	University Booth. ACM/IEEE Design Automation Conference. (**Adarsh Jain, Lin Yuan** and **Pushkin Pari**)
August 2001	Best Presentation Award. MERIT program, University of Maryland, College Park. (**Ming Liu** and **Ani Akinbiyi**)

c. Professional Experience

August 2000 – present	**Assistant Professor and Associate Professor** (Promoted in July 2006) Electrical and Computer Engineering Department, joint appointment with Institute for Systems Research (July 2010 – present) Institute for Advanced Computer Studies (August 2001 – June 2010) University of Maryland, College Park, Maryland.
January 2009	**Senior Visiting Scholar**

– July 2009 Computer Science Department and National Laboratory on Information Science and Technology, Tsinghua University, Beijing, P.R. China.

July 1999 **Visiting Researcher**
– October 1999 Semiconductor Company of Toshiba Corporation, Kawasaki, Japan.

June 1997 **Software Engineer**
– August 1997 FEM Engineering Inc., Los Angeles, California.

2. Research, Scholarly, and Creative Activities

Summary:

I have authored and co-authored 1 book, 2 book chapters, 26 journal articles (and 4 more under revision), 94 conference papers (out of these, 16 journal articles and 38 conference papers were after my tenure decision was made). The co-authorship is denoted as follows. *Names of students/mentees are underlined.*

[A]: co-authored with Ph.D. advisor (M. Potkonjak) and his students;	*11 journals, 24 conferences*
[S]: co-authored with my students;	*9 journals, 38 conferences*
[C]: co-authored with my colleagues and my/their students;	*9 journals, 27 conferences*
[Q]: single-authored.	*1 journal, 5 conferences*

The citations of these works based on data collected on July 1, 2013

*ISI Web of Science**	*Citations: **276***	*h-index: 8*
Google Scholar	*Citations: **4461***	*h-index: 25*

*ISI mainly indexes journal articles and does not include conference papers. In the area of computer engineering, papers in top conferences are more competitive and cited more often.

I have given **43** invited talks and professional presentations.

I have received grants and contracts as PI/Co-PI for a total of **$2.92 millions**, out of which my share is **$1.32 million** (**$1.63 millions** and **$1.19 millions**, respectively, were awarded after my tenure decision was made).

a. Books

A.1. G. Qu and M. Potkonjak, *Intellectual Property Protection in VLSI Designs: Theory and Practice*, Kluwer Academic Publishers, ISBN 1-4020-7320-8, January 2003. **[A]**

Chapters in Books

A.2 L. Yuan and G. Qu, "Energy Efficient Design for Secure Sensor Networks", in *Handbook of Sensor Networks* (Chapter 38), CRC Press, ISBN 0-8493-1968-4, October 2004. **[S]**

A.3 G. Qu and L. Yuan, "Secure Hardware IPs by Digital Watermark", in *Introduction to Hardware Security and Trust*, pp. 123-142, Springer, ISBN 978-1-4419-8079-3, 2012. **[S]**

b. Articles in Refereed Journals

B.1. I. Hong, D. Kirovski, G. Qu, M. Potkonjak, and M. Srivastava. "Power Optimization of Variable Voltage Core-Based Systems", *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems,* Vol. 18, No. 12, pp. 1702–1714, December 1999. **[A]**

B.2. G. Qu, N. Kawabe, K. Usami, and M. Potkonjak. "Code Coverage-based Power Estimation Techniques for Microprocessors", *Journal of Circuits, Systems, and Computers,* Vol. 11, No. 5, pp. 557–574, July 2002. **[A]**

B.3. S. Megerian, F. Koushanfar, G. Qu, G. Veltri, and M. Potkonjak. "Exposure In Wireless Sensor Networks: Theory and Practical Solutions", *Journal of Wireless Networks,* Kluwer Academic Publishers, Vol. 8, No. 5, pp. 443–454, September 2002. **(Invited as the best student paper awards winner from MobiCom 2001)** **[A]**

B.4. G. Qu and M. Potkonjak. "Techniques for Energy-Efficient Communication Pipeline Design", *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, Vol. 10, No. 5, pp. 542–549, October 2002. **[A]**

B.5. G. Qu. "Publicly Detectable Watermarking for Intellectual Property Authentication in VLSI Design", *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems,* Vol. 21, No. 11, pp. 1363–1368, November 2002. **[Q]**

B.6. G. Qu and M. Potkonjak. "System Synthesis of Synchronous Multimedia Applications", *ACM Transactions in Embedded Computing Systems* (Special Issue on Memory Systems), Vol. 2, No. 1, pp. 74–97, February 2003. **[A]**

B.7. S. Hua and G. Qu. "QoP-Driven Scheduling for MPEG Video Decoding", *IEEE Transactions on Consumer Electronics,* Vol. 49, No. 4, pp. 1341–1347, November 2003. **(Selected among the best papers from ICCE 2003)** **[S]**

B.8. J.L. Wong, G. Qu, and M. Potkonjak. "Optimization-Intensive Watermarking Techniques for Decision Problems", *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems,* Vol. 23, No. 1, pp. 119–127, January 2004. **[A]**

B.9. A.E. Caldwell, H. Choi, A.B. Kahng, S. Mantik, M. Potkonjak, G. Qu, and J.L. Wong. "Effective Iterative Techniques for Fingerprinting Design IP", *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems,* Vol. 23, No. 2, pp. 208–215, February 2004. **[A]**

B.10. J.L. Wong, G. Qu, and M. Potkonjak. "Power Minimization in QoS Sensitive Systems", *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, Vol. 12, No. 6, pp. 553–561, June 2004. **[A]**

B.11. S. Hua and G. Qu. "Voltage Set-up Problem for Embedded Systems with Multiple Voltages", *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, Vol. 13, No. 7, pp. 869-872, July 2005. **[S]**

B.12. L. Yuan and G. Qu. "Analysis of Energy Reduction on Dynamic Voltage Scaling-Enabled Systems", *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems* Vol. 24, No. 12, pp. 1827-1837, December 2005. **[S]**

B.13. L. Yuan and G. Qu. "A Combined Gate Replacement and Input Vector Control Approach for Leakage Current Reduction", *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, Vol.14, No. 2, pp. 173-182, February 2006. **[S]**

B.14. S. Hua, G. Qu, and S.S. Bhattacharyya. "Energy-Efficient Multi-Processor Implementation of Embedded Software", *ACM Transactions in Embedded Computing Systems* (Special Issue on Concurrent Hardware-Software Design Method for Multi-Processor System-On-Chip), Vol. 5, No. 2, pp. 321-341, May 2006. **[C]**

B.15. J. Feng, G. Qu, and M. Potkonjak. "*Kernel Density Estimation-Based Data Correlation*", IEEE Sensors Journal, Vol. 6, No. 4, pp. 974-981, August 2006. **[A]**

B.16. J. Feng, G. Qu, and M. Potkonjak. "*Actuator-Based Infield Sensor Calibration*", IEEE Sensors Journal, Vol. 6, No. 6, pp. 1571-1579, December 2006. **[A]**

B.17. S. Hua, G. Qu, and S.S. Bhattacharyya. "Probabilistic Design of Multimedia Embedded Systems", *ACM Transactions in Embedded Computing Systems*. Vol. 6, No. 3, pp. 1-15, July 2007. **[C]**

B.18. H. Liu, B.R. Zeeberg, G. Qu, A.G. Koru, A. Ferrucci, A. Kahn, M.C. Ryan, A. Nuhanovic, P.J. Munson, W.C. Reinhold, D.W. Kane, and J.N. Weinstein. "AffyProbeMiner: a web resource for computing or retrieving accurately redefined Affymetrix probe sets," *Bioinformatics*. Vol. 23, No. 18, pp. 2385-2390, September 2007. **[C]**

B.19. S.N. Pamnani, D.N. Agarwal, G. Qu, and D. Yeung. "Low Power System Design with Performance Enhancement Techniques", *Journal of Circuits, Systems, and Computers*. Vol. 16, No. 5, pp. 745-767, October 2007. **[C]**

B.20. L. Yuan, G. Qu, T. Villa, and A. Sangiovanni-Vincentelli. "FSM Re-Engineering: A Novel Approach to Sequential Circuit Synthesis," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, Vol. 27, No. 6, pp. 1159-1164, June 2008. **[C]**

B.21. A. O. Balkan, G. Qu, and U. Vishkin. "Mesh-of-Trees and Alternative Interconnection Networks for Single-Chip Parallelism," *IEEE Transactions on Very Large Scale Integration Systems (TVLSI),* Vol. 17, No. 10, pp. 1419-1432, October 2009. **[C]**

B.22. J. Yu, Q. Zhou, G. Qu, and J. Bian. "Peak Temperature Reduction by Physical Information Driven Behavioral Synthesis with Resource Usage Allocation," *IEICE Transactions on Fundamentals Communications Electron Information and Systems,* Vol. 92A, No. 12, pp. 3151-3159, December 2009. **[C]**

B.23. M. Drinic, D. Kirovski, L. Yuan, G. Qu and M. Potkonjak, "Field Division Routing", *EURASIP Journal on Wireless Communications and Networking*, Vol. 2010, Article ID 560797, pp. 1-17, June 2010. **[A]**

B.24. L. Yuan, S. Leventhal, J. Gu, and G. Qu, "TALK: A Temperature-Aware Leakage Minimization Technique for Real-Time Systems," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, Vol. 30, No. 10, pp. 1564-1568, October 2011. **[S]**

B.25. A.J. O'Donoghue, A.A. Eroy-Reveles, G.M. Knudsen, J. Ingram, M. Zhou, J.B. Statnekov, A.L. Greninger, D.R. Hostetter, G. Qu, D.A. Maltby, M.O. Anderson, J.L. Derisi, J.H. McHerrow, A.L. Burlinggame, and C.S. Craik, "Global identification of peptidase specificity by multiplex substrate profiling", Nature Methods, Vol. 9, No. 11, pp. 1095-1100, November 2012. **[C]**

B.26. Y. Cho and G. Qu, "Detection and Prevention of Selective Forwarding-based Denial-of-Service Attacks in WSNs," *Hindawi International Journal of Distributed Sensor Networks (IJDSN)*, (accepted). **[S]**

B.27. L. Yu, L. Yuan, G. Qu and A. Ephremides, "Impact of Detection Scheme on Detection Accuracy and Energy Consumption in Wireless Sensor Networks", *IEEE Transactions on Computers (TC)* (revision under review). **[C]**

B.28. Y. Cho and G. Qu, "A Hybrid Trust Model against Insider Packet Drop Attacks in Wireless Ad Hoc and Sensor Networks", *IEEE Transactions on Parallel and Distributed Systems (TPDS)* (revision under review). **[S]**

B.29. K. Lin, L. Yuan, and G. Qu, "SecureGo: A Secure Online Transaction System and Its Prototyping", *ACM Transactions on Design Automation of Electronic Systems (TODAES)* (revision under review). **[S]**

B.30. C. Yin and G. Qu, "Obtaining Statistically Random Information from Silicon Physical Unclonable Functions", *IEEE Transactions on Emerging Topics in Computing (TETC)* (revision under review). **[S]**

B.31. C. Dunbar and G. Qu, "Designing Trusted Embedded Systems from Finite State Machines", *ACM Transactions on Embedded Computing Systems (TECS)* (submitted), **[S]**

B.32. J. Gu, L. Yuan, and G. Qu, "Physical Synthesis Technique for Incorporating On-Chip Temperature Variation in Dual-Vt Design", *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)* (submitted). **[C]**

c. Articles in Conference, Symposium, and Workshop Proceedings

C.1 I. Hong, D. Kirovski, G. Qu, M. Potkonjak, and M. Srivastava. "Power Optimization of Variable Voltage Core-Based Systems", *35th ACM/IEEE Design Automation Conference Proceedings (DAC'98),* pp. 176–181, June 1998. (acceptance rate: **36.4%**) **[A]**

C.2 G. Qu and M. Potkonjak. "Techniques for Energy Minimization of Communication Pipelines", *IEEE/ACM International Conference on Computer Aided Design (ICCAD'98),* pp. 597–600, November 1998. (acceptance rate: **29.6%**) **[A]**

C.3 G. Qu and M. Potkonjak. "Analysis of Watermarking Techniques for Graph Coloring Problem", *IEEE/ACM International Conference on Computer Aided Design (ICCAD'98),* pp. 190–193, November 1998. (acceptance rate: **29.6%**) **[A]**

C.4 I. Hong, G. Qu, M. Potkonjak, and M.B. Srivastava. "Synthesis Techniques for Low-Power Hard Real-Time Systems on Variable Voltage Processor", *19th IEEE Real-Time Systems Symposium (RTSS'98),* pp. 178–187, December 1998. **[A]**

C.5 K.T. Kornegay, G. Qu, and M. Potkonjak. "Quality of Service and System Design", *IEEE Computer Society Annual Workshop on VLSI, Theme: System Level Design (WVLSI'99),* pp. 112–117, April 1999. (**invited**) **[A]**

C.6 G. Qu, D. Kirovski, M. Potkonjak, and M.B. Srivastava. "Energy Minimization of System Pipelines Using Multiple Voltages", *IEEE International Symposium on Circuits and Systems (ISCAS'99), VLSI,* Vol. 1, pp. 362–365, May 1999. (**invited**) **[A]**

C.7 A.E. Caldwell, H. Choi, A.B. Kahng, S. Mantik, M. Potkonjak, G. Qu, and J.L. Wong. "Effective Iterative Techniques for Fingerprinting Design IP", *36th ACM/IEEE Design Automation Conference (DAC'99),* pp. 843–848, June 1999. (acceptance rate: **34.1%**) **[A]**

C.8 G. Qu, J.L. Wong, and M. Potkonjak. "Optimization-Intensive Watermarking Techniques for Decision Problems", *36th ACM/IEEE Design Automation Conference (DAC'99),* pp. 33–36, June 1999. (acceptance rate: **34.1%**) **[A]**

C.9 G. Qu and M. Potkonjak. "Hiding Signatures in Graph Coloring Solutions", *3rd Information Hiding Workshop (IHW'99),* pp. 391–408, September 1999. **[A]**

C.10 G. Qu and M. Potkonjak. "Power Minimization Using System-Level Partitioning of Applications with Quality of Service Requirements", *IEEE/ACM International Conference on Computer Aided Design (ICCAD'99),* pp. 343–346, November 1999. (acceptance rate: **32.1%**) **[A]**

C.11 Y. Chen, A.B. Kahng, G. Qu, and A. Zelikovsky. "The Associative-Skew Clock Routing Problem", *IEEE/ACM International Conference on Computer Aided Design (ICCAD'99),* pp. 168–171, November 1999. (acceptance rate: **32.1%**) **[C]**

C.12 G. Qu, M. Mesarina, and M. Potkonjak. "System Synthesis of Synchronous Multimedia Applications", *12th IEEE/ACM International Symposium on System Synthesis (ISSS'99),* pp. 128–133, November 1999. (acceptance rate: **27.3%**) **[A]**

C.13 G. Qu, J.L. Wong, and M. Potkonjak. "Fair Watermarking Techniques", *IEEE/ACM Asia and South Pacific Design Automation Conference (ASPDAC'00),* pp. 55–60, January 2000. **[A]**

C.14 G. Qu and M. Potkonjak. "Fingerprinting Intellectual Property Using Constraint-Addition", *37th ACM/IEEE Design Automation Conference (DAC'00)*, pp. 587–592, June 2000. (acceptance rate: **34.6%**) **[A]**

C.15 G. Qu, N. Kawabe, K. Usami, and M. Potkonjak. "Function-Level Power Estimation Methodology for Microprocessors", *37th ACM/IEEE Design Automation Conference (DAC'00),* pp. 810–813, June 2000. (acceptance rate: **34.6%**) **[A]**

C.16 G. Qu and M. Potkonjak. "Energy Minimization with Guaranteed Quality of Service", *ACM/IEEE International Symposium on Low Power Electronics and Design (ISLPED'00),* pp. 43–48, July 2000. (acceptance rate: **24.1%**) **[A]**

C.17 G. Qu and M. Potkonjak. "Achieving Utility Arbitrarily Close to Optimal with Limited Energy", *ACM/IEEE International Symposium on Low Power Electronics and Design (ISLPED'00),* pp. 125–130, July 2000. (acceptance rate: **24.1%**) **[A]**

C.18 F. Koushanfar, G. Qu, and M. Potkonjak. "Intellectual Property Metering", *4th Information Hiding Workshop (IHW'01),* pp. 87–102, LNCS Vol. 2137, Springer-Verlag, April 2001. **[A]**

C.19 G. Qu. "Keyless Public Watermarking for Intellectual Property Authentication", *4th Information Hiding Workshop (IHW'01),* pp. 103–118, LNCS Vol. 2137, Springer-Verlag, April 2001. **[Q]**

C.20 F. Koushanfar and G. Qu. "Hardware Metering", *38th ACM/IEEE Design Automation Conference (DAC'01)*, pp. 490–493, June 2001. **[C]**

C.21 G. Qu. "Publicly Detectable Techniques for the Protection of Virtual Components", *38th ACM/IEEE Design Automation Conference (DAC'01)*, pp. 474–479, June 2001. **[Q]**

C.22 S. Meguerdichian, F. Koushanfar, G. Qu, and M. Potkonjak. "Exposure in Wireless Ad-hoc Sensor Networks", *ACM SIGMOBILE International Conference on Mobile Computing and Networking (MobiCom'01),* pp. 139–150, July 2001. **(Best Student Paper Award)** **[A]**

C.23 G. Qu. "What is the Limit of Energy Saving by Dynamic Voltage Scaling?" *IEEE/ACM International Conference on Computer Aided Design (ICCAD'01),* pp. 560–563, November 2001. (acceptance rate: **30.6%**) **[Q]**

C.24 J. Wong, G. Qu, and M. Potkonjak. "Power Minimization under QoS Constraints", *IEEE International Packetvideo Workshop,* April 2002. **(invited)** **[A]**

C.25 L. Yuan and G. Qu. "Design Space Exploration for Energy-Efficient Secure Sensor Network", *13th IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP'02)*, pp. 88–97, July 2002. **[S]**

C.26 J.L. Wong, G. Qu, and M. Potkonjak. "An On-line Approach for Power Minimization in QoS Sensitive Systems", *IEEE/ACM Asia and South Pacific Design Automation Conference (ASPDAC'03),* pp. 59–64, January 2003. (acceptance rate: **33.6%**) **[A]**

C.27 S. Hua and G. Qu. "A New Quality of Service Metric for Hard/Soft Real-Time Applications", *IEEE International Conference on Information Technology: Coding and Computing (ITCC'03),* pp. 347–351, April 2003. **[S]**

C.28 A. Jain, L. Yuan, P. Pari, and G. Qu. "Zero Overhead Watermarking Technique for FPGA Designs", *13th IEEE /ACM Great Lakes Symposium on VLSI (GLSVLSI'03)*, pp. 147–152, April 2003. (acceptance rate: **12.5%**) **[S]**

C.29 S. Hua, G. Qu, and S.S. Bhattacharyya. "Exploring the Probabilistic Design Space of Multimedia Systems", *14th IEEE International Workshop on Rapid System Prototyping (RSP'03)*, pp. 233–240, June 2003. **[S]**

C.30 S. Hua and G. Qu. "QoP-Driven Scheduling for MPEG Video Decoding", 22nd *IEEE International Conference on Consumer Electronics (ICCE'03)*, pp. 48–49, June 2003. **[S]**

C.31 G. Qu. "Introducing the Concept of Design Reuse into Undergraduate Digital Design Curriculum", *4th IEEE/ACM International Conference on Microelectronic Systems Education (MSE'03)*, pp. 10–11, June 2003. **(education related)** **[Q]**

C.32 S. Hua, G. Qu, and S.S. Bhattacharyya. "Energy Reduction Techniques for Multimedia Applications with Tolerance to Deadline Misses", *40th ACM/IEEE Design Automation Conference (DAC'03)*, pp. 131–136, June 2003. (acceptance rate: **24.2%**) **[S]**

C.33 S. Hua, G. Qu, and S.S. Bhattacharyya. "Energy-Efficient Multi-Processor Implementation of Embedded Software", *3rd ACM International Conference on Embedded Software (EMSOFT'03),* pp. 257–273, October 2003. (acceptance rate: **33.3%**) **[S]**

C.34 S. Hua and G. Qu. "On-Line Voltage Scheduling for Multimedia Applications", *1st Workshop on Embedded Systems for Real-Time Multimedia (ESTImedia'03),* pp. 24–31, October 2003. **[S]**

C.35 G. Veltri, Q. Huang, G. Qu, and M. Potkonjak. "Minimal and Maximal Exposure Path Algorithms for Wireless Embedded Sensor Networks", *1st ACM Conference on Embedded Networked Sensor Systems (SenSys'03)*, pp. 40–50, November 2003. (acceptance rate: **17%**)**[A]**

C.36 S. Hua and G. Qu. "Approaching the Maximum Energy Saving on Embedded Systems with Multiply Voltages", *IEEE/ACM International Conference on Computer Aided Design (ICCAD'03),* pp. 26–29, November 2003. (acceptance rate: **26.3%**) **[S]**

C.37 S. Hua and G. Qu. "QoS-Driven Scheduling for Multimedia Applications", *IEEE International Symposium on Circuits and Systems (ISCAS'04)*, Vol. 2, pp. 125–128, May 2004. (acceptance rate: **34.9%**) **[S]**

C.38 D. Agarwal, S. Pamnani, G. Qu, and D. Yeung. "Transferring Performance Gain from Software Prefetching to Energy Reduction", *IEEE International Symposium on Circuits and Systems (ISCAS'04)*, Vol. 2, pp. 241–244, May 2004. (acceptance rate: **34.9%**) **[C]**

C.39 A. Balkan, G. Qu, and U. Vishkin. "Arbitrate-and-Move Primitives for High Throughput On-Chip Interconnection Networks", *IEEE International Symposium on Circuits and Systems (ISCAS'04)*, Vol. 2, pp. 441–444, May 2004. (acceptance rate: **34.9%**) **[C]**

C.40 P. Pari, L. Yuan, and G. Qu. "How Many Solutions Does a SAT Instance Have?", *IEEE International Symposium on Circuits and Systems (ISCAS'04)*, Vol. 5, pp. 209–212, May 2004. (acceptance rate: **34.9%**) **[S]**

C.41 L. Yuan and G. Qu. "Information Hiding in Finite State Machine", *6th Information Hiding Workshop (IHW'04),* pp. 340–354, LNCS Vol. 3200, Springer-Verlag, May 2004. (acceptance rate: **30%**) **[S]**

C.42 L. Yuan, P. Pari, and G. Qu. "Soft IP Protection: Watermarking HDL Source Codes", *6th Information Hiding Workshop (IHW'04),* pp. 224–238, LNCS Vol. 3200, Springer-Verlag, May 2004. (acceptance rate: **30%**) **[S]**

C.43 L. Yuan and G. Qu. "FSM Re-Engineering for Low Power State Encoding", *13th International Workshop on Logic and Synthesis (IWLS'04)*, pp. 257–264, June 2004. **[S]**

C.44 P. Pari, J. Lin, L. Yuan, and G. Qu. "Generating "Random" 3-SAT Instances with Specific Solution Space Structure", *19th National Conference on Artificial Intelligence (AAAI) and 16th Innovative Applications of Artificial Intelligence Conference (IAAI)*, pp. 960–961, July 2004. **[S]**

C.45 L. Yuan, P. Pari, and G. Qu. "Finding Redundant Constraints for FSM Minimization", *19th National Conference on Artificial Intelligence (AAAI) and 16th Innovative Applications of Artificial Intelligence Conference (IAAI)*, pp. 976–977, July 2004. **[S]**

C.46 S. Hua and G. Qu. "Energy-Efficient Dual-Voltage Soft Real-Time System with (m,k)-Firm Deadline Guarantee", *ACM International Conference on Compilers, Architectures and Synthesis of Embedded Systems (CASES'04)*, pp. 116–123, September 2004. (acceptance rate: **30.4%**) **[S]**

C.47 J. Feng, G. Qu, and M. Potkonjak. "Differential On-line Sensor Calibration", *3rd IEEE Conference on Sensors (Sensors2004)*, pp. 417–420, October 2004. **[A]**

C.48 J. Feng, G. Qu, and M. Potkonjak. "Sensor Calibration using Nonparametric Statistical Characterization of Error Models", *3rd IEEE Conference on Sensors (Sensors2004)*, pp. 1456–1459, October 2004. **[A]**

C.49 L. Yuan, G. Qu, T. Villa, and A. Sangiovanni-Vincentelli. "FSM Re-Engineering and Its Application in Low Power State Encoding", *IEEE/ACM Asia South Pacific Design Automation Conference (ASPDAC'05)*, pp. 254–259, January 2005. (acceptance rate: **14.3%**) **[C]**

C.50 S. Hua and G. Qu. "Power Minimization Techniques on Distributed Real-Time Systems by Global and Local Slack Management", *IEEE/ACM Asia South Pacific Design Automation Conference (ASPDAC'05)*, pp. 830–835, January 2005. (acceptance rate: **14.3%**) **[S]**

C.51 L. Yuan, G. Qu, and A. Srivastava. "VLSI CAD Tool Protection by Birthmarking Design Solutions", *15th IEEE /ACM Great Lakes Symposium on VLSI (GLSVLSI'05)*, pp. 341–344, April 2005. **[S]**

C.52 L. Yuan and G. Qu. "Enhanced Leakage Reduction Technique by Gate Replacement", *42nd ACM/IEEE Design Automation Conference (DAC'05)*, pp. 47–50, June 2005. (acceptance rate: **20.9%**) **[S]**

C.53 V. Kianzad, S.S. Bhattacharyya, and G. Qu. "CASPER: An Integrated Energy-Driven Approach for Task Graph Scheduling on Distributed Embedded Systems", *16th IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP'05)*, July 2005. **[C]**

C.54 S. Leventhal, L. Yuan, M.K. Bambha, S.S. Bhattacharyya, and G. Qu. "DSP Address Optimization Using Evolutionary Algorithms", *9th International Workshop on Software and Compilers for Embedded Systems (SCOPES'05)*, September 2005. **[C]**

C.55 L. Yu, L, Yuan, G. Qu, and A. Ephremides. "Energy-Driven Detection Scheme with Guaranteed Accuracy", *5th International Conference on Information Processing in Sensor Networks (IPSN'06)*, pp. 284-291, April 2006. (acceptance rate: **25%**) **[C]**

C.56 L. Yuan, G. Qu, L. Ghout, and A. Bouridane. "VLSI Design IP Protection: Solutions, New Challenges, and Opportunities", First NASA/ESA Conference on Adaptive Hardware and Systems, pp. 469 – 476, June 2006. **[C]**

C.57 A. Balkan, G. Qu, and U. Vishkin. "A Mesh-of-Tree Interconnection Network for Single-Chip Parallel Processing", *17th IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP'06)*, PP. 73-80, September 2006. **(Best Paper Awards)** (acceptance rate: **26.7%**) **[C]**

C.58 S. Hua, P.R. Pari, and G. Qu. "Dual-Processor Design of Energy Efficient Fault-Tolerant System", *17th IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP'06)*, pp. 239-244, September 2006. (acceptance rate: **26.7%**) **[S]**

C.59 G. Han, S. Hua, and G. Qu. "A New Approach towards Solving the Location Discovery Problem in Wireless Sensor Networks", *Military Communications Conference (Milcom'06)*, October 2006. **[S]**

C.60 L. Yuan, S. Leventhal, and G. Qu. "Temperature-Aware Leakage Minimization Techniques for Real-Time Systems", *IEEE/ACM International Conference on Computer Aided Design (ICCAD'06),* pp. 761-764, November 2006. (acceptance rate: **24.2%**) **[S]**

C.61 A. Balkan, M.N. Horak, G. Qu, and U. Vishkin. "Layout-Accurate Design and Implementation of a High-Throughput Interconnection Network for Single-Chip Parallel Processing," *15th IEEE Symposium on High-Performance Interconnects*, July 2007. **[C]**

C.62 M. Drinic, D. Kirovski, G. Qu, L. Yuan, and M. Potkonjak. "Field Division Routing," *16th IST Mobile and Wireless Communications*, pp. 1400-1404, July 2007. **[A]**

C.63 N. Mehallegus, E. Garcia, A. Bouridane, and G. Qu. "Improving Key Distribution for Wireless Sensor Networks", *2nd NASA/ESA Conference on Adaptive Hardware and Systems (AHS-2007)*, pp. 82-88, August 2007. **(invited)** **[C]**

C.64 L. Yuan and G. Qu. "ALT-DVS: Dynamic Voltage Scaling with Awareness of Leakage and Temperature for Real-Time Systems," *2nd NASA/ESA Conference on Adaptive Hardware and Systems (AHS-2007)*, pp. 660-670, August 2007. **[S]**

C.65 K. Lin, L. Yuan, and G. Qu. "SecureGo: A Hardware-Software Co-Protection against Identity Theft in Online Transaction," *ECSIS Symposium on Bio-inspired, Learning, and Intelligent Systems for Security (BLISS-2007)*, August 2007. **[S]**

C.66 G. Qu. "Power Management of Multicore Multiple Voltage Embedded Systems by Task Scheduling," *International Workshop on Embedded Single and Multicore Systems on Chips (McSoC'07)*, September 2007. **[Q]**

C.67 L. Yuan, and G. Qu. "Simultaneous Input Vector Selection and Dual Threshold Voltage Assignment for Static Leakage Minimization," *IEEE/ACM International Conference on Computer Aided Design (ICCAD'07)*, pp. 548-551, November 2007. **[S]**

C.68 A. Balkan, G. Qu, and U. Vishkin. "An Area-Efficient High-Throughput Hybrid Interconnection Network for Single-Chip Parallel Processing," *45th ACM/IEEE Design Automation Conference (DAC'08),* pp. 435-440, June 2008. **[C]**

C.69 N. Mehallegue, E. Garcia, A. Bouridane, and G. Qu, "A Power Efficient Path Key Establishment Algorithm for Wireless Sensor Networks," 3rd *NASA/ESA Conference on Adaptive Hardware and Systems (AHS-2008)*, June 2008. **[C]**

C.70 M. Taylor, C. Yin, M. Wu, and G. Qu. "A Hardware-Assisted Data Hiding Based Approach in Building High Performance Secure Execution Systems," *IEEE International Workshop on Hardware-Oriented Security and Trust (HOST 2008)*, June 2008. **[C]**

C.71 A. Yao, J. Gu, G. Qu, and S.S. Bhattacharyya. "Energy Efficient Implementation of G.729 for Wireless VoIP Application," *ACM International Conference on Advanced Infocomm Technology (ICAIT'08)*, July 2008. **[C]**

C.72 J. Gu, A. Yao, G. Qu, and A. Bouridane, "Minimizing Point-to-Point Transmission Energy with Error Correction Coding and Transmission Power Control," *ACM International Conference on Advanced Infocomm Technology (ICAIT'08)*, July 2008. **[C]**

C.73 C. Nagarajan, L. Yuan, G. Qu, and B. Stamps. "Leakage Optimization Using Transistor-Level Dual Threshold Voltage Cell Library**",** *10th International Symposium on Quality of Electronic Design (ISQED'09)*, pp. 62-67, March 2009. **[C]**

C.74 C. Yin and G. Qu. "Temperature-Aware Cooperative Ring Oscillator PUF," *IEEE International Workshop on Hardware-Oriented Security and Trust (HOST 2009)*, pp. 36-42, July 2009. (acceptance rate: **35.1%**) **[S]**

C.75 J. Gu, G. Qu, and Q. Zhou. "Information Hiding for Trusted System Design", *46th ACM/IEEE Design Automation Conference (DAC'09),* pp. 698-701, July 2009. (acceptance rate: **21.7%**) **[C]**

C.76 J. Gu, G. Qu, T. Chen, and A. Bouridane, "An Adaptive Energy Efficient Transmission Protocol in Wireless Ad-hoc Network," 4th *NASA/ESA Conference on Adaptive Hardware and Systems (AHS-2009)*, pp. 281-288, July 2009. **[C]**

C.77 J. Gu, L. Yuan, and G. Qu. "Temperature-Aware Dual-Vt Assignment for Leakage Minimization", *13th International Workshop on Logic and Synthesis (IWLS'09)*, pp. 88–95, July 2009. **[S]**

C.78 J. Gu, L. Yuan, and G. Qu. "SSRR: Peak Current Reduction by Simultaneous State Replication and Re-Encoding", *13th International Workshop on Logic and Synthesis (IWLS'09)*, pp. 272–279, July 2009. **[S]**

C.79 A. Baig, A. Bouridane, F. Kurugollu, and G. Qu, "Fingerprint – Iris Fusion based Identification System using a Single Hamming Distance Matcher," *ECSIS Symposium on Bio-inspired, Learning, and Intelligent Systems for Security (BLISS'09)*, August 2009. **[C]**

C.80 J. Yu, Q. Zhou, G. Qu, and J. Bian, "Behavioral Level Dual-V_{th} Design for Reduced Leakage Power with Thermal Awareness," *Design, Automation and Test in Europe (DATE'10)*, pp. 1261-1266, March 2010. **[C]**

C.81 C. Yin and G. Qu. "LISA: Maximizing RO PUF's Secret Extraction," *IEEE International Symposium on Hardware-Oriented Security and Trust (HOST 2010)*, pp. 100-105, June 2010. **[S]**

C.82 J. Gu, L. Yuan, and G. Qu, "Enhancing Dual-Vt Design by Considering On-Chip Temperature Variation", ICCD'10, pp. 542-547, October 2010. (acceptance rate: **29.6%**) **[S]**

C.83 J. Gu, L. Yuan, G. Qu, and Q. Zhou. "Peak Current Reduction by Simultaneous State Replication and Re-Encoding", *IEEE/ACM International Conference on Computer Aided Design (ICCAD'10)*, pp. 592-595, November 2010. (acceptance rate: **30.0%**) **[C]**

C.84 Z. Zhou and G. Qu "An Energy Efficient Adaptive Event Detection Scheme for Wireless Sensor Network", *22nd IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP'11)*, pp. 235-238, September 2011. **[S]**

C.85 J. Gu, L. Yuan, Z. Chen, and G. Qu "Improving Dual Vt Technology by Simultaneous Gate Sizing and Mechanical Stress Optimization", *IEEE/ACM International Conference on Computer Aided Design (ICCAD'11)*, November 2011. **[C]**

C.86 Y. Cho, G. Qu, and Y. Wu. "Insider Threats against Trust Mechanism with Watchdog and Defending Approaches in Wireless Sensor Networks", IEEE Symposium on Security and Privacy Workshops, Workshop on Research for Insider Threat (WRIT'12), pp. 134-141, May, 2012. **[C]**

C.87 C. Yin and G. Qu, "A Regression-Based Entropy Distiller for RO PUFs", (work-in-progress) *49th ACM/IEEE Design Automation Conference (DAC'12),* June 2012. **[S]**

C.88 C. Yin and G. Qu, "Kendall Syndrome Coding (KSC) for Group-based Ring-Oscillator Physical Unclonable Functions", (work-in-progress) *49th ACM/IEEE Design Automation Conference (DAC'12),* June 2012. **[S]**

C.89 Z. Zhou, J. Gu, and G. Qu, "Scheduling for Multi-core Processor under Process and Temperature Variation", *IEEE 6th International Symposium on Embedded Multicore SoCs*, pp. 113-120, September 2012. **[S]**

C.90 C. Yin, G. Qu, and Q. Zhou, "Design and Implementation of a Group-based RO PUF", *Design, Automation and Test in Europe (DATE'13)*, March 2013. **[C]**

C.91 C. Yin and G. Qu, "Improving PUF Security with Regression-based Distiller", *50th ACM/IEEE Design Automation Conference (DAC'13),* June 2013. **[S]**

C.92 J. Gu and G. Qu, "Incorporating Temperature-Leakage Interdependency into Dynamic Voltage Scaling for Real-Time Systems", *24th IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP'13)*, June 2013. **[S]**

C.93 C. Dunbar and G. Qu, "Designing Trusted Circuits from Finite State Machines", *17th International Workshop on Logic and Synthesis (IWLS'13)*, June 2013. **[S]**

C.94 J. Zhang, Y. Lin, Y. Lyu, G. Qu, R. Cheung, W. Che, Q. Zhou, and J. Bian, "FPGA IP Protection by Binding Finite State Machine to Physical Unclonable Function", *23nd International Conference on Field Programmable Logic and Applications (FPL'13)*, September 2013. **[C]**

d. Invited Talks and Professional Presentations

Invited Talks

D.1. "Power Estimation and Modeling for VLSI Circuits – State-of-the-Art Techniques", Semiconductor Company of Toshiba Corporation, Kawasaki, Japan, August 25, 1999.

D.2. "Watermarking-Based Intellectual Property Protection", *Computer Science Department*, University of California, Los Angeles, California, February 15, 2000.

D.3. "On Dynamic Voltage Scaling for Low Power Computing", *ECE Faculty Seminar Series*, University of Maryland, College Park, Maryland, November 9, 2001.

D.4. "Power Management of Multi-Processor Multi-Voltage Embedded Systems via Task Scheduling", *Minta Martin Presentations*, University of Maryland, College Park, Maryland, June 21, 2002.

D.5. "Security Issues in VLSI and Embedded System Design", *2002 US-China Conference on Business and Technology*, Washington, DC, December 7, 2002.

D.6. "Protecting VLSI Design IPs", *Associate Dean's Junior Faculty Seminar*, University of Maryland, College Park, Maryland, March 20, 2003.

D.7. "Low Power Embedded System Design in the Nanometer Era", Tsinghua University, Beijing, China, January 6, 2005.

D.8. "New Advances in DVS for Low Power Embedded System Design", IBM T.J. Watson Research Lab, April 29, 2005.

D.9. "Finding Holes", *ECE Faculty Seminar Series*, University of Maryland, College Park, Maryland, October 28, 2005.

D.10. "Leakage and Temperature Aware Voltage Scaling on Real-Time Embedded Systems", Department of Electrical and Computer Engineering, Johns Hopkins University, Baltimore, Maryland, November 9, 2006.

D.11. "Low Power Design and Intellectual Property Protection", Xi'Dian University, Xi'an, China, September 12, 2007.

D.12. "Novel Applications of Data Hiding in Computer Programs", Security and Information Operations Program Review, The Air Force Office of Scientific Research, Arlington, Virginia, June 12, 2008.

D.13. "Role of Hardware in Security and Trustworthy Computing", Research Open House, The Institute for Systems Research, University of Maryland, College Park, Maryland, April 16, 2009.

D.14. "Designing Energy Efficient Systems with Dynamic Voltage Scaling", Intel Asia, Shanghai, July 10, 2009.

D.15. "Advances in Low Power Embedded System Design", Zhejiang University, Hangzhou, Zhejiang, July 11, 2009.

D.16. "Trusted System Design and Energy-Driven Data Communication", Fujitsu Laboratories of America, Inc., Sunnyvale, California, August 7, 2009.

D.17. "Building Trust by Information Hiding", Army Research Office Special Workshop on Hardware Assurance, Hartford, Connecticut, August 13, 2009.

D.18. "Finding Holes", Seminar, Department of Computer Science and Electrical Engineering, University of Maryland, Baltimore County, Baltimore, Maryland, October 2, 2009.

D.19. "Establishing Trust in Hardware Design and Beyond", Seminar, Holcombe Department of Electrical and Computer Engineering, Clemson University, Clemson, South Carolina, January 13, 2010.

D.20. "Building Trusted System by Information Hiding", College of Computer Science and Technology, University of Science and Technology of China, Hefei, P.R. China, June 28, 2010.

D.21. "Optimizing Physical Unclonable Function's Secret Extraction", Tsinghua University, Beijing, P.R. China, July 21, 2010.

D.22. "Several Directions and Practice on Dual Vt Design for Leakage Minimization", Tsinghua University, Beijing, P.R. China, July 21, 2010.

D.23. "Role of Hardware in Security and a Case Study on PUF", CANDE Workshop, Monterey, California, November 4-6, 2010.

D.24. "Building Trusted Systems by Information Hiding in Programs", Army Research Office Special Workshop on Hardware Assurance, Arlington, Virginia, April 11-12, 2011.

D.25. "Information Hiding Based Trusted Computing System Design", Security and Information Operations Program Review, The Air Force Office of Scientific Research, Arlington, Virginia, September 22, 2011.

D.26. "Energy Trade-off Between Computing and Communication", Members meeting and open forum of GreenTouch Consortium, Seattle, Washington, November 16, 2011.

D.27. "Role of Hardware in Building Secure and Trusted Computing Systems", Department of Electrical and Computer Engineering, the George Washington University, December 8, 2011.

D.28. "Several Problems in Computer Hardware Security and Trust for Mathematicians", *Mathematics in 21st Century: Advances and Applications*, Hefei, China, July 7-9, 2012.

D.29. "Information Hiding Based Trusted Computing System Design", Security and Information Operations Program Review, The Air Force Office of Scientific Research, Arlington, Virginia, October 5, 2012.

D.30. "Building Trusted Wireless Sensor Networks: From Circuits to Routing Protocols", Department of Electrical and Computer Engineering, University of California, Davis, California, March 19, 2013.

D.31. "Design of Trusted and Energy Efficient Systems", Intel Corp., Santa Clara, California, March, 26, 2013.

D.32. "Hardware in Cybersecurity: from the Weakest Link to Great Promises", Harbin Institute of Technology, Shenzhen, China, May 26, 2013.

D.33. "Designing Trusted Energy-Efficient Circuits and Systems", Center for Energy-Efficient Computing and Applications, Peking University, Beijing, China, May 30, 2013.

D.34. "Information Hiding Based Trusted Computing System Design", Security and Information Operations Program Review, The Air Force Office of Scientific Research, Arlington, Virginia, August 5, 2013.

D.35. "Designing Trusted Energy-Efficient Circuits and Systems", School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, Georgia, September 4, 2013.

D.36. "Hardware in Cybersecurity: from the Weakest Link to Great Promises", PRECISE seminar, Department of Electrical and Systems Engineering, University of Pennsylvania, Philadelphia, Pennsylvania, September 18, 2013.

Panel, Tutorial, and Other Talks

D.37. **(lecture)** "Security Issues in Intellectual Property Reuse and IP-Based Design", *1st ACM SIGDA Design Automation Summer School*, Cape Cod, Massachusetts, May 26, 2001.

D.38. **(panel)** "What Is Available in IPP and How Can You Profit from It?", *IEEE International SOC Conference, Portland*, Oregon, September 18, 2003.

D.39. **(tutorial)** "Intellectual Property Protection in Semiconductor and VLSI Design", *IEEE/ACM Asia South Pacific Design Automation Conference*, Shanghai, China, January 18, 2005.

D.40. **(summer course)** "Low Power System Design: Basics and State-of-the-Arts", Tsinghua University, Beijing, China, June 30 – July 4, 2008.

D.41. **(regular semester course)** "Cryptography and Trustworthy Computing", Tsinghua University, Beijing, China, February 23 – June 26, 2009.

D.42. **(compact course for regular semester)** "Embedded Systems – Logic Synthesis and Optimization", University of Electronic Science and Technology of China (UESTC), May 28 – July 6, 2012.

D.43. **(CAS-FEST invited talk) "**Building Trusted Infrastructure for IoT", IEEE Circuits and Systems Society Forum on Emerging and Selected Topics, *IEEE International Symposium on Circuits and Systems (ISCAS'13)*, Beijing, China, May 19, 2013.

e. Contracts and Grants

E.1. Office of Naval Research, DURIP (Defense University Research Instrumentation Program)

"Upgrade of Measuring and Testing Equipment for the Development of Energy-Efficient Wireless Sensor Networks in Research and Education", Principal Investigator. $155,482. 2013 – 2014. (awarded).

E.2. Cisco Systems

"A Study on Python Automation for Cisco UCS Features", Principal Investigator. $120,000, 2013-2014. (awarded).

E.3. University Partnership with Laboratory for Telecommunications Sciences (H9823013D00560002)

"Toward Energy Efficient Trusted Delay Tolerant Networking", Principal Investigator. $146,697, April 5, 2013- April 4, 2014.

E.4. Army Research Office

"TransCyber: Workshop on Security and Dependability for Next Generation Automotive and other Cyber Transportation Systems", Principal Investigator. $50,000, 2012-2013.

E.5. National Science Foundation of China (61228204)

On the Security and Trust of Integrated Circuit Design. Principal Investigator. ¥200,000 (about $33,000), 2013-2014.

E.6. MiMoCloud Inc.

Developing High Performance Energy Efficient Computing in Firmware and Hardware. Principal Investigator. $8,000, 2012-2013.

E.7. Army Research Office (W911NF1210416)

Creating Digital Fingerprints in Finite State Machines. Principal Investigator. $50,000, 2012-2013.

E.8. Air Force Office of Scientific Research

Information Hiding based Trusted Computing System Design. Principal Investigator (co-PI: M. Wu). $450,000, 2010-2013.

E.9. USDA - ARS (Agricultural Research Service)

Developing Hyperspectral Vision Detection Technology for Fruit and Vegetable Safety Inspections. Principal Investigator. $60,000, July 15, 2009 – July 14, 2011.

E.10. National Science Foundation

REU. Principal Investigator. $10,500, October, 2008 – September, 2010.

E.11. USDA - ARS (Agricultural Research Service)

Developing Hyperspectral Vision Detection Technology for Fruit and Vegetable Safety Inspections. Co-Principal Investigator (PI:Y. Tao). $30,000, July 15, 2008 – July 14, 2009.

E.12. Fujitsu Research

Trusted Computing Platforms. Principal Investigator. $10,000, 2008-2009.

E.13. Air Force Office of Scientific Research

Novel Applications of Data Hiding in Computer Programs for Building High-Performance Trusted Computing Platforms. Co-Principal Investigator (PI: M. Wu). $300,000, 2006-2009.

E.14. National Science Foundation

CSR---Pitas: Probabilistic Implementation and Temperature Aware Scheduling of Embedded Software for Energy Efficiency. Principal Investigator. $120,000, 2006–2009.

E.15. National Collegiate Inventors and Innovators Alliance

Secure E-Payment System. Principal Investigator. $14,837, 2005–2007.

E.16. National Science Foundation

MRI: Development of Energy-Efficient Embedded Systems for Wireless Sensor Networks. Co-Principal Investigator (PI: A. Ephremides. Other Co-PI and senior personnel: P. Abshire, R. Barua, B. Jacob, P. Petrov, and S. Ulukus). $400,000, 2005–2009.

E.17. Microsoft Research

A Multidisciplinary and Integrated Approach to Raise the Global Awareness of Trustworthy Computing. Principal Investigator. $50,000, 2005–2006.

E.18. National Science Foundation

ITR: PRAM on Chip. Co-Principal Investigator (PI: U. Vishkin. Other Co-PI and senior personnel: R. Barua, M. Franklin, B. Jacob, C. Tseng, and D. Yeung). $750,000, 2004–2007.

E.19. Tsinghua University

Various grants: about $10,000 in total, 2008-2010.

E.20. Travel Grants

Design Automation Conference (DAC) by DAC and ACM SIGDA. $1,000, 2001.

International Conference on Computer-Aided Design (ICCAD) by ICCAD and IEEE Circuit and Systems Society, $1,150, 2001.

University of Maryland Internal Awards and Grants

E.21. Research and Scholarship Award

Structure Based Data-Driven Microarray Data Analysis. The Graduate School, University of Maryland, College Park. Principal Investigator. $9,000, 2010.

E.22. UMB-UMCP Seed Grant Competition.

A Novel Combined Multimodal Multispectral Ultra Low-Dose X-Ray & Photon-Selective Imaging Technology for Non-Contrast Agent Differentiation of Vasculatures, Tissues & Abnormalities. Co- Principal Investigator (PI: Dr. Y. Tao). $74,696, Oct. 2008 – Sept. 2009.

E.23. GRB Summer Research Award

Where Are the Hard SAT Instances. The General Research Board, University of Maryland, College Park. Principal Investigator. $8,750, 2005.

E.24. International Travel Award

Intellectual Property Protection in Semiconductor Industry in China. Office of International Program, University of Maryland, College Park. Principal Investigator. $1,350, 2005.

E.25. Minta Martin Research Fund.

Power Management of Multi-Processor Multi-Voltage Embedded System via Task Scheduling. Glenn L. Martin Institute of Technology, University of Maryland, College Park. Principal Investigator. $55,000, 2001–2002.

f. Editorships and Reviewing Activities

Editorship

Associate editor: IEEE Embedded Systems Letters (January 2011 – present)

Associate editor: Integration, the VLSI Journal (January 2011 – present)

Associate editor: IEEE Transactions on Computers (July 2011 – present)

Guest editor: EURASIP Journal on Embedded Systems special issue on "Embedded DSP Systems", 2005

Journal Reviewer (alphabetical order)

ACM Journal of Emerging Technologies in Computing
ACM Transactions on Design Automation of Electronic Systems
ACM Transactions on Embedded Computing Systems
ACM Transactions on Sensor Networks
The Computer Journal
Elsevier Integration, the VLSI Journal
Elsevier Microelectronics Engineering
EURASIP Journal on Embedded Systems
EURASIP Journal on Wireless Communications and Networking
IEEE Embedded Systems Letters
IEEE Transactions on CAD of Integrated Circuits and Systems
IEEE Transactions on Circuits and Systems
IEEE Transactions on Computers
IEEE Transactions on Information Forensics & Security
IEEE Transactions on Mobile Computing
IEEE Transactions on Multimedia
IEEE/ACM Transactions on Networking
IEEE Transactions on Signal Processing
IEEE Transactions on VLSI Systems
IEEE Computer Magazine
IEEE Design and Test Magazine
International Journal of Embedded Systems

Journal of VLSI Signal Processing

Proposal Review Panel

NASA Low Power Microelectronics Review Panel, Leesburg, VA, December 9–11, 2003
NSF Computing Research Infrastructure (CRI05), October 2005
DOE SBIR Review Panel, Rockville, MD, February 7-8, 2011
NSF Secure and Trustworthy Cyberspace (SaTC), May 14-15, 2013

3. Teaching, Mentoring, and Advising Activities

a. Courses Taught

I have taught the following **seven undergraduate courses 22 times** with **average class size 56 students,** and **four graduate level courses 10 times** with **average class size of 27 students**

- *ENEE 114: Programming Concepts for Engineers*, Spring'04 (95), Fall'04 (53), Spring'05 (86), Spring'06 (46), Spring'07 (72),
- *ENEE 140: Introduction to Programming Concepts for Engineers*. Fall'08 (80), Fall'09 (86), Spring'10 (37), Spring'11 (35), Fall'11 (86), Fall'12 (85), Spring'13 (40)
- *ENEE 244: Digital Logic Design*, Fall'00 (72), Fall'01 (83), Fall'03 (64), Fall'07 (53),
- *ENEE 324: Engineering Probability*. Summer'07 (22), Spring'08 (55), Fall'10 (32)
- *ENEE 459B: Trustworthy Computing*. Fall'06 (7)
- *ENEE 459C: Computer Security*. Spring'08 (12)
- CSMC 498L/ENEE 459L: Cybersecurity Lab. Fall'12 (25)
- *ENEE 644: Computer-Aided Design of Digital Systems*. Spring'01 (56), Spring'02 (58), Spring'03 (46), Spring'11 (20) , Spring'12 (17)
- *ENEE 759B*: *Advances in Low-Power Design Methodologies.* Fall'05 (13), Fall'09 (16)
- *ENEE 759P: Trustworthy Computing*. Spring'08 (8)
- ENEE 759Q: Intellectual Property Protection: from Multimedia Data to Software and VLSI Design. Fall'02 (14)
- ENPM M 808C: Embedded Systems. Fall'10 (10)

b. Course or Curriculum Development

- **New Courses**

  ENEE 140: *Introduction to Programming Concepts for Engineers*
  ENEE 459B: *Introduction to Trustworthy Computing*

CMSC498/ENEE 459L: *Cybersecurity Lab* (co-developed)
ENEE 759P: *Trustworthy Computing*
ENEE 759Q: *Intellectual Property Protection: from Multimedia Data to Software and VLSI Design*
ENPM 808C: *Embedded Systems*

- **Significant Revisions**

  ENEE 644: *Computer-Aided Design of Digital Systems*

  ENEE 698B: *Computer Engineering Seminar*

  ENEE 759B: *Advances in Low Power Design Methodologies*

- **Others**

  Course Oversight Committee: *ENEE 114, ENEE 244, ENEE 324*

  ENEE 114: *exemption exam development*

  Ph.D. written qualifying exam: *digital logic design problem development* (2004-2006, 2012-2014)

c. Textbooks, Manuals, Notes, Software, Web Pages and Other Contributions to Teaching

- **Textbook**

  G. Qu and M. Potkonjak, *Intellectual Property Protection in VLSI Designs: Theory and Practice*, Kluwer Academic Publishers, ISBN 1-4020-7320-8, January 2003.

  This book was used as the text book for ENEE 759Q. It has also been adopted as a textbook by other US and international schools.

- **Manual**

  G. Qu, *Laboratory Manual for ENEE140.*

  This manual is printed at the Engineering Copy Center since Fall 2012. Before that, the pdf version of the lab manual were posted on the class webpage.

- **Notes**

  ENEE 644: *Computer-Aided Design of Digital Systems*

  The set of PowerPoints presentations have been adopted by other faculty who taught this course, both in the University of Maryland and other US schools.

  ENEE 114: *Programming Concepts for Engineers*

  The set of example programs have been adopted by other faculty who taught this course, both in the University of Maryland of Community Colleges in the state of Maryland.

d. Teaching Awards and other Recognitions

George Corcoran Award	September 2002
Lecturer in the First ACM SIGDA Design Automation Summer School	May 2001

Education related publication

"Introducing the Concept of Design Reuse into Undergraduate Digital Design Curriculum", *4th IEEE/ACM International Conference on Microelectronic Systems Education (MSE'03)*, pp. 10–11, June 2003.

Involvement in education oriented conference

Technical Program Committee Member: *IEEE International Conference on Microelectronics Systems Education* (http://www.mseconference.org)

Reviewer: *ACM SIGCSE Technical Symposium on Computer Science Education* (http://www.sigcse.org/)

e. Advising: Research Direction

*I have graduated **8** Ph.D. students, **13** M.S. students (6 with thesis and 6 with scholarly paper), and advised **13** undergraduate students through various programs and independent study courses.*

Ph.D. Theses

1. Shaoxiong Hua (Fall 2001 – Spring 2004)
   Thesis: *Providing QoS with Reduced Energy Consumption via Voltage Scaling on Embedded Systems*
   Starting Employment: Synopsys, Mountain View, CA.

2. Lin Yuan (Fall 2001 – Spring 2006)
   Thesis: *Design Space Exploration in Embedded System Design and Implementation*
   Starting Employment: Synopsys, Mountain View, CA. Power network design group.

3. Xue Mei (Fall 2002 – Fall 2009) Co-advisor: David Jacobs (CS/UMIACS)
   Thesis: *Visual Tracking and Illumination Recovery via Sparse Representation*
   Starting Employment: Intel, Folsom, CA. Graphics hardware simulation group.

4. Junjun Gu (Fall 2007 – Summer 2011)
   Thesis: *Enhancing Power Efficient Design Techniques in Deep Submicron Era*
   Starting Employment: Altera Corporation, Mountain View, CA. Synthesis group.

5. Chi-En Yin (Fall 2007 – Spring 2012)
   Thesis: *A Group-based Ring Oscillator Physical Unclonable Function*
   Starting Employment: a hardware security start-up company in San Francisco

6. Chang-Han Jong (Fall 2003 – Spring 2012) Co-advisor: Virgil Gligor
   Thesis: *Private Communication Detection via Side-Channel Attacks*
   Starting Employment: AT&T Labs, Chicago

7. Youngho Cho (Fall 2008 – Summer 2013)
   Thesis: *Trust-based Defense against Insider Packet Drop Attacks in Wireless Sensor Networks*

8. Zhen Zhou (Spring 2010 – Summer 2013) Co-advisor: Shuvra S. Bhattacharyya
   Thesis: Multi-scale Scheduling Techniques for Signal Processing Systems

M.S. Theses

1. Adarsh K. Jain (Fall 2001 – Summer 2003)
   Thesis: *Achieving Zero Overhead Watermarking for FPGA Designs*
   Starting Employment: CERN, European Organisation for Nuclear Research
2. Pushkin J. Pari (Spring 2002 – Spring 2004)
   Thesis: *Several Issues on the Boolean Satisfiability (SAT) Problem*
   Starting Employment: Intel
3. Xue Mei (Fall 2002 – Spring 2007) Co-advisor: David Jacobs (CS/UMIACS)
   Thesis:
   Starting Employment: continue in Ph.D. program.
4. Chandra Chandrasekhar (Fall 2005 – Spring 2007)
   Thesis: *Integrating a Dual-Vth Design Flow using Mixed Vth Cell Libraries in EDA Tool*
   Starting Employment: Cisco
5. Sang Kyo Han (Fall 2007 – Spring 2010)
   Thesis: *An Architecture for High-Throughput and Improved-Quality Stereo Vision Processor*
   Starting Employment: Samsung Electronics
6. Tao Tao (Fall 2009 – Summer 2011)
   Thesis: *Multispectral Method for Apple Defect Detection Using Hyperspectral Imaging System*

M.S. Scholarly Paper (non-thesis)

1. Anusha Parisutham (Spring 2003)
2. Bei Wang (Spring 2003)
3. Thomas J. Keeley (Spring 2004)
4. Muluwork Geremew (Spring 2006)
5. Yifan Zhou (Fall 2006)
6. Peter Soukup (Spring 2008)
7. Girish Assudani (Spring 2013)

Undergraduate Students (those with no affiliation information are UMD students)

1. Ming Liu (Summer 2001, MERIT program)
2. Ani Akinbiyi (Summer 2001 – Fall 2001, MERIT Program)
3. Chih-Yuan Huang (U.C. Berkeley) (Summer 2002, MERIT Program)
4. Matt Schmidt (Purdue University) (Summer 2002, 2003, MERIT Program)
5. Jane Lin (Summer 2003 – Fall 2004, MERIT Program)
6. Kun Lin (Spring 2005 – Fall 2005, ENEE 499)
7. Niels Villumsen (Fall 2006, ENEE 499, Exchange student)
8. Eric Yeh (Spring 2007, ENEE 499)
9. Malcom Taylor (UMD, Baltimore County) (Summer 2007, MERIT)
10. Natalie Salaets (Summer 2007, Spring 2010, REU & ENEE 499)

11. Victoria Tagarelli (SUNY, Binghamton) (Summer 2011, REU)
12. Peter Li (U.C. Berkeley) (Summer 2013)
13. Jiasen Yang (Summer 2013)

f. Advising (other than research direction)

Undergraduate students: I mentor **15-20 computer engineering majored students** each semester, giving them advice on course selection, research and internship opportunities; helping them to keep good academic standings and reach their career goals.

Graduate students: I have served as regular committee member, chair's representative, or dean's representative for **70 Ph.D. students**; committee member for **20 M.S. students with thesis**; and 2nd reader for the scholarly paper for **6 M.S. students without thesis**.

4. Service

a. Professional

Professional Organization Committee Membership

ACM SIGDA Low Power Technical Committee, May 2007.
IEEE CEDA Publications Committee, January 2010.
IEEE CEDA Publicity Committee, March 2012.

Editorship

Associate editor:	IEEE Embedded Systems Letters (appointed: January 2011)
Associate editor:	Integration, the VLSI Journal (appointed: January 2011)
Associate editor:	IEEE Transactions on Computers (appointed: July 2011)
Guest editor:	*EURASIP Journal on Embedded Systems* special issue on "Embedded DSP Systems", 2005

Conference General Chair/Co-Chair

GLSVLSI'06:	16th IEEE /ACM Great Lakes Symposium on VLSI 2006 (co-chair)
Hardware Assurance'11:	2nd ARO Special Workshop on Hardware Assurance (co-chair)
CyberVehicles'12:	ARO workshop on Cyber-Security and Dependability for Next Generation Vehicular Systems (chair)

Conference Technical Program Chair/Co-Chair

GLSVLSI'05:	15th IEEE /ACM Great Lakes Symposium on VLSI 2005 (co-chair)

Other Significant Roles in Conference:

Low Power track chair:	17th IEEE /ACM Great Lakes Symposium on VLSI 2007.
Steer Committee member:	IEEE /ACM Great Lakes Symposium on VLSI (2008-2011).
Special sessions co-chair:	NASA/ESA Conference on Adaptive Hardware and Systems 2010.

Publication chair:	Conference on Decision and Game Theory for Security 2011.
Publicity chair:	IEEE International Symposium on Hardware-Oriented Security and Trust 2012.

Conference Technical Program Committee Member

AHS (’08 - ’13):	NASA/ESA Conference on Adaptive Hardware and Systems
ASAP (’03-’13):	IEEE International Conference on Application-specific Systems, Architectures and Processors
BLISS (’08 - ’13):	ECSIS Symposium Bio-inspired, Learning and Intelligent Systems for Security
CASES(’05):	International Conference on Compilers, Architecture, and Systems for Embedded Systems
EmbeddedCom’11:	9th International Symposium on Embedded Computing
ESO (’06-’07):	International Workshop on Embedded Software Optimization
EUC’09:	IEEE/IFIP Conf. on Embedded and Ubiquitous Computing
GameSec’11:	Conference on Decision and Game Theory for Security
GLSVLSI (’03-’13):	IEEE /ACM Great Lakes Symposium on VLSI (Local Arrangement Chair and Registration Chair in 2003, Publication Chair in 2004)
GreenCom (’10-’13):	IEEE/ACM International Conference on Green Computing and Communications
HOST (’08 - ’13):	(1^{st}-4^{th}) IEEE International Workshop on Hardware-Oriented Security and Trust
ICESS (’08 - ’10):	International Conference on Embedded Software and Systems
ICT-GLOW(’11 - ’13):	1st International Conference on ICT as Key Technology for the Fight against Global Warming
ISC’02:	Information Security Conference
ISCAS (’02,’04,’05,’06):	(52nd, 54th, 55th, 56th) IEEE International Symposium on Circuits and Systems
MSE (’05-’11):	IEEE International Conference on Microelectronics Systems Education
SAC’11:	ACM Symposium on Applied Computing
SEC’08:	5th IEEE International Symposium on Embedded Computing
SmartGreen (’12-’13)	1st International Conference on Smart Grids and Green IT Systems
MCSoC (’06-’13):	International Workshop on SoC and MCSoC Design
VLSI-SoC’11:	19th IFIP/IEEE International Conference on Very Large Scale Integration

Conference Session Chair

IWLS’13	17th International Workshop on Logic and Synthesis, Austin, TX, June 2013
ASAP’11	22nd IEEE International conference on Application-specific Systems, Architectures and Processors, Santa Monica, CA, September 2011.
ASAP’06:	17th IEEE International conference on Application-specific Systems, Architectures and Processors, Steamboat Springs, CO, September 2006.
GLSVLSI’05:	15th IEEE /ACM Great Lakes Symposium on VLSI, Chicago, IL, April 2005
GLSVLSI’04:	14th IEEE /ACM Great Lakes Symposium on VLSI, Boston, MA, April 2004
GLSVLSI’03:	13th IEEE /ACM Great Lakes Symposium on VLSI, Washington, DC, April 2003
ASAP’02:	13th IEEE International conference on Application-specific Systems, Architectures and Processors, San Jose, CA, July 2002
DAC’02:	39th ACM/IEEE Design Automation Conference, New Orleans, LA, June 2002

ISCAS'02: 52nd IEEE International Symposium on Circuits and Systems, Scottsdale, AZ, May 2002

b. Campus

i. Departmental (alphabetical order)

1. APT committee (Dept. of ECE): F'07 - S'10

2. Facilities and Services Committee (Dept. of ECE): F'11 – S'13

3. Faculty Assembly (ISR): F'11 (CHAIR)

4. General Academic Affair Committee (Dept. of ECE): F'10 –

5. Graduate Studies and Research Committee (Dept. of ECE): F'03-S'04, F'07-S'08 (CHAIR), F'08-S'09.

6. Salary Committee (Dept. of ECE): F'06 - S'10

7. Undergraduate Affair Committee (Dept. of ECE): F'02 - S'08, F'11 – S'13

8. Ad-hoc committees:

Distinguished Dissertation Fellowship selection committee (CHAIR, Dept. of ECE): S'11

Faculty hiring Committee (Dept. of ECE): F'10 – S'11, F'11 – S'12, F'12 – S'13

Director of Graduate Studies search committee (Dept. of ECE): F'11.

9. Contributed to building the database of foreign schools where graduate applicants finish their B.S./M.S. degrees (schools of P.R.China): F'02-S'04.

ii. University (alphabetical order)

1. Academic advisor, Master of Engineering in Electrical and Computer Engineering, Office of advanced engineering education, A.J. Clark School of Engineering, Summer 2010 – present.

2. Blended Learning Course Proposal Review committee: S'11.

3. Flagship Fellowship Selection Committee: The Graduate School, S'12, S'13.

4. President: Association of Chinese-American Professors and Scientists at University of Maryland: S'11 – S'13.

5. Research and Support Award (RASA) Committee: F'10.

6. University Senate, Educational Affairs Committee: F'01 – S'03.

7. Wylie Dissertation Fellowship Selection Committee, The Graduate School, S'12, S'13.

c. Service Awards and Honors

i. Recognition of contribution to the ACM SIGDA Design Automation Summer School, May 2001.

ii. ACM Recognition of Service Awards by ACM SIG Governing Board. In appreciation for Contributions to ACM Program Co-Chair GLSVLSI'05. September 2005.

iii. ACM Recognition of Service Awards by ACM SIG Governing Board. In appreciation for Contributions to ACM General Co-Chair GLSVLSI'06. August 2006.