

# Baris Taskin

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- EDUCATION ◇ **Ph.D, Electrical Engineering**, July 2005.  
University of Pittsburgh, Pittsburgh, PA
- ◇ **M.S., Electrical Engineering**, May 2003.  
University of Pittsburgh, Pittsburgh, PA
- ◇ **B.S., Electrical and Electronics Engineering**, June 2000.
- ◇ **Minor Program Diploma, Operations Research**, June 2000.  
Middle East Technical University, Ankara, Turkey
- PROFESSIONAL ◇ **Professor**, (09/2016 – current)
- EXPERIENCE ◇ **Associate Professor**, (09/2011 – 08/2016)  
**Assistant Professor**, (09/2005 – 08/2011)  
Department of Electrical and Computer Engineering  
Drexel University, Philadelphia, PA
- Computer Engineering Curricular Group Chair
  - Faculty Promotion Committee Past-Chair
  - Faculty Recruitment Committee Chair
  - Faculty Awards Committee Past-Chair
- ◇ **Ph.D. Intern Engineer**, (09/2003 – 06/2004)  
MultiGiG Inc., Scotts Valley, CA [now Analog Devices, Inc.]
- ACADEMIC ◇ “Outstanding Research”, Drexel ECE Department, 2015.
- HONORS AND AWARDS ◇ “Young Engineer of the Year”, Institute of Electrical and Electronics Engineers (IEEE) Philadelphia Section, 2013.
- ◇ “Distinguished Service Award”, Association for Computing Machinery (ACM) Special Interest Group on Design Automation (SIGDA), 2012.
- ◇ “Faculty Early Career Development (CAREER)” award, National Science Foundation (NSF), 2009.
- ◇ “A. Richard Newton Graduate Scholarship” award for junior faculty starting new programs in EDA, ACM/IEEE Design Automation Conference (DAC) 2007.
- ◇ “Student Leadership Award”, Student Government Board, University of Pittsburgh, 2005.
- ◇ “SOC Design Certificate”, 2003, from Pittsburgh Digital Greenhouse, Pittsburgh, PA, for having successfully completed the program developed jointly by University of Pittsburgh, Pittsburgh, PA, Carnegie Mellon University, Pittsburgh, PA, Pennsylvania State University, University Park, PA, and Pittsburgh Digital Greenhouse, Pittsburgh, PA.
- PROFESSIONAL ◇ **Editorship**
- ACTIVITIES – Associate Editor, *Microelectronics Journal*, Elsevier, 2015–current
- Associate Editor, *Journal of Circuits, Systems and Computers (JCSC)*, World Scientific, 2012–current

- ◇ **Professional Society and Government Service**
  - *Chair*, IEEE Circuits and Systems Society (CASS) VLSI Systems and Applications Technical Committee (VSA-TC), 2018–current
  - *Chair*, IEEE Council on EDA (CEDA) Pennsylvania Local Chapter, 2016–current
  - *Treasurer*, IEEE Council on EDA (CEDA) Pennsylvania Local Chapter, 2015–2016
  - *Co-founder [with Xin Li (CMU), Helen Li (Pitt)]*, IEEE Council on EDA (CEDA) Pennsylvania Local Chapter, 2015–current
  - *Academic Coordinator*, ACM Special Interest Group on Design Automation (SIGDA) University Booth at DAC, 2008, 2009, 2010, 2011, 2012, 2013
  - *Organizing Committee Member*, NSF CISE REU PI Meeting, 2013
- ◇ **Organization Committee Member (General Chair, TPC Chair, Finance Chair, etc.)**
  - *General Co-Chair*, ACM Great Lakes Symposium on Very Large Scale Integrated Circuits (GLSVLSI), 2019
  - *TPC Co-Chair*, ACM Great Lakes Symposium on Very Large Scale Integrated Circuits (GLSVLSI), 2018
  - *Finance Chair*, International Symposium on Circuits and Systems (ISCAS), 2017
  - *General Chair*, ACM/IEEE System Level Interconnect Prediction (SLIP), 2016
  - *Publications Chair*, IEEE Computer Society International Symposium on VLSI (ISVLSI), 2016
  - *TPC Chair*, ACM/IEEE System Level Interconnect Prediction (SLIP), 2015
  - *Publicity Chair*, International Symposium on Low Power Electronic Design (ISLPED), 2014, 2015
  - *Finance Chair*, ACM/IEEE International Workshop on System Level Interconnect Prediction (SLIP), 2014
  - *Panel Chair*, ACM/IEEE International Workshop on System Level Interconnect Prediction (SLIP), 2013
  - *Publicity Chair*, ACM/IEEE International Workshop on System Level Interconnect Prediction (SLIP), 2012
  - *Finance Chair*, IFIP/IEEE International on Very Large Scale Integration (VLSI-SOC), 2012
  - *Local Arrangements Chair*, ACM Great Lakes Symposium on Very Large Scale Integrated Circuits (GLSVLSI), 2006
- ◇ **Technical Program Committee Member**
  - IEEE International Conference on Computer-Aided Design (ICCAD), 2012, 2013, 2014
  - ACM Great Lakes Symposium on Very Large Scale Integrated Circuits (GLSVLSI), 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015
  - ACM/IEEE System Level Interconnect Prediction (SLIP), 2012, 2013, 2014
  - IEEE International Conference on Computer Design (ICCD), 2010, 2012, 2014, 2015
  - IEEE International Green and Sustainable Computing Conference (IGSC), 2018
  - IEEE/ACM International Symposium on System-on-a-Chip (ISOCC), 2015
  - IEEE International Symposium on Nanoelectronic and Information Systems (INIS), 2015, 2016, 2017
  - IEEE/ACM International Symposium on Nanoscale Architectures (NANOARCH), 2009, 2010
  - IEEE/ACM Asia Symposium on Quality Electronic Design (ASQED), 2010, 2011
  - IEEE International Midwest Symposium on Circuits and Systems (MWSCAS), 2008
  - IEEE International Conference on Modeling, Simulation and Applied Optimization (ICMSAO), 2008
  - EuroMicro Conference on Digital System Design (DSD), 2011, 2013
  - IEEE Microelectronics Systems Education (MSE) Conference, 2011, 2013, 2015
  - ASEE Mid-Atlantic Conference, 2015
  - First International Workshop on Future Computing Technologies, 2006
- ◇ **Steering Committee Member**
  - ACM/IEEE System Level Interconnect Prediction (SLIP), 2017–current
  - IEEE International Midwest Symposium on Circuits and Systems (MWSCAS), 2007–2013
- ◇ **Track Chair**
  - IEEE International Symposium on Circuits and Systems (ISCAS), “Digital Integrated Circuits and Systems” track co-chair, 2019
  - IEEE International System-on-Chip Conference (ISOCC), “Power and Energy Circuits”, 2016
  - ACM Great Lakes Symposium on VLSI (GLSVLSI), “Low Power and Power Aware Design”, 2014, 2015, 2016
  - IEEE International Midwest Symposium on Circuits and Systems (MWSCAS), “CAD” track, 2009, 2010
  - IEEE International Midwest Symposium on Circuits and Systems (MWSCAS), “VLSI” track co-chair, 2008

◇ **Session Chair**

- IEEE International Symposium on Circuits and Systems (ISCAS), “Networks on Chips” and “Memory Circuits”, 2018
- *Energy-Efficient Systems*, ACM GLSVLSI 2015
- *Wireless Interconnects in Network-on-Chips panel organizer and moderator*, SLIP 2013
- *Circuit Design & Optimization*, IEEE International Symposium on Circuits and Systems (ISCAS) 2011
- *Power and Thermal Analysis and Optimization*, IEEE ICCD 2010
- *Emerging Technologies*, ACM GLSVLSI 2010
- *Clocking Strategy for Modern Low Power Multi-Core and Structured ASICs*, IEEE International Conference on Quality Electronic Design (ISQED) 2010
- IEEE NANOARCH 2009
- *CAD and Layout*, IEEE MWSCAS 2009
- *SOC Design*, IEEE MWSCAS 2008
- *VLSI Architectures*, IEEE MWSCAS 2007, 2008
- *Digital Circuits Design*, IEEE MWSCAS 2006, 2007

◇ **Reviewer**

- IEEE Transactions on Very Large Scale Integration (VLSI) Systems; IEEE Transactions on Computer-Aided Design (CAD); IEEE Transactions on Multi-Scale Computing Systems (TMSCS); IEEE Transactions on Nanotechnology; IEEE Journal of Emerging and Selected Topics in Circuits and Systems (JETCAS); IEEE Transactions on Education; ACM Transactions on Design and Automation of Electronic Systems (TODAES); ACM Journal of Emerging Technologies (JETC); Integration, The VLSI Journal; Journal of Semiconductor Technology and Science; Journal of Nanomaterials and Nanotechnology; International Journal of Computers and Applications; IET Circuits, Devices & Systems; IET Computers & Digital Techniques; IET Electronic Letters; ACM/IEEE International Symposium on Nanoscale Architectures; Elsevier Microelectronics Journal; IEEE International Conference on VLSI Design (VLSID); ACM GLSVLSI; IEICE Transactions on Fundamentals; Journal of Zhejiang University; Kuwait Journal of Science and Engineering; Gazi University Journal; National Science Foundation (NSF); IEEE International Symposium on VLSI (ISVLSI); European Conference on Circuit Theory and Design (ECCTD); Springer Publishers; IEEE Asia Pacific Conference on Circuits and Systems (APCCAS); International Journal of Computers and Their Applications (J. Comp.); IEEE International Conference on Electronics, Circuits and Systems (ICECS); ACM/IEEE International Workshop on Timing Issues (TAU); IEEE International Symposium on Circuits and Systems (ISCAS)

EDUCATIONAL  
INITIATIVES  
AND ACCOM-  
PLISHMENTS

- ◇ **Drexel VIP Team advisor to IoT Processor project (2017–current)** Started 1 of the 3 first Vertically Integrated Projects (CIP) teams at Drexel University in 2017.
- ◇ **Undergraduate Research Advisor to NSF GRFP recipients**, Michael Miller (from Computer Science, Goshen College, IN, 2013 to CMU in 2015), Scott Lerner (from ECE, Drexel University, 2012–4, to Drexel University in 2015), Giordano Salvador (from Computer Science, University of Pennsylvania, 2013–4, to UIUC in 2015)
- ◇ **Course Development**, Computation Lab I and II – Freshmen level course, developed in AY 2014–2015.
- ◇ **Academic Coordinator and PI**, NSF-funded REU Site on “Computing for Power and Energy: The Old, The New and The Renewable”, 2010–2014.
- ◇ **Course Development**, Network-on-Chip Design – Graduate level course, developed in AY 2013–2014.
- ◇ **Course Development**, Introduction to VLSI Design, ASIC Design I, ASIC Design II – Senior level undergraduate/graduate courses, developed in AY 2007–2008.
- ◇ **Course Development**, EDA for VLSI Circuits I, EDA for VLSI Circuits II, Deep Sub-Micron Integrated Circuit Design – Graduate level courses, developed in AY 2005–2006.
- ◇ **SIGDA University Booth at DAC** participation by senior design project group, J. DeMaio, O. Farell, M. Hazeltine and R. Ketner, 2007.

- ◇ **ECE Senior Design Award** as advisor to C. Weingarten and E. Fagnoli, 2010, Drexel University ECE Department.
- ◇ **ECE Senior Design Award** as advisor to J. DeMaio, O. Farell, M. Hazeltine and R. Ketner, 2007, Drexel University ECE Department.

- UNIVERSITY AND DEPARTMENTAL SERVICE
- ◇ ECE Planning and Development Committee member, 2018–current
  - ◇ ECE Faculty Promotion and Recognition Committee member, 2018–current
  - ◇ ECE Faculty Promotion and Recognition Committee chair, 2017–2018
  - ◇ ECE Faculty Recruitment Committee chair, 2016–current
  - ◇ Computer Engineering Curricular Group chair, 2014–current
  - ◇ Drexel College of Engineering Research Committee - ECE representative, 2014–2016
  - ◇ Drexel Centralized Research Facilities advisory committee, 2013–2016
  - ◇ ECE Awards committee Member/Chair/Past Chair, 2012–2013 / 2013–2014 / 2014–2017
  - ◇ College of Engineering Awards committee member, 2014–2015
  - ◇ Computer Engineering curricular group chair (interim), 2011–2012
  - ◇ Computer Engineering faculty search committee, 2011–2013
  - ◇ Boren Scholarship campus review committee, 2012–2014
  - ◇ Fullbright scholarship campus review committee, 2011–2012

PUBLICATIONS **Conference Publications**

- [C93] S. Lerner and B. Taskin, “Towards Design Decisions for Genetic Algorithms in Clock Tree Synthesis”, *Proceedings of the IEEE International Green and Sustainable Computing Conference (IGSC)*, October 2018.
- [C92] O. Bshara, Y. Liu, I. Tekin, B. Taskin, K. R. Dandekar, “mmWave Antenna Gain Switching to Mitigate Indoor Blockage”, *Proceedings of the IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting (APS-URSI)*, July 2018.
- [C91] V. Pano, S. Lerner, I. Yilmaz, M. Lui, and B. Taskin, “Workload-Aware Routing (WAR) for Network-on-Chip Lifetime Improvement,” *Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS)*, May 2018.
- [C90] S. Lerner, V. Pano, and B. Taskin, “NoC Router Lifetime Improvement using Per-Port Router Utilization,” *Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS)*, May 2018.
- [C89] R. Kuttappa and B. Taskin, “Low Frequency Rotary Traveling Wave Oscillators”, *Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS)*, May 2018.
- [C88] L. Filippini and B. Taskin, “A 900 MHz Charge Recovery Comparator with 40 fJ Per Conversion”, *Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS)*, May 2018.
- [C87] M. Lui, K. Sangaiah, M. Hempstead, and B. Taskin, “Towards Cross-Framework Workload Analysis via Flexible Event-Driven Interfaces”, *IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS)*, April 2018, pp. 169–178.
- [C86] L. Filippini, L. Khuon, and B. Taskin, “Charge Recovery Implementation of an Analog Comparator: Initial Results”, *Proceedings of the IEEE International Midwest Symposium on Circuits and Systems (MWSCAS)*, August 2017, pp. 1505–1508.
- [C85] V. Pano, Y. Liu, I. Yilmaz, A. More, B. Taskin and K. Dandekar, “Wireless NoCs using Directional and Substrate Propagation Antennas”, *Proceedings of the IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, July 2017, pp. 188–193.

- [C84] S. Lerner and B. Taskin, "WT-CTS: Incremental Delay Balancing Using Parallel Wiring Type For CTS", *Proceedings of the IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, July 2017, pp. 465–470.
- [C83] L. Filippini and B. Taskin, "A Charge Recovery Logic System Bus", *Proceedings of the IEEE International Workshop on System Level Interconnect Prediction (SLIP)*, June 2017.
- [C82] S. Lerner, E. Leggett and B. Taskin, "Slew-Down: Analysis of Slew Relaxation for Low-Impact Clock Buffers", *Proceedings of the IEEE International Workshop on System Level Interconnect Prediction (SLIP)*, June 2017.
- [C81] R. Kuttappa, L. Filippini, S. Lerner and B. Taskin, "Stability of Rotary Traveling Wave Oscillators Under Process Variations and NBTI", *Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS)*, May 2017.
- [C80] R. Kuttappa, L. Khuon, B. Nabet and B. Taskin, "Reconfigurable Threshold Logic Gates using Optoelectronic Capacitors", *Proceedings of the Design, Automation and Test in Europe (DATE)*, March 2017, pp. 614–617.
- [C79] S. Lerner and B. Taskin, "Workload-Aware ASIC Flow for Lifetime Improvement of Multi-core IoT Processors", *Proceedings of the IEEE International Symposium on Quality Electronic Design (ISQED)*, March 2017, pp. 379–384.
- [C78] L. Filippini, D. Lim, L. Khuon and B. Taskin, "Wireless Charge Recovery System for Implanted Electroencephalography Applications in Mice", *Proceedings of the IEEE International Symposium on Quality Electronic Design (ISQED)*, March 2017, pp. 342–345.
- [C77] V. Pano, I. Yilmaz, A. More and B. Taskin, "Energy Aware Routing of Multi-Level Network-on-Chip Traffic," *Proceedings of the IEEE International Conference on Computer Design (ICCD)*, October 2016, pp. 480–486.
- [C76] V. Pano, I. Yilmaz, Y. Liu, B. Taskin and K. Dandekar, "Wireless Network-on-Chip Analysis of Propagation Technique for On-chip Communication," *Proceedings of the IEEE International Conference on Computer Design (ICCD)*, October 2016, pp. 400-403.
- [C75] L. Filippini and B. Taskin, "Charge Recovery Logic for Thermal Harvesting Applications," *Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS)*, May 2016, pp. 542–545.
- [C74] W. Liu, E. Salman, C. Sitik and B. Taskin, "Exploiting Useful Skew in Gated Low Voltage Clock Trees for High Performance," *Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS)*, May 2016, pp. 259–2598.
- [C73] K. Sangaiah, M. Hempstead and B. Taskin, "Uncore RPD: Rapid Design Space Exploration of the Uncore via Regression Modeling", *Proceedings of the IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, November 2015, pp. 365–372.
- [C72] L. Filippini, E. Salman, B. Taskin, "A Wirelessly Powered System with Charge Recovery Logic", *Proceedings of the IEEE International Conference on Computer Design (ICCD)*, October 2015, pp. 505–510.
- [C71] M. Rathore, E. Salman, C. Sitik and B. Taskin, "A Novel Static D Flip-Flop Topology for Low Swing Clocking", *Proceedings of ACM/IEEE Great Lakes Symposium on VLSI (GLSVLSI)*, May 2015, pp. 301–306.
- [C70] W. Liu, E. Salman, C. Sitik and B. Taskin, "Clock Skew Scheduling in the Presence of Heavily Gated Clock Networks", *Proceedings of ACM/IEEE Great Lakes Symposium on VLSI (GLSVLSI)*, May 2015, pp. 283-288.
- [C69] W. Liu, E. Salman, C. Sitik and B. Taskin, "Enhanced Level Shifter for Multi-Voltage Operation," *Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS)*, May 2015, pp. 1442–1445.
- [C68] Y. Liu, V. Pano, D. Patron, K. Dandekar and B. Taskin, "Innovative Propagation Mechanism for Inter-chip and Intra-chip Communication," *Proceedings of the IEEE Wireless and Microwave Technology Conference (WAMICON)*, April 2015, pp. 1–6.

- [C67] S. Nilakantan, K. Sangaiah, A. More, G. Salvador, B. Taskin, M. Hempstead, “SynchroTrace: Synchronization-aware Architecture-agnostic Traces for Light-Weight Multi-core Simulation”, *Proceedings of the IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS 2015)*, March 2015, pp. 278–287.
- [C66] G. Salvador, S. Nilakantan, B. Taskin, M. Hempstead and A. More, “Effects of Nondeterminism in Hardware and Software Simulation with Thread Mapping”, *Proceedings of the IEEE/ACM International Conference on VLSI Design (VLSID)*, January 2015, pp. 129–134.
- [C65] S. Nilakantan, S. Lerner, M. Hempstead and B. Taskin, “Can you trust your memory trace?: A comparison of memory traces from binary instrumentation and simulation”, *IEEE/ACM International Conference on VLSI Design (VLSID)*, January 2015, pp. 135–140.
- [C64] Y. Teng and B. Taskin, “Frequency-Centric Resonant Rotary Clock Distribution Network Design”, *Proceedings of the IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, November 2014, pp. 742–749.
- [C63] C. Sitik, S. Lerner and B. Taskin, “Timing Characterization of Clock Buffers for Clock Tree Synthesis”, *Proceedings of the IEEE International Conference on Computer Design (ICCD)*, October 2014, pp. 230–236.
- [C62] G. Salvador, S. Nilakantan, A. More, B. Taskin and M. Hempstead, “Static Thread Mapping for NoC CMPs via Binary Instrumentation Traces”, *Proceedings of the IEEE International Conference on Computer Design (ICCD)*, October 2014, pp. 517–520.
- [C61] C. Sitik, L. Filippini, E. Salman and B. Taskin, “High Performance Low Swing Clock Tree Synthesis with Custom D Flip-Flop Design”, *Proceedings of the IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, July 2014, pp. 498–503.
- [C60] J. Kemmerer and B. Taskin, “Range-based Dynamic Routing of Hierarchical On Chip Network Traffic”, *Proceedings of the IEEE International Workshop on System Level Interconnect Prediction (SLIP)*, June 2014, pp. 1–9.
- [C59] Y. Teng and B. Taskin, “Resonant Frequency Divider Design Methodology for Dynamic Frequency Scaling”, *Proceedings of the IEEE International Conference on Computer Design (ICCD)*, October 2013, pp. 479–482.
- [C58] C. Sitik, P. Nagvajara and B. Taskin, “A Microcontroller-Based Embedded System Design Course with PSoC3”, *Proceedings of the IEEE International Conference on Microelectronic Systems Education (MSE)*, June 2013, pp. 28–31.
- [C57] C. Sitik and B. Taskin, “Multi-Corner Multi-Voltage Domain Clock Mesh Design”, *Proceedings of the ACM Great Lakes Symposium on VLSI (GLSVLSI)*, May 2013, pp. 209–214.
- [C56] C. Sitik and B. Taskin, “Skew-Bounded Low Swing Clock Tree Optimization”, *Proceedings of the ACM Great Lakes Symposium on VLSI (GLSVLSI)*, May 2013, pp. 49–54. [Best paper award nominee]
- [C55] Y. Teng and B. Taskin, “Rotary Traveling Wave Oscillator Frequency Division at Nanoscale Technologies”, *Proceedings of ACM Great Lakes Symposium on VLSI (GLSVLSI)*, May 2013, pp.349–350.
- [C54] C. Sitik and B. Taskin, “Implementation of Domain-Specific Clock Meshes for Multi-Voltage SoCs with IC Compiler”, *Proceedings of Synopsys User Group Conference Silicon Valley (SNUG)*, March 2013.
- [C53] Y. Teng and B. Taskin, “Sparse-Rotary Oscillator Array (SROA) Design for Power and Skew Reduction”, *Proceedings of the Design, Automation and Test in Europe (DATE) Conference*, March 2013, pp. 1229–1234.
- [C53] J. Lu, X. Mao and B. Taskin, “Clock Mesh Synthesis with Gated Local Trees and Activity Driven Register Clustering”, *Proceedings of the IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, November 2012, pp. 691–697.

- [C51] M. Guthaus and B. Taskin, "High-Performance, Low-Power Resonant Clocking: Embedded tutorial", *Proceedings of the IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, November 2012, pp. 742–745.
- [C50] C. Sitik and B. Taskin, "Multi-Voltage Domain Clock Mesh Design", *Proceedings of the IEEE International Conference on Computer Design (ICCD)*, September 2012, pp. 201–206.
- [C49] Y. Teng and B. Taskin, "Clock Mesh Synthesis Method using Earth Mover's Distance under Transformations", *Proceedings of the IEEE International Conference on Computer Design (ICCD)*, September 2012, pp. 121–126.
- [C48] Y. Teng and B. Taskin, "Synchronization Scheme for Brick-Based Rotary Oscillator Arrays", *Proceedings of the ACM Great Lakes Symposium on VLSI (GLSVLSI)*, May 2012, pp. 117–122.
- [C47] A. More and B. Taskin, "A Unified Design Methodology for a Hybrid Wireless 2-D NoC", *Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS)*, May 2012, pp. 640–643.
- [C46] V. Honkote, A. More and B. Taskin, "3-D Parasitic Modeling for Rotary Interconnects", *Proceedings of the International Conference on VLSI Design (VLSID)*, January 2012, pp. 137–142.
- [C45] A. More and B. Taskin, "EM and Circuit Co-simulation of a Reconfigurable Hybrid Wireless NoC on 2D ICs", *Proceedings of the IEEE International Conference on Computer Design (ICCD)*, October 2011, pp. 19–24.
- [C44] Y. Teng, J. Lu and B. Taskin, "ROA-Brick Topology for Rotary Resonant Clocks", *Proceedings of the IEEE International Conference on Computer Design (ICCD)*, October 2011, pp. 273–278.
- [C43] A. More and B. Taskin, "Simulation Based Study of On-chip Antennas for a Reconfigurable Hybrid 2D Wireless NoC", in the *Proceedings of the IEEE International Workshop on System Level Interconnect Prediction (SLIP)*, June 2011.
- [C42] J. Lu and B. Taskin, "From RTL to GDSII: An ASIC Design Course Development using Synopsys University Program", *Proceedings of the IEEE International Conference on Microelectronic Systems Education (MSE)*, June 2011, pp. 72–75.
- [C41] J. Lu, Y. Aksehir and B. Taskin, "Register On MESH (ROME): A Novel Approach for Clock Mesh Network Synthesis", *Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS)*, May 2011, pp. 1219–1222.
- [C40] J. Lu and B. Taskin, "Reconfigurable Clock Polarity Assignment for Peak Current Reduction of Clock-gated Circuits", *Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS)*, May 2011, pp. 1940–1943.
- [C39] Y. Teng and B. Taskin, "Process Variation Sensitivity of the Rotary Traveling Wave Oscillator", *Proceedings of the IEEE International Symposium on Quality Electronic Design (ISQED)*, March 2011, pp. 236–242.
- [C38] J. Lu, X. Mao and B. Taskin, "Timing Slack Aware Incremental Register Placement with Non-uniform Grid Generation for Clock Mesh Synthesis", *Proceedings of the ACM International Symposium on Physical Design (ISPD)*, March 2011, pp. 131–138.
- [C37] J. Lu, V. Honkote, X. Chen and B. Taskin, "Steiner Tree Based Rotary Clock Routing with Bounded Skew and Capacitive Load Balancing", *Proceedings of the Design, Automation and Test in Europe (DATE) Conference*, March 2011, pp. 455–460.
- [C36] V. Honkote and B. Taskin, "Skew-Aware Capacitive Load Balancing for Low-Power Zero Clock Skew Rotary Oscillatory Array", *Proceedings of the IEEE International Conference on Computer Design (ICCD)*, October 2010, pp. 209–214.
- [C35] A. More and B. Taskin, "Simulation Based Study of On-chip Antennas for a Reconfigurable Hybrid 3D Wireless NoC", *Proceedings of the IEEE International SOC Conference (SOCC)*, September 2010, pp. 447–452.

- [C34] A. More and B. Taskin, "Wireless Interconnects for Inter-tier Communication on 3-D ICs", *Proceedings of the European Microwave Integrated Circuits Conference (EuMIC)*, September 2010, pp. 105–108.
- [C33] A. More and B. Taskin, "Effect of EMI between Wireless Interconnects and Metal Interconnects on CMOS Digital Circuits", *Mediterranean Microwave Symposium (MMS)*, August 2010.
- [C32] V. Honkote and B. Taskin, "PEEC Based Parasitic Modeling for Power Analysis on Custom Rotary Rings", *Proceedings of the International Symposium on Low Power Electronics and Design (ISLPED)*, August 2010, pp. 111–116.
- [C31] A. More and B. Taskin, "Electromagnetic Compatibility of CMOS On-chip Antennas", *Proceedings of the IEEE AP-S International Symposium on Antennas and Propagation (APS-URSI)*, July 2010.
- [C30] A. More and B. Taskin, "Simulation Based Feasibility Study of Wireless RF Interconnects for 3D ICs", *Proceedings of the IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, July 2010, pp. 228–231.
- [C29] J. Lu and B. Taskin, "Clock Tree Synthesis with XOR Gates for Polarity Assignment", *Proceedings of the IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, July 2010, pp. 17–22.
- [C28] V. Honkote and B. Taskin, "Design Automation and Analysis of Resonant Rotary Clocking Technology", *Proceedings of the IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, July 2010, pp. 471–472.
- [C27] A. More and B. Taskin, "Simulation Based Study of Wireless RF Interconnects for Practical CMOS Implementation", *the Proceedings of the System Level Interconnect Prediction (SLIP)*, June 2010, pp. 35–41.
- [C26] A. More and B. Taskin, "Electromagnetic Interaction of On-Chip Antennas and CMOS Metal Layers for Wireless IC Interconnects", *Proceedings of the IEEE/ACM Great Lakes Symposium on VLSI Design (GLSVLSI)*, May 2010, pp. 413–416.
- [C25] A. More and B. Taskin, "Leakage Current Analysis for Intra-Chip Wireless Interconnects", *Proceedings of the IEEE International Symposium on Quality Electronic Design (ISQED)*, March 2010, pp. 49–53.
- [C24] J. Lu and B. Taskin, "Clock Buffer Polarity Assignment Considering Capacitive Load", *Proceedings of the IEEE International Symposium on Quality Electronic Design (ISQED)*, March 2010, pp. 765–770.
- [C23] V. Honkote and B. Taskin, "Skew Analysis and Bounded Skew Constraint Methodology for Rotary Clocking Technology", *Proceedings of the IEEE International Symposium on Quality Electronic Design (ISQED)*, March 2010, pp. 413–417.
- [C22] V. Honkote and B. Taskin, "Analysis, Design and Simulation of Capacitive Load Balanced Rotary Oscillatory Array", *Proceedings of the International Conference on VLSI Design (VLSID)*, January 2010, pp. 218–223.
- [C21] J. Lu and B. Taskin, "Incremental Register Placement for Low Power CTS", *Proceedings of the IEEE International SoC Design Conference (ISOCC)*, November 2009, pp. 232–236.
- [C20] V. Honkote and B. Taskin, "Skew Analysis and Design Methodologies for Improved Performance of Resonant Clocking", *Proceedings of the IEEE International SoC Design Conference (ISOCC)*, November 2009, pp. 165–168.
- [C19] J. Lu and B. Taskin, "Post-CTS Clock Skew Scheduling with Limited Delay Buffering", *Proceedings of the IEEE International Conference on Midwest Circuits and Systems (MWSCAS)*, August 2009, pp. 224–227.
- [C18] V. Honkote and B. Taskin, "Design Automation Scheme for Wirelength Analysis of Resonant Clocking Technologies", *Proceedings of the IEEE International Conference on Midwest Circuits and Systems (MWSCAS)*, August 2009, pp. 1147–1150.



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- [B2] I. S. Kourtev, B. Taskin and E. G. Friedman, *Timing Optimization through Clock Skew Scheduling*, Springer, 2009.
- [B1] B. Taskin, I. S. Kourtev and E. G. Friedman, *System Timing*, Handbook of VLSI, 2<sup>nd</sup> edition, Editor: W. K. Chen, CRC Publishing, December 2006.

#### **Patents**

- [P1] United States Patent No. 8,704,577, “Clock Mesh Synthesis with Gated Local Tree Activity Driven Register Clustering”, Inventors: Taskin and Lu, April 22, 2014.
- [P2] United States Patent No. 9,059,264, “Tunable Hot-Electron Transfer Within a Nanostructure”, Inventors: Spanier, et al., 2015
- [P3] United States Patent No. 9,773,079, “Methods and computer-readable media for synthesizing a multi-corner mesh-based clock distribution network for multi-voltage domain and clock meshes and integrated circuits”, Inventors: Taskin and Sitik, 2017
- [P4] United States Patent No. 9,484,896, “Resonant Frequency Divider Design Methodology for Dynamic Frequency Scaling”, Inventors: Taskin and Teng, 2018

SPONSORED ◇ 9/2018-8/2021, PI, NSF CCF, \$390k, *SHF: Small: Circuits and Systems with Charge Recovery*.

PROJECTS ◇ 7/2017–6/2020, Co-PI (with PI Dandekar), NSF CRI, \$850,000, *II-NEW: Scalable Software Defined Radio Network Testbed for Hybrid Measurement and Emulation*.

- ◇ 5/2015-4/2016, PI (50% with Co-PI Hempstead), *Fast and Efficient Hardware Design Exploration through Memory-NoC Analysis for Multi-Core SoCs*.
  - ◇ 9/2013-8/2016, PI, NSF CRI, \$700k, *II-NEW: Testbed for High Speed Interconnects*.
  - ◇ 7/2013-6/2016, Co-PI (50% with PI Salman at Stony Brook), Semiconductor Research Corporation (SRC), *Design and Automation of a Novel Low Swing Clocking Methodology with Reduced Delay Uncertainty*.
  - ◇ 9/2012-8/2015, PI, NSF CCSS, \$400k (+\$16k REU supplement), *Hybrid Wireless Network-on-Chips*.
  - ◇ 3/2010-2/2013, PI, NSF REU, \$360k, *REU Site: Computing for Power and Energy: The Old, The New and The Renewable*.
  - ◇ 9/2009-8/2014, PI, NSF CAREER, \$400k, *Rotary Clock Technology Integration*.
  - ◇ 9/2009-9/2010, PI, MOSIS, *Wireless Integrated Circuit Interconnect for Clocking*,  $4 \times 4\text{mm}^2$  90nm CMOS RF fabrication.
  - ◇ 9/2007-8/2008, PI, A. Richard Newton Graduate Scholarship, ACM/IEEE Design Automation Conference (DAC) 2007, *Routing for Resonant Clocking Technology in Multi-GHz range*.
- CURRENT GRADUATE STUDENT ADVISEES
- ◇ 9/2013–current, Leo Filippini, Ph.D. candidate, *Topic: Charge Recycling Circuits and Systems*
  - ◇ 9/2013–current, Karthik “Paco” R. Sangaiah, Ph.D. candidate, *Topic: Exascale CMP Co-Design*, NSF GRFP (2014–2017), ARM internship (2015)
  - ◇ 9/2014–current, Scott Lerner, Ph.D. candidate, *Topic: Low Power Cross-Layer Architecture and Physical Design*, NSF GRFP (2015–2018), AMD internship (2015)
  - ◇ 9/2014–current, Michael Lui, Ph.D. candidate, *Topic: Hardware-Software Co-Design Exploration*
  - ◇ 9/2014–current, Vasil Pano, Ph.D. candidate, *Topic: Heterogenous Architectures and NoCs*, Intel internship (2016–2017)
  - ◇ 9/2015–current, Ragh Kuttappa, Ph.D. candidate, *Topic: Low Power Clocking*, Samsung internship (2017)
  - ◇ 9/2018–current Dongen “Brad” Zhou, Ph.D. student, *Topic: TBD*
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- ◇ 2014–2018, Isikcan Yilmaz, MS, BS, *Topic: Computer Architecture* [Apple, CA]
  - ◇ 2017–2018, Adarsha Balaji, MS [Ph.D. at Drexel University]
  - ◇ 6/2017–8/2017, Milene Douarche, visiting MS student from Grenoble Institute of Technology, France, *Topic: Layout Automation*
  - ◇ 9/2016–4/2017, Rizwana Begum, Ph.D., *Dissertation: Energy Management of Multi-Component Computing Platforms Under Energy Constraints* [graduating advisor after M. Hempstead moved to Tufts University] [Intel, OR]
  - ◇ 9/2011–12/2015, A. Can Sitik, Ph.D., *Dissertation: Design and Automation of Voltage-Scaled Networks* [Intel, OR]
  - ◇ 6/2015–8/2015, Sophie Germain, visiting MS student from Grenoble Institute of Technology, France, *Topic: Low Power Circuit Design*
  - ◇ 6/2012–6/2014, Steve DeLuca, MS (part-time), *Topic: Rotary Ring Design Automation* [Intel, PA]
  - ◇ 10/2013–6/2014, Julian Kemerrer, BS/MS student, *Topic: Hierarchical NoC Design* [Susquehanna International Group (SIG), PA]
  - ◇ 9/2009–6/2014, Ying Teng, Ph.D., *Dissertation: Low Power Resonant Rotary Global Clock Distribution Network Design* [Apple, CA]
  - ◇ 9/2009–5/2013, Ankit More, Ph.D., *Dissertation: Network-on-Chip (NoC) Architectures for Exascale Chip-Multi-Processor (CMPs)* [Intel, OR]

- ◇ 9/2011–6/2012, Swetha George, MS, *Topic: Performance Analysis of NoCs with Wireless Interconnects* [Ph.D. program in University of Rochester]
- ◇ 9/2010–6/2011, Kevin Daly, BS/MS, *Topic: Ultra Low Power Adiabatic Logic*
- ◇ 9/2007–6/2011, Jianchao Lu, Ph.D., *Dissertation: High Performance IC Clock Networks with Mesh and Tree Topologies* [Synopsys, CA; LinkedIn, CA]
- ◇ 9/2009–6/2011, Xiaomi Mao, MS, *Topic: IC Timing Optimization through Clocking* [Oracle, CA]
- ◇ 9/2009–6/2011, Sharat C. Shekar, MS, *Topic: IC Power Grid Simulator* [Samsung, TX; Apple, TX]
- ◇ 9/2006–6/2010, John Vargas, MS (part-time), *Topic: Physical Design for 3D IC and Interconnects* [Mentor Graphics, PA]
- ◇ 9/2006–8/2010, Vinayak Honkote, Ph.D., *Dissertation: Design Automation and Analysis of Resonant Clocking Technologies* [Intel, India; Intel, OR]
- ◇ 9/2006–6/2007, Yaswanth Simhadri, MS, *Topic: QCA Design Simulator*
- ◇ 9/2006–6/2007, Shannon M. Kurtas, BS/MS, *Thesis: Statistical Static Timing Analysis of Nonzero Clock Skew Circuits* [Intel, OR; CMU Finance, NY; Deutsche Bank, UK]

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- ◇ Can Hankendi (2008) [Sabanci University, M.S. at USC, Ph.D. at Boston University]
- ◇ Danh Nguyen (2007) [Ph.D. at Drexel University]

- THESIS  
COMMITTEE  
MEMBERSHIP  
(OTHER)
- ◇ 07/2017, Danh Nguyen, Ph.D., *Agile Spectrum-Sharing Wireless Systems using Software-Defined Radios and Reconfigurable Antennas*
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  - ◇ 4/2017, Rizwana Begum, Ph.D., *Energy Management of Multi-Component Computing Platforms Under Energy Constraints* [graduating advisor after M. Hempstead moved to Tufts University]
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- ◇ 05/2011, Takashi Nakamura, Ph.D., *Quantitative X-ray Differential Interference Contrast Microscopy*
- ◇ 03/2011, Scott Haney, Ph.D., *Practical Applications and Properties of the Exponentially Modified Gaussian (EMG) Distribution*
- ◇ 11/2008, Atanu Chattopadhyay, Ph.D. (McGill University), *Dual Reference Signal, Post-Silicon Reconfigurable Clock Distribution Networks*
- ◇ 7/2008, Nakul Jain, M.S., *GPU-Accelerated Deformable Registration of Cone-beam CT Images*
- ◇ 7/2008, Shahab Ahmad, B.S./M.S., *A Parallel Controller Implementation for Dynamix Resource Allocation in Virtualized Computing Environment*
- ◇ 6/2006, Zayd Hammoudeh, B.S./M.S., *ForPowER : A Novel Architecture for Energy Efficient Implementation for Fork-Join Parallelism Using System on a Chip*
- ◇ 6/2005, Jeng Long Yang, M.S., *Implementation of Voice Over IP processor on FPGA System*