

Vasil Pano

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- EDUCATION
- ◇ **Ph.D., Electrical Engineering**, (expected graduation early 2019).
Drexel University, Philadelphia, PA.
 - ◇ **B.S., Computer Engineering**, 2014.
Drexel University, Philadelphia, PA.
- PROFESSIONAL EXPERIENCE
- ◇ **Extreme Scale Technologies Graduate Intern**, (June 2016 – January 2017)
Intel Corporation
Hillsboro, OR, USA
 - Worked on scalable Network-on-Chip model using SystemC
 - Co-designed and implemented novel memory coherence system utilizing the NoC
 - ◇ **Ph.D. Candidate**, (September 2014 – current)
VLSI and Architecture Laboratory, Department of Electrical and Computer Engineering
Drexel University, Philadelphia, PA, USA
 - Ph.D. Candidate and member of the Drexel VLSI and Architecture Laboratory (VANDAL)
 - Studying Computer Architecture focusing primarily on:
 - Computer memory subsystem design and cache coherence protocols
 - Network-on-Chip architectures and routing algorithms
 - Wireless on-chip communication technologies
 - Extreme scale NoCs and memory models
 - Current research projects:
 - Analyzing wireless communication behavior on a NoC (using custom SystemC simulator)
 - Implementing a novel multi-chip wireless infrastructure (using novel propagation technique on HFSS)
 - Implementing a custom memory model using the Token cache coherence protocol within Gem5
 - Designed multiple clustered architectures within Gem5 (using Garnet/Ruby)
 - Implementing custom thread mapping solution using Sigil2.0 and Synchrotrace (in-house tools)
 - ◇ **Undergraduate Research Assistant – VLSI Laboratory**, (April 2013 – July 2014)
VLSI Laboratory, Department of Electrical and Computer Engineering
Drexel University, Philadelphia, PA, USA
 - Senior Design Project on Wireless Interconnect Design for 2D and 3D ICs
 - NoC simulation, HFSS modeling, RF and antenna modeling
 - Network-on-Chip, Computer Architecture, Custom VLSI Design, ASIC Design I/II courses
 - DragonNoC, Booksim and HNOC (OMNET++ based simulator) for NoC simulation
 - Gem5 (Ruby and Garnet) for full-system, SynchroTrace for trace-based simulation
 - Cadence: RTL Compiler, Encounter, Virtuoso
 - Synopsys: 1) DC for synthesis, 2) ICC for physical design
 - 3) Primitime for Static Timing Analysis 4) HSPICE for simulation
 - ◇ **Undergraduate Research Assistant – DPAC Laboratory**, (June 2013 – July 2014)
DPAC Laboratory, Department of Electrical and Computer Engineering
Drexel University, Philadelphia, PA, USA
 - Implemented custom barrier synchronization method to the in-house SynchroTrace simulator
 - Multi-threaded trace-based system simulation for evaluating many-core architectures and NoCs
 - Application-aware memory and NoC co-design
 - Benchmark analysis (Splash-2x and PARSEC 3.0) on Synchrotrace

- ◇ **Outage Analysis Technologies Intern**, (March 2013 – September 2013)
PJM Interconnection
Norristown, PA, USA
 - Thorough understanding of Software Development Life Cycle (SDLC) and Waterfall Methodology
 - Created and maintained database design with detailed description of logical entities and physical tables
 - Expertise in writing functional specifications and translating business requirements to technical specifications
 - Extensive experience in manual and automated testing of applications
- ◇ **Operations Planning Intern**, (April 2012 – March 2013)
PJM Interconnection
Norristown, PA, USA
 - Responsible for performing production and regression testing the proprietary software called eDART
 - Effectively coordinated with member companies and collected time sensitive information critical to reliability
 - Manually check one-line diagram information for accuracy and update databases accordingly
 - Consolidated a Software Manual and Quick Reference Guide of eDART for external and internal users

PUBLICATIONS **Conference Publications**

- ◇ V. Pano, S. Lerner, Isikcan Yilmaz, Michael 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
- ◇ 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
- ◇ 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 International Symposium on VLSI (ISVLSI), pp. 188-193, July 2017
- ◇ 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), pp. 480-486, October 2016.
- ◇ 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), pp. 400-403, October 2016.
- ◇ 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), pp. 1-6, April 2015.

Journal Publications

- ◇ A. More, V. Pano, and B. Taskin, *Vertical Arbitration-free 3D NoCs*, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), October 2017

- PRESENTER ◇ V. Pano, and B. Taskin, *SynchroTrace: Synchronization-aware Architecture-agnostic Traces for Light-Weight Multicore Simulation*, Poster presented at Design Automation Conference (DAC), June 2016.
- ◇ V. Pano, M. Lui, M. Hempstead and B. Taskin, *Sigil and SynchroTrace: Communication-Aware Workload Profiling and Memory-NoC Simulation*, Tutorial presented at IEEE International Conference on Computer Design (ICCD), October 2015.
 - ◇ V. Pano, S. Lerner, and B. Taskin, *Wireless Network-on-Chip*, Poster presented at American Society for Engineering Education (ASEE), November 2014.

- GRADUATE COURSEWORK ◇ High Performance Computer Architecture, Parallel Computer Architecture, Network-on-a-Chip (NoC)
 ◇ EDA for VLSI I & II, ASIC Design I & II, Custom VLSI
 ◇ Data Structures and Algorithms, Systems Programming, Internet Architecture and Protocols I & II
- TEACHING ASSISTANT COURSEWORK ◇ *High Performance Computer Architecture*, Spring 2015-2016, Graduate Level Class
 ◇ *Systems Programming*, Summer 2014-15 & 2016-2017 & Winter 2015-2016, Junior Level Class
 ◇ *Computation Lab I & II*, Fall & Winter 2015-2016 & Winter 2017-2018, Freshmen Level Class
 ◇ *Parallel Computer Architecture*, Fall 2015-16 & Winter 2016-2017, Graduate Level Class
 ◇ *Digital Systems Projects*, Spring 2014-15 & Fall 2017-2018, Junior Level Class
 ◇ *Internet Architecture and Protocols*, Winter 2014-15, Junior Level Class
 ◇ *Digital Logic Design*, Fall 2014-15 & Spring 2016-2017, Sophomore Level Class
 ◇ *ASIC Design II*, Spring 2013-14, Graduate Level Class
 ◇ *Network-on-chip I*, Fall 2013-14, Graduate Level Class
- VOLUNTEER ACTIVITIES ◇ Graduate Student Supervisor (Isikcan Yilmaz) - Gem5 & NoC research
 Drexel University, 2015-18
 ◇ Senior Design Mentor - Wireless DRAM Solution
 Drexel University, 2015-16
 ◇ STAR Mentor (Eonides Neto) - Router architecture for Network-on-Chip
 Drexel University, 2015
 ◇ Freshman Design Mentor - Wireless HDMI
 Drexel University, 2013-14
- SKILLS ◇ C, C++, SystemC, Verilog HDL, HFSS
 ◇ Pthread, OpenMP, CUDA
 ◇ Python, Matlab, L^AT_EX
 ◇ Synopsys – Design Compiler, IC Compiler, HSpice
 Cadence – RTL Compiler, Encounter, Virtuoso Suite
- ACADEMIC HONORS AND AWARDS ◇ Nihat Bilgutay Award (High Academic Achievement), 2017
 ◇ Dean’s List, 2009, 2010, 2011, 2012, 2013, 2014
 ◇ Dean’s Scholarship, Drexel University, September 2009 – June 2014
 ◇ DU Endowed Scholarship, Drexel University, September 2009 – June 2014
- REFERENCES ◇ **Dr. Baris Taskin**
 Professor, Department of Electrical and Computer Engineering
 Drexel University, Philadelphia, PA
 E-mail: taskin@coe.drexel.edu
 ◇ **Dr. Ankit More**
 Research Scientist, Extreme Scale Technologies
 Intel Corporation, Hillsboro, OR
 E-mail: ankitmore@gmail.com
 ◇ **Dr. Nagarajan Kandasamy**
 Professor and Associate Department Head for Graduate Affairs
 Department of Electrical and Computer Engineering
 Drexel University, Philadelphia, PA
 E-mail: kandasamy@coe.drexel.edu
 ◇ **Dr. Mark Hempstead**
 Associate Professor, Department of Electrical and Computer Engineering
 Tufts University, Medford, MA
 E-mail: mark.hempstead@tufts.edu