

SAMSON MELAMED

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PROFILE

Samson is a Ph.D. candidate in Electrical Engineering at North Carolina State University. His research, under the supervision of W. Rhett Davis, focuses on methods for accurately determining the thermal profile of 3D integrated circuits. His research interests include thermal simulation, thermal modeling and circuit design.

EDUCATION

Ph.D. **North Carolina State University**, Electrical Engineering
Expected, December 2010. GPA 3.81/4.00.

Topic: ***Rapid Thermal Analysis Techniques for 3DICs***

W. Rhett Davis (chair), Paul Franzon, Michael Steer and Donald Bitzer

M.S. **North Carolina State University**, Electrical Engineering
December 2007. GPA 4.00/4.00

B.S. **University of Maryland, Baltimore County**, Computer Engineering
May 2004. Magna Cum Laude. GPA 3.94/4.00

SKILLS

Hardware Design: OpenAccess (C++, Python API), Cadence Analog Artist, Virtuoso, Encounter, Calibre DRC/LVS/PEX, Synopsys Design Compiler
Simulation: ModelSim, Matlab, Synopsys HSPICE, Pro/Engineer, Gradient FireBolt
Operating Systems: Linux, Windows, IRIX, Solaris
Computer Languages: C, C++, Perl, Python, SQL, VHDL, Verilog, PHP, HTML, Tcl, ColdFusion
Foreign Languages: **Japanese** (Intermediate Level – 5 years), **French** (AP Level – 6 years)

WORK EXPERIENCE

North Carolina State University, Dept. of Electrical and Computer Engineering, Raleigh, NC
Research Assistant (June 2004 – Present)

Working on a team researching techniques for 3D integrated circuit design.
Investigating methods for rapid thermal analysis and verification of 3DICs.
Creating compact thermal models with OpenAccess and Pro/Engineer.

Air Force Research Lab, Sensors Directorate, Mixed Signal Design Center, WPAFB, OH
Research Assistant (June 2005 – August 2005)

Developed thermal macromodels for digital 3DICs in SPICE and Pro/Engineer.
Implemented 3DIC chip design workflow management in PTC Windchill.

Gootron Enterprises, Silver Spring, MD

Director of Technology (February 2003 – September 2005)

Managed a team of programmers. Developed PHP and MySQL applications. Worked on a team to develop company services and marketing objectives.

Johns Hopkins University Applied Physics Laboratory, Technical Svcs. Dept., Laurel, MD

Technical Aide (June 2002 – August 2002)

Created an online documentation system using ColdFusion, HTML and Oracle. Created Perl scripts to facilitate solving timing problems in VHDL code. Implemented NetSaint to monitor FlexLM on license servers.

National Oceanic and Atmospheric Admin./National Geodetic Survey, Silver Spring, MD

Computer Specialist (System Administration), Co-op (June 2001 – May 2002)

Worked with a team of system administrators to maintain group's Unix servers. Automated Solaris installation and configuration with CFEngine and JumpStart scripts.

University of Maryland, Baltimore County, Office of Information Technology, Baltimore, MD

Network Technician/Network Programmer (September 2001 – May 2002)

Provided physical network troubleshooting for faculty and students. Worked on a team to solve networking problems and upgrade campus networking equipment. Created scripts to gather and analyze data from routers.

Assistant System Administrator (April 2001 – September 2001)

Created Perl scripts to supplement campus intrusion detection system. Evaluated and implemented NetSaint to monitor central campus servers.

Systems Technical Assistant (September 2000 – May 2001)

Monitored central campus Unix servers and provided Unix account troubleshooting.

PUBLICATIONS

1. **S. Melamed**, T. Thorolfsson, A. Srinivasan, E. Cheng, P. Franzon and W. R. Davis, "Investigation of Tier-swapping to Improve the Thermal Profile of Memory-on-Logic 3DICs", International Workshop on Thermal Investigations of ICs and Systems (THERMINIC), Oct. 2010, accepted
2. **S. Melamed**, T. Thorolfsson, A. Srinivasan, E. Cheng, P. Franzon and W. R. Davis, "Junction-level thermal extraction and simulation of 3DICs", IEEE International Conference on 3D System Integration, Sep. 2009
3. T. Robert Harris, **Samson Melamed**, Sonali Luniya, Rhett Davis, Michael B. Steer, Lawrence E. Doxide, Jr., Kurt Obermiller and Chad Hawkinson, "Thermal Analysis and Verification of a Mounted Monolithic Integrated Circuit", IEEE SoutheastCon, March 2010
4. T. R. Harris, C. Ortero, S. Priyadashi, **S. Melamed**, M. B. Steer, W. R. Davis, P. Franzon, "Cell-based Electro-thermal Simulation of a Digital 3D-IC Using an Extracted Thermal Network", Government Microcircuit Applications Conf. (GOMACTech), March 2010
5. T. Thorolfsson, **S. Melamed**, G. Charles and P. D. Franzon, "Comparative analysis of two 3D integration implementations of a SAR processor", IEEE International Conference on 3D System Integration, Sep. 2009
6. Michael B. Steer, Lawrence E. Doxide, Kurt E. Obermiller, W. Rhett Davis, Paul D. Franzon, Sachin S. Sapatnekar, T. Robert Harris, Lisa McIlraith, Thor Thorolfsson and **Samson Melamed**, "Electro-Thermal Modeling of Packaged 3D Integrated Circuits", Government Microcircuit Applications Conf. (GOMACTech), March 2009
7. Chris Mineo, Ravi Jenkal, **Samson Melamed**, and W. Rhett Davis, "Inter-Die Signaling in Three Dimensional Integrated Circuits", in 30th IEEE Custom Integrated Circuits Conference (CICC), San Jose, California, Sep. 2008
8. P. D. Franzon, W. R. Davis, M. B. Steer, S. Lipa, E. C. Oh, T. Thorolfsson, **S. Melamed**, S. Luniya, T. Doxide, S. Berkeley, B. Shani, and K. Obermiller, "Design and CAD for 3D integrated circuits", 45th ACM/IEEE Design Automation Conference (DAC), 2008
9. Hao Hua, Chris Mineo, K. Schoenfliess, **Samson Melamed**, Ambarish Sule, Ravi Jenkal, and W. Rhett Davis, "Exploring Compromises among Timing, Power and Temperature in Three-Dimensional Integrated Circuits", 43rd Design Automation Conference (DAC), 2006
10. Sonali Luniya, William Batty, Vincent Caccamesi, Mikael Garcia, Carlos Christoffersen, **Samson Melamed**, W. Rhett Davis, and Michael Steer, "Compact Electrothermal Modeling of an X-band MMIC", Proceedings of the International Microwave Symposium, June 2006
11. H. Hua, C. Mineo, K. Schoenfliess, A. Sule, **S. Melamed** and W. Rhett Davis, "Performance Trend in Three-Dimensional Integrated Circuits", IEEE Interconnect Technology Conference (ITC), June 2006