

Curriculum Vitae of Dr. Timothy D. Dorney

Personal

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Citizenship: U.S.A.

Education

Ph.D. in Electrical and Computer Engineering, Rice University, January, 2002.

Thesis Title: *Material Parameter Estimation and Imaging with Terahertz Time-Domain Spectroscopy*

Thesis Advisor: Dr. Daniel Mittleman

Master of Science in Electrical Engineering and Applied Physics, Case Western Reserve University, May, 1992.

Thesis Title: *Learned Adaptive Environment Control using Artificial Neural Networks and Fuzzy Logic*

Thesis Advisor: Dr. Yoh-Han Pao

Bachelor of Science in Electrical Engineering (Cum Laude, University Honors), Texas A&M University, May, 1990.

Employment

Personalized Media Communications, Sugar Land, TX

2014 - Present

Vice President – Intellectual Property

Support for licensing, U.S. Patent and Trademark Office Inter Partes Review, and litigation activities.

Uviri, LLC

2009 - Present

President

Product and electrical design of small wattage AC/DC converters and LED lighting systems.

Texas Instruments Incorporated, Dallas, TX

2003 - 2014

Patent Licensing Associate

Responsible for the assertion and defense of patents in technical fields including memory, analog circuits, processors, and digital systems. Has experience working with licensees in Japan, Asia Pacific Region, North America, and Europe.

Rosenthal & Osha L.L.P., Houston, TX

2001 - 2003

Patent Agent

Applied broad area of experience to originate over 50 utility patent applications per year. Technical fields include analog and digital circuits, microprocessor architecture, computer system design, and digital signal processing (DSP). Responded to both national and international Office Actions, and filed RCEs in response to Advisory Actions. Managed 5 person team focused on protecting microprocessor core IP. Mentored patent engineers and reviewed draft applications.

Rice University, Houston, TX**1994 - 2001**Research Associate - Department of Electrical and Computer Engineering

Utilized a wide variety of DSP techniques for terahertz (THz) time-domain spectroscopy. Solved inverse problems, improved resolution, and facilitated imaging and classification for real-time THz systems. Authored 9 journal articles, and presented and/or authored papers for 16 conferences or lecture series. Other areas of investigation include wavelets, speech processing, biomedical imaging, and computer architecture.

Texas Instruments Incorporated, Houston, TX**1988 - 1998**Circuits Center of Expertise Engineer - Memory Products Design

1997 - 1998

Originated comparisons of internal and competitor designs through simulation, characterization, deprocessing, and internal probe. Identified and evaluated key aspects of DRAM designs by interacting with design teams, product engineering, competitor analysis group, and external resources to gather and disseminate information. Built web pages to report the analysis to a broad audience. Integrated information and made sound conclusions from which future designs could draw.

- Promoted and helped implement the formation of the Circuits COE that resulted in being the only individual contributor chosen from the Houston design center.
- Achieved an 8% speed improvement in access time through a redesign of the critical path and output buffers.
- Identified and correlated device processing characteristics which degraded signal transmission and device performance.
- Simulated and summarized the work on competing access versus hold time specifications which demonstrated that additional regulation circuitry was not needed.

IC Design Engineer - Application Specific DRAM Design

1990 - 1997

Demonstrated engineering breadth and depth through the design, simulation, probe, debug, and test support of various major sections on at least five devices, two of which had 95M units shipped with \$525M in sales. These included row and row redundancy, column and column redundancy, design-for-test, I/O buffers, internal refresh, and data I/O. Performed full-chip schematic verification, design rule verification, and probe versus simulation comparison. Supported the leadframe design, ESD implementation, parasitic back annotation, laser repair, and layout.

- Originated six patents and two pending patents that focused on reduced silicon usage and improved DRAM performance.
- Traveled to Japan (KTI), and Singapore (TECH) for Design support and training. Traveled to TI-Singapore for T3/batch testing support.
- Spearheaded new hire activities and on-campus recruiting which resulted in at least ten new employees.
- Mentored and supervised engineers and layout support to achieve on-time schematic verification.
- Selected point person by V.P. to assemble a team, create, and help instruct "DRAM Design for Non-DRAM Designers". Implemented the course both in Europe and Asia Pacific region.
- Investigated and audited TI's first commercial 64 megabit Synchronous DRAM column, internal refresh, voltage regulators, and power-up circuitry.
- Provided weekly training of DRAM design basics to Houston PDE/CQE engineers.

Product Development Engineer - Video RAM Development

1988 - 1990

Programmed a PWS Colt IIIA device tester for gross functional tests and test time reduction. Drafted specification sheets. Created and updated device comparison tables. Resolved customer issues including returned device evaluation and device specification comparison.

Publications

Journal Articles

Timothy D. Dorney, William W. Symes, Daniel M. Mittleman, "Multistatic Reflection Imaging with Terahertz Pulses", *International Journal of High Speed Electronics and Systems*, 13(02), May, 2012.

Timothy D. Dorney, Molly Rossow, William W. Symes, Daniel M. Mittleman, "Single-cycle Terahertz Electromagnetic Pulses: A New Test Bed for Physical Seismic Modeling", *Geophysics*, Vol. 68, No. 1, Pp. 308-313, January-February, 2003.

Timothy D. Dorney, William W. Symes, Richard G. Baraniuk, Daniel M. Mittleman, "Terahertz Multistatic Reflection Imaging", *Geophysics*, January, 2003.

Jon L. Johnson, Timothy D. Dorney, Daniel M. Mittleman, "Enhanced Depth Resolution Using Phase-Shift Interferometry", *Optics and Photonics News*, December, 2001.

Timothy D. Dorney, Jon L. Johnson, James V Rudd, Daniel M. Mittleman, "Terahertz Reflection Imaging using Kirchhoff Migration", *Optics Letters*, November, 2001.

Timothy D. Dorney, Richard G. Baraniuk, Daniel M. Mittleman, "Material Parameter Estimation with Terahertz Time-Domain Spectroscopy", *Journal of the Optical Society of America A*, 18(7):1562-71, August, 2001.

J.L. Johnson, Timothy D. Dorney, Daniel M. Mittleman, "Interferometric Imaging with Terahertz Pulses", *IEEE Journal of Selected Topics in Quantum Electronics*, 7(4):592-599, August, 2001.

Jon L. Johnson, Timothy D. Dorney, Daniel M. Mittleman, "Enhanced Depth Resolution in Terahertz Imaging using Phase-Shift Interferometry", *Applied Physics Letters*, February, 2001.

Timothy D. Dorney, Srikrishna Bhashyam, Andrew Doran, Richard G. Baraniuk, "Edge Localized Image Sharpening via Reassignment with Application to Computed Tomography", *Proceedings of SPIE - The International Society for Optical Engineering*, August, 2000.

Timothy D. Dorney, Jon Johnson, Daniel M. Mittleman, Richard G. Baraniuk, "Imaging with Terahertz Pulses", *Proceedings of SPIE - The International Society for Optical Engineering*, August, 2000.

Jon L. Johnson, Timothy D. Dorney, Daniel M. Mittleman, "Background-free THz Imaging using Interferometric Tomography", *Filtration Industry Analyst*, January, 2000.

Timothy D. Dorney, "An Introduction to Fuzzy Logic Control", *Texas Instruments Technical Journal*, Vol. 10, No. 4, July/August, 1993, pp. 84-89.

Timothy D. Dorney, "An Improved Architecture and Training Technique for Artificial Neural Networks", *Texas Instruments Technical Journal*, Vol. 10, No. 3, May/June, 1993, pp. 10-17.

Conference Papers

Timothy D. Dorney, Jon Johnson, Daniel M. Mittleman, Richard G. Baraniuk, "Imaging with THz Pulses", International Conference on Image Processing 1:764-767, Vol. 1, February, 2000.

J.L. Johnson, Timothy D. Dorney, James V Rudd, Daniel M. Mittleman, "Terahertz Reflectometry: A Model System for the Inverse Problem", Conference Proceedings - Lasers and Electro-Optics Society Annual Meeting-LEOS 1:242 Vol.1, February, 2000.

Timothy D. Dorney, Richard G. Baraniuk, Daniel M. Mittleman, "Spectroscopic Imaging using Terahertz Time-Domain Signals", Conference: Image Analysis and Interpretation, 2000. Proceedings. 4th IEEE Southwest Symposium, February, 2000.

Presentations

"Identification and Classification of Materials Using Terahertz Time-Domain Spectroscopy", presented at the 2000 IEEE Southwest Symposium on Image Analysis and Interpretation, February 2000.

U.S. Patents

U.S. Patent Number 7,046,412, "Scanning optical delay line using a reflective element arranged to rotate", Timothy D. Dorney, May 16, 2006.

U.S. Patent Number 6,091,665, "Synchronous random access memory having column factor counter for both serial and interleave counting", Timothy D. Dorney, July 18, 2000.

U.S. Patent Number 6,088,274, "Method and device for testing a semiconductor serial access memory device through a main memory", Timothy D. Dorney, Steven C. Eplett, Rishad S. Omer, John E. Riley, July 11, 2000.

U.S. Patent Number 6,084,811, "Phased sense amplifiers", Timothy D. Dorney, July 4, 2000.

U.S. Patent Number 5,920,573, "Method and apparatus for reducing area and pin count required in design for test of wide data path memories", Timothy D. Dorney, July 6, 1999.

U.S. Patent Number 5,740,179, "Method and apparatus for a design for test, parallel block write operation", Timothy Dominic Dorney, Anthony Michael Balistreri, April 14, 1998.

U.S. Patent Number 5,732,030, "Method and system for reduced column redundancy using a dual column select", Timothy D. Dorney, March 24, 1998.

Skills & Advanced Courses

Languages: C, Windows C, FORTRAN, Pascal, Assembly, BASIC, PWS tlang

Programs: TISpice, Cadence Analog Artist, Mentor Graphics Design Architect and IC Station, ADCAP, ICE, LSIM, Siganal, MATLAB, AWK, HTML, Windows, UNIX, Interleaf, MS Office

Hardware: PC, Macintosh, DEC, HP, Apollo, Sun, Flex and Colt IIIA device testers

- Six Sigma Design for Manufacturability
- Advanced DSP
- Filter Theory
- Digital Image Processing
- Image Feature Extraction
- Spectral Estimation
- Computer Architecture
- VLSI
- Communication Theory
- Wavelets
- Random Processes
- Digital Control
- Artificial Neural Networks
- Fuzzy Logic
- Speech Processing
- Leading Effective Meetings
- Presentation Skills
- PC board design and manufacture