

THESES AWARDED

Bachelor of Science (S.B.)

- Aponte, J.D. (T. Thorsen), "Characterization of Microfluidic Valves," June 2003.
- Barron, K. (G. Chen), "Experimental Studies of the Thermoelectric Properties Of Microstructured and Nanostructured Lead Salts," February, 2005.
- Bathurst, S. (N.P. Suh) "Use of Axiomatic Design to Improve the Wear Characteristics of Rotary Shaft Seals," June 2003.
- Bishoff, A. N. (G. Chen), "A New Approach to the Electronic Pen Idea," May 2003.
- Buckley, P. (M.L. Culpepper), "Wear Characteristics of Hybrid Flexure Joints," June 2003.
- Cukalovic, B. (J.A. del Alamo), "WebLabSim Administrative Interface," May 2005.
- Funes, F. (G. Barbastathis), "Measurement of a New Electrochemical Capacitor and the Creation of its Dielectric Medium," June 2004.
- Gibbons, J.S. (T. Thorsen), "Mobile Power Plants: Waste Body Heat Recovery," June 2004.
- Kessenich, G. (M.L. Culpepper), "Factors Affecting the Integral Spring Force in Compliant Robot Joints," June 2003.
- Korb, S. (M.L. Culpepper), "Design of a Monolithic, Three-dimensional Compliant Hexapod," June 2004.
- Mazzeo, B. (A.I. Akinwande), "Models for Energy States in Thin Film Transistors," May 2005.
- Odhner, L.U. (N.P. Suh) "Functional Thinking in Cost Estimation Through the Tools and Concepts of Axiomatic Design," June 2004.
- Peliks, B. (N.P. Suh) "Axiomatic Redesign: Using Axiomatic Design to Improve Vehicle Performance of the Steering and Suspension System," June 2003.
- Samouhos, S.V. (T. Thorsen), "Mobile Power Plants: Waste Body Heat Recovery," June 2004.
- Shih, T. (G. Barbastathis), "Three Dimensional Imaging of Translucent Objects Using Volume Holographic Techniques," June 2004.
- Slowe, T. (M.L. Culpepper), "Development of Equipment for Manufacturing Formed and Folded Compliant Mechanisms," June 2004.
- Swanson, S. (M.L. Culpepper), "Development of an Assessment Protocol for Engineering Education," June 2003.
- Tsikata, S. (T. Thorsen), "Microfluidic Optical Devices," June 2004.

Master of Engineering (M. Eng.)

- Akilian, M.K. (M.L. Schattenburg), "Thin Optic Surface Analysis for High Resolution X-ray Telescopes," , September 2004.
- Anderson, G. (M.L. Culpepper), "A Six Degree-of-Freedom Flexural Positioning Stage," February 2003.
- Carl, P. (M.L. Culpepper), "Design of Accurate and Repeatable Micro-fixtures and Manipulators for Micro-optical Systems", June 2004 (joint with Technischen Universitaet Muenchen).
- Chang, C.-H. (M.L. Schattenburg), "Fabrication of Extremely Smooth Blazed Gratings," June 2004.
- Chen, S.C. (M.L. Culpepper), "Design of Integral Alignment in Silicon Optical Bench," September, 2003.
- Das, R. (M.A. Baldo) "Photovoltaic Devices Using Photosynthetic Protein Complexes," February 2004.
- Edalat, F. (C.G. Sodini), "Effect of Power Amplifier Nonlinearity on System Performance Metric, Bit-Error-Rate (BER)," September 2003.
- Gadish, N. (J. Voldman), "A Microfabricated Dielectrophoretic Micro-organism Concentrator," August 2005.
- Gerhardt, A. (M.A. Schmidt), "Arrayed Microfluidic Actuation for Active Sorting of Fluid Bed Particulates," December 2003.
- Hanlon, C. (C. Boppe, Z.S. Spakovszky), "Engine Design Implications for a Blended Wing Body Aircraft with Boundary Layer Ingestion," January 2003.
- Ho, J. (V. Bulovic), "Improving the External Extraction Efficiency of Organic Light Emitting Devices," February 2004.
- Hou, S.M.C. (J.H. Lang), "A Piezo-Tunable Gigahertz Cavity Microelectromechanical Resonator", May 2004.
- Crain, E.A. (M.H. Perrott), "Fast Offset Compensation for a 10 Gbps Limit Amplifier," May 2004.
- Jurga, Stanley M. (G. Barbastathis), "Nanostructured Origami," May 2003.
- Kumar, R. (M.A. Baldo) "Solid-State Integration of Photosynthetic Protein-Molecular Complexes," May 2003.
- Kohen, S.M. (Q. Hu), "Electromagnetic Modeling of Terahertz Quantum Cascade Laser Waveguides and Resonators," May 2004.
- Landsiedel, N. (M.L. Culpepper), "Design of a Formed / Folded Compliant Layered Mechanism," February 2005.
- Lorilla, L. (C.G. Sodini), "Filtering Techniques for Mitigating Microwave Oven Interference on 802.11b Wireless Local Area Networks," May 2003.

M. Eng. continued

- Mehta, A. (M.A. Schmidt, K.F. Jensen), "A Microfabricated Solid Oxide Fuel Cell," June 2004.
- Muller, R. (J. Voldman), "A Microfabricated Dielectrophoretic Micro-organism Concentrator," May 2004.
- Pakalapati, L.V.V. (M.J. Cima), "Controlled Release Microchip," June 2003.
- Powell, M. (C.G. Sodini), "Integrated Feedback Circuit for Organic LED Display Drivers," March 2004.
- Pei, C-W. (C.G. Sodini), "Macromodeling and Demonstration of the LT6600 Amplifier and Lowpass Filter," February 2004.
- Peters, J. (L. Daniel), "Design of High Quality Factor Spiral Inductors in RF MCM-D", September 2004.
- Rodriguez, S. (L.A. Kolodziejki), "Towards Photonic Integrated Circuits: Design and Fabrication of Passive InP Waveguide Bends," June 2004.
- Signoff, D. (C.G. Sodini), "A High Bandwidth, Low Distortion, Fully Differential Amplifier," June 2005.
- Szczesny, S. (M.L. Culpepper), "Design of Compliant Mechanisms for Attenuation Vibrations in Rotational Systems," February 2005.
- Solis, A. (J.A. del Alamo), "MIT Device Simulation WebLab: An Online Simulator for Microelectronic Devices," September 2004.
- Tang, B. (D.S. Boning), "Characterization and Modeling of Polysilicon MEMS Chemical-Mechanical Polishing," May 2004.
- Varadarajan, K. (M.L. Culpepper), "Design of Ultra-Precision Fixtures for Nanomanufacturing," February 2005.
- Walker J.Z. (A. I. Akinwande, A. Chandrakhasan), "A Low Power Display Driver with Simultaneous Image Transformation," February 2005.
- Wang, A.I., (A.I. Akinwande), "Threshold Voltage in Pentacene Field Effect Transistors with Parylene Dielectric," May 2004.
- Werkmeister, J. (A. Slocum), "Development of Silicon Insert Molded Plastic (SIMP)," June 2005.
- Yu, J. (V. Bulovic), "A Smart Active Matrix Pixelated OLED Display," January 2004.

Master of Science (S.M.)

- Abu-Ibrahim, F. (A. Slocum), "Low-cost Precision Waterjet," June 2004.
- Arango, A. (V. Bulovic), "Quantum Dot Heterojunction Photodetector," February 2005.
- Au, H. (C. Livermore), "Solder Self-Assembly for MEMS Fabrication," September 2004.
- Castiella, J.C. (Z.S. Spakovszky), "A Novel Design Methodology for Enhanced Compressor Performance Based on a Dynamic Stability Metric," January 2005.
- Chan, E.P. (E.L. Thomas), "Layered-Silicate Triblock Copolymer Nanocomposites," June 2003.
- Chen, K.N. (R. Reif), "Material Analysis and Characterization of Copper Wafer Bonding in 3-D Technology," February 2003.
- Chen, L.Y. (A. I. Akinwande), "Focused Field Emission Devices," June 2003.
- Cheung, K. (M.A. Schmidt), "Die Level Glass Frit Vacuum Packaging for a Micro-Fule Processor System," May 2005.
- Cline, J. (A.P. Chandrakasan), "Characterization of Schottky Barrier Carbon Nanotube Transistors and their Applications to Digital Circuit Design," May 2004.
- Cord, B.M. (T.P. Orlando), "Rapid Fabrication of Deep-Submicron Josephson Junctions," May 2004.
- Cybulski, J.S. (G.Chen), "Fabrication, Modeling, and Electrical Characterization of Self-Assembling Microscale Rollup Structures," June 2004.
- Diez, S. (A.H. Epstein, Z.S. Spakovszky), "Preliminary Performance Characteristics of a Microfabricated Turbopump," September 2003.
- Dorca-Luque, J. (Z.S. Spakovszky), "Application of an Energy-Like Stability Metric for Axial Compressor Design," August 2003.
- Drake, T. (J.L. Hoyt), "Fabrication of Ultra-thin Strained Silicon on Insulator," June 2003.
- Drego, N.A. (D.S. Boning, M.H. Perrott), "A Low-Skew, Low-Jitter Receiver Circuit for On-Chip Clock Distribution," June 2003.
- El Aguizy, T. (S.G. Kim), "Nanopelleting of Carbon nanotubes," May 2004.
- Hennessy, J. (D.A. Antoniadis), "Germanium on Insulator Fabrication Technology," June 2004.
- Ho Duc, H.L. (M.J. Cima), "Packaging for a Drug Delivery Microelectromechanical System," February 2005.
- Kang, S.H. (V. Bulovic), "Evaporative Printing of Organic Materials and Metals and Development of Organic Memories," September 2004.

S.M. continued

- Kangude, Y. (L.A. Kolodziejski), "Red Emitting Photonic Devices Using InGaP/InGaAlP Material System," June 2005.
- Kern, A. (A.P. Chandrakasan), "PLL-Based Active Optical Clock Distribution," September 2004.
- Kuo, S. (M.H. Perrott), "Linearization of a Pulse Width Modulated Power Amplifier," June 2004.
- Lee, H. (M.J. Cima), "Experimental Study of the Atomization Process for Viscous Liquids by Meniscus Perturbation and Micro Air Jet," June 2004.
- Lee, H. (G. Chen) "Thermoelectric Properties of Si-Ge Nanocomposites," January 2005.
- Lei, Y.S.V. (C.G. Fonstad, Jr.), "Post-Assembly Process Development for Monolithic OptoPill Integration on Silicon CMOS," May 2004.
- LeCoguic, A. (J. Han), "Gate Potential Control of Nanofluidic Devices," May 2004.
- Levy-Tzedek, S. (S.R. Manalis), "Biological detection by means of mass reduction in a suspended microchannel resonator," May 2004.
- Limketkai, B.N. (M.A. Baldo) "The Density of States at a Rough Metal-Organic Interface," September 2003.
- Liang, J. (C.G. Sodini), "On-Chip Cross-Talk Analysis for Multiple RF Front Ends of a Wireless Gigabit LAN System," September 2004.
- Mandal, S. (R. Sarpeshkar), "RF Power Extraction Circuits," May 2004.
- Manneville, A. (Z.S. Spakovszky), "Propulsion System Concepts for Silent Aircraft," May 2004.
- Mao, P. (J. Han), "Fabrication and Characterization of Nanofluidic Channels for Studying Molecular Dynamics in Confined Environments," January 2005.
- Mattson, E. (L.A. Kolodziejski), "Design and Fabrication of an Electrically-Activated Photonic Crystal Nanocavity Laser," June 2005.
- Nayfeh, O. (D.A. Antoniadis), "On the relationship between electron mobility and velocity in sub-50 nm MOSFETs via calibrated Monte-Carlo simulation," June 2004.
- Ogunnika, O.T. (M.H. Perrott), "A Simple Transformer-Based Resonator Architecture for Low Phase Noise LC Oscillators," October 2003.
- Pilczer, D. (Z.S. Spakovszky), "Noise Reduction Assessments and Preliminary Design Implications for a Functionally-Silent Aircraft," May 2003.
- Perrot, V. (Z.S. Spakovszky), "A Design Optimization Framework for Enhanced Compressor Stability Using Dynamic System Modeling," August 2003.
- Powell, J. (A.P. Chandrakasan), "Antenna Design for Ultra Wideband Radio," May 2004.
- Schmidt, A.J. (G. Chen), "Photothermal Lithography," June 2004.
- Shah, A. (G. Chen), "Modeling and Fabrication of High Power Density Micro Thermophotovoltaic Devices," December 2003.
- Shur, M. (C.F. Dewey, Jr.) "Microfabrication Methods for the Study of Chemotaxis," June 2004.
- Shusteff, M. (S.R. Manalis), "A microfabricated hollow cantilever for sub-nanoliter thermal measurements," September 2003.
- Taff, B.M. (J. Voldman), "Design and Fabrication of an Addressable MEMS-Based Dielectrophoretic Microparticle Array," June 2004.
- Teo, M.S. (C.G. Fonstad, Jr.), "Development of Pic-and-Place techniques for Monolithic OptoPill Integration," January 2005.
- Thompson, K. (A. Slocum), "MEMS Fluid Coupling," June 2004.
- Tiefenbruck, L. (V. Bulovic), "Visible Spectrometer Utilizing Organic Thin Film Absorption," May 2004.
- Tischler, J. (V. Bulovic), "Electrically Pumped Exciton-Polariton Emission in a J-Aggregate OLED at Room Temperature," August 2003.
- Vachhani, N.A. (E.L. Thomas), "Using Narrowband Pulse-shaping to Characterize Polymer Structure and Dynamics: Deathstar Ghz Spectroscopy," February 2005.
- Wang, Y.C. (J. Han), "On-chip Multi-dimensional Biomolecule Separation Using Multi-layer Microfabricated Valves," January 2004.
- Wentzloff, D.D. (J.H. Lang, T.A. Keim), "Experimental Characterization of an Integrated Starter/Generator," August 2002.
- Wong, M. (J.A. del Alamo), "The Effect of Varying Gate-Drain Distance on the RF Power Performance of Pseudomorphic High Electron Mobility Transistors," August 2005.
- Wu, T.M. (R. Reif), "Carbon Nanotube Applications for CMOS Back-End Processing," February 2005.

Doctor of Philosophy (Ph.D.)

- Acosta-Serafini, P. (C.G. Sodini), "A Programmable Wide-Dynamic Range CMOS Image Sensor," February 2004.
- Arana, L. (K.F. Jensen, M.A. Schmidt), "High-Temperature Microfluidic Systems for Thermally-Efficient Fuel Processing," May 2003.
- Assefa, S. (L.A. Kolodziejski), "The Development of Novel Passive and Active Photonic-Crystal Devices," June 2004.
- Awtar, S. (A. Slocum), "Synthesis and Analysis of Parallel Kinematic XY Flexure Mechanisms," January 2004.
- Braff, R. (M.A. Schmidt, M. Gray), "Controllable Vapor Microbubbles for Use in Bioparticle Actuation," April 2003.
- Brienlinger, K. (A. Slocum), "Three Dimensional Routed Manifolds with Externally Inserted Cables," June 2003.
- Chen, A. (H.S. Lee, A.I. Akinwande) "CMOS-Compatible Compact Display," June 2005.
- Chen, C.G. (M.L. Schattenburg), "Beam Alignment and Image Metrology for Scanning Beam Interference Lithography – Fabricating Gratings with Nanometer Phase Accuracy," April 2003.
- Chen, K.N. (R. Reif), "Copper Wafer Bonding in Three-Dimensional Integration," February 2005.
- Choy, H.K.H. (C.G. Fonstad, Jr.), "Quantum Wells on Indium Gallium Arsenide Compositionally Graded Buffers Realized by Molecular Beam Epitaxy," January 2005.
- Cooper, E.B. (S.R. Manalis), "Silicon Field-effect Sensors for Biomolecular Assays," September 2003.
- Crankshaw, D.S. (T.P. Orlando), "Measurement and On-chip Control of a Niobium Persistent Current Qubit," June 2003.
- Das, S. (A.P. Chandrakasan, R. Reif), "Design Automation and Analysis of Three-Dimensional Integrated Circuits," June 2004.
- De Mas Valls, N. (K.F. Jensen, M.A. Schmidt), "Scalable Multiphase Microchemical Systems for Direct Fluorination," January 2004.
- Hong, C.Y. (A.I. Akinwande), "Integrated MOSFET/Field Emitter Array Devices," June 2003.
- Kim, G.S. (K.F. Jensen), "Multiscale Modeling of Thin Film Deposition Processes," September 2002.
- Klemas, T. (J. White), "Full-wave Algorithms for Model Order Reduction and Electromagnetic Analysis of Impedance and Scattering," May 2005.
- Konistis, K. (Q. Hu), "A Heterojunction Bipolar Transistor with Stepwise Alloy-Graded Base: Analysis, Design, Fabrication, and Characterization," August 2004.
- Konkola, P.T. (M.L. Schattenburg), "Design and Analysis of a Scanning Beam Interference Lithography System for Patterning Gratings with Nanometer-Level Distortion," ME, April 2003.
- Koser, H. (J.H. Lang), "Development of Magnetic Induction Machines for Micro Turbo Machinery," June 2002.
- Kymissis, I. (A.I. Akinwande), "Organic Field Emission Devices," June 2003.
- Lee, J. (K.F. Jensen), "Semiconductor Nanocrystal Composite Materials and Devices," June 2002.
- Lee, T. (N.P. Suh) "Complexity Theory in Axiomatic Design," June 2003.
- Li, J. (J.H. Lang, A.H. Slocum), "Electrostatic Zipping Actuators and Their Application to MEMS," February 2004.
- Liu, W. (G. Chen), "In-Plane Thermoelectric Properties of Si/Ge Superlattices," July 2004.
- Love, N. (I. Masaki), "Recognition of 3D Compressed Images and its traffic monitoring applications," June 2004.
- Lu, H. (K.F. Jensen, M.A. Schmidt), "Microfluidic Biomechanical and Electrical Devices for Rapid Analysis of Cells and Organelles", May 2003.
- Maldovan, M. (E.L. Thomas), "Exploring for New Photonic Band Gap Structures," January 2004.
- Mascaro, D. (V. Bulovic, T. Swager), "Formation of In-Plane Crystals of Molecular Organic Semiconductors," June 2004.
- Melvin, J. (N.P. Suh) "Axiomatic System Design : Chemical Mechanical Polishing Machine Case Study," June 2003.
- Meninger, S.E. (M.H. Perrott), "Low Phase Noise, High Bandwidth Frequency Synthesizer Techniques," June 2005.
- Min, Rex (A.P. Chandrakasan), "Energy and Quality Scalable Wireless Communication," June 2003.
- Mur Miranda, J.O. (J.H. Lang), "Electrostatic Vibration-to-Electric Energy Conversion", February 2004.
- Nakada, D.Y. (T.P. Orlando), "Fabrication and Measurement of a Niobium Persistent Current Qubit," June 2004.
- Nemirovskaya, M.A. (K.F. Jensen), "Multiscale Modeling Strategies for Chemical Vapor Deposition," September 2002.
- Nielson, G.N. (G. Barbastathis), "Micro-opto-mechanical Switching and Tuning for Integrated Optical Systems," July 2004.
- Qiu, J. (J.H. Lang, A. Slocum), "An Electrothermally-Actuated Bistable MEMS Relay for Power Applications", June 2003.
- Rewienski, M. (J. White), "A Trajectory Piecewise-Linear Approach to Model Order Reduction of Nonlinear Dynamical Systems," June 2003.

Ph.D. continued

Savran, C. (S.R. Manalis), "A Micromechanical Biosensors with Inherently Differential Readout," February 2004.

Shi, Y. (S.G. Kim), "A Self-Cleaning Lateral Contact RF MEMS Switch," August 2004.

Sihler, J. (A. Slocum), "A Low Leakage 3-Way Silicon Microvalve," January 2004.

Sinha, A. (G. Barbastathis), "Imaging Using Volume Holograms," February 2004.

Song, D. (G. Chen) "Phonon Heat Conduction in Nano and Micro-Porous Thin Films," June 2003.

Sparks, A. (S.R. Manalis), "Scanning Probe Microscopy with inherent Disturbance Suppression," February 2004.

Steym. J.L. (J.H. Lang), "A Microfabricated ElectroQuasiStatic Induction Turbine-Generator," June 2005.

Tandon, S. (L. A. Kolodziejski), "Engineering Light Using Large Area Photonic Crystal Devices," June 2005.

Tsau, C. (M.A. Schmidt, S.M. Spearing) "Characterization of Wafer-Level, Gold-Gold Thermocompression Bonding," August 2003.

Urbas, A. (E.L. Thomas), "Block Copolymer Photonic Crystals," June 2003.

Velasquez, L.F. (A.I. Akinwande, M. Martinez-Sanchez), "Micro-Fabricated Ion Engines," June 2004.

Wang, Alice (A.P. Chandrakasan), "An Ultra-Low Voltage FFT Processor Using Energy-Aware Techniques," December 2003.

Wang, Andrew Yu, (C.G. Sodini), "Base Station Design for a Wireless Microsensor System," June 2005.

White, J. (A. Slocum), "The Nanogate: Nanoscale Flow Control," June 2003.

Yang, B. (G. Chen), "Thermal and Thermoelectric Transport in Superlattices and Quantum Wells," June 2003.

Zanzotto, A. (K.F. Jensen), "Integrated Microbioreactors for Rapid Screening and Analysis of Bioprocesses," February 2005.

Zhu, Z. (J. White), "Efficient Integral Equation Based Algorithms for Parasitic Extraction of Interconnects with Smooth or Rough Surface," September 2004.