

THESES AWARDED



Bachelor of Science S.B.

2004

- Buchner, T. (G. Barbastathis), "Kinematics of 3D Folding Structures for Nanostructured Origami™," December 2004.
- Gibbons, J.S. (T.A. Thorsen), "Mobile Power Plants: Waste Body Heat Recovery," June 2004.
- Samouhos, S.V. (T.A. Thorsen), "Mobile Power Plants: Waste Body Heat Recovery," June 2004.
- Slowe, T.J. (M.L. Culpepper), "Design of a Prototyping Press for 3D Monolithic Compliant Mechanisms," June 2004.
- Tsikata, S. (T.A. Thorsen), "Microfluidic Optical Devices," June 2004.

2005

- Barron, K. (G. Chen), "Experimental Studies of the Thermoelectric Properties Of Microstructured and Nanostructured Lead Salts," February 2005.
- Bourgeois, J. (M.L. Culpepper), "Modeling Effects of Adding a Flux Channel to a Planar Magnet-Coil Actuator," June 2005.
- Cukalovic, B. (J.A. del Alamo), "WebLabSim Administrative Interface," May 2005.
- Dibiasio, C.M. (M.L. Culpepper), "Design of Micro-scale Nanomanipulators Utilizing Digital Actuation," June 2005.
- Hopkins, J. (M.L. Culpepper), "Design and Control of a Five-axis AFM Manipulation System," June 2005.
- Hu, J. (T.A. Thorsen), "Microfluidic Microarrays," June 2005.
- Mazzeo, B. (A.I. Akinwande), "Models for Energy States in Thin Film Transistors," May 2005.
- Smith, E. (T.A. Thorsen), "Fabrication of a Picoliter Microreactor," June 2005.
- Vitr, M. (G. Barbastathis), "Image Restoration for 3D Volume-Holographic Imaging Systems," January 2005.

2006

- Allard, N. (M.L. Culpepper), "Compliant Mechanism Learning Toolkit," June 2006.
- Labuz, J. (M.L. Culpepper), "Design, Fabrication, and Testing of a Three-Dimensional Monolithic Compliant Six-Axis Nanopositioner," June 2006.
- Turner, S. (M.L. Culpepper), "Design of an Adaptable, Protective Covering for Precision Experiments," June 2006.

THESES AWARDED



Master of Engineering M.Eng.

2004

- Akilian, M.K. (M.L. Schattenburg), "Thin Optic Surface Analysis for High Resolution X-ray Telescopes," September 2004.
- Chang, C.-H. (M.L. Schattenburg), "Fabrication of Extremely Smooth Blazed Gratings," June 2004.
- Das, R. (M.A. Baldo), "Photovoltaic Devices using Photosynthetic Protein Complexes," February 2004.
- Mehta, A. (M.A. Schmidt, K.F. Jensen), "A Microfabricated Solid Oxide Fuel Cell," June 2004.
- Peters, J. (L. Daniel), "Design of High Quality Factor Spiral Inductors in RF MCM-D," September 2004.
- Quentmeyer, T. (V.M. Bove, Jr.), "Delivering Real-Time Holographic Video Content with Off-the-Shelf PC Hardware," May 2004.
- Wang, Y.C. (T.A. Thorsen), "On-chip Multidimensional Biomolecule Separation Using Multilayer Microfabricated Valves," February 2004.
- Wang, A.I. (A.I. Akinwande), "Threshold Voltage in Pentacene Field Effect Transistors with Parylene Dielectric," May 2004.

2005

- Abrokwah, K. (D.S. Boning), "Characterization and Modeling of Plasma Etch Pattern Dependencies in Integrated Circuits," February 2005.
- Ackerman, N. (A.P. Chandrakasan), "A Platform for Ultra Wideband Communication Systems," May 2005.
- Arora, W.J. (G. Barbastathis, H.I. Smith), "Nanostructured Origami™: Folding Thin Films out of the Plane of a Silicon Wafer with Highly Stressed Chromium Hinges," June 2005.
- Gadish, N. (J. Voldman), "A Microfabricated Dielectrophoretic Micro-organism Concentrator," August 2005.
- Park, M. (M.H. Perrott), "Optical/Electrical Implementation Techniques for Continuous-Time Sigma-Delta A/D Converters," June 2005.
- Selbst, A. (R. Sarpeshkar), "Clock Division as a Power Saving Strategy in a System Constrained by High Transmission Frequency and Low Data Rate," June 2005.
- Tsai, J. (A.P. Chandrakasan), "Design and Implementation of an Online Laboratory for Introductory Digital Systems," August 2005.
- Urbanski, J.P. (T.A. Thorsen), "Application of Microfluidic Emulsion Technology to Biochemistry, Drug Delivery and Lab-on-a-Chip Programmability," June 2005.
- Vollmer, A. (T.A. Thorsen), "Development of an Integrated Microfluidic Platform for Oxygen Sensing and Delivery," June 2005.
- Walker, J.Z. (A.I. Akinwande, A.P. Chandrakasan), "A Low Power Display Driver with Simultaneous Image Transformation," February 2005.
- Waller, L.A. (G. Barbastathis), "Feedback Loop Design and Experimental Testing for Integrated Optics with Micro-mechanical Tuning," June 2005.
- Werkmeister, J. (A.H. Slocum), "Development of Silicon Insert Molded Plastic (SIMP)," June 2005.
- Winter, A. (M.L. Culpepper), "Design of Fluid Film Journal Bearings Containing Continuous 3D Fluid Pathways Which are Formed by Wrapping a Sheet Containing 2D Through-cut Features," June 2005.

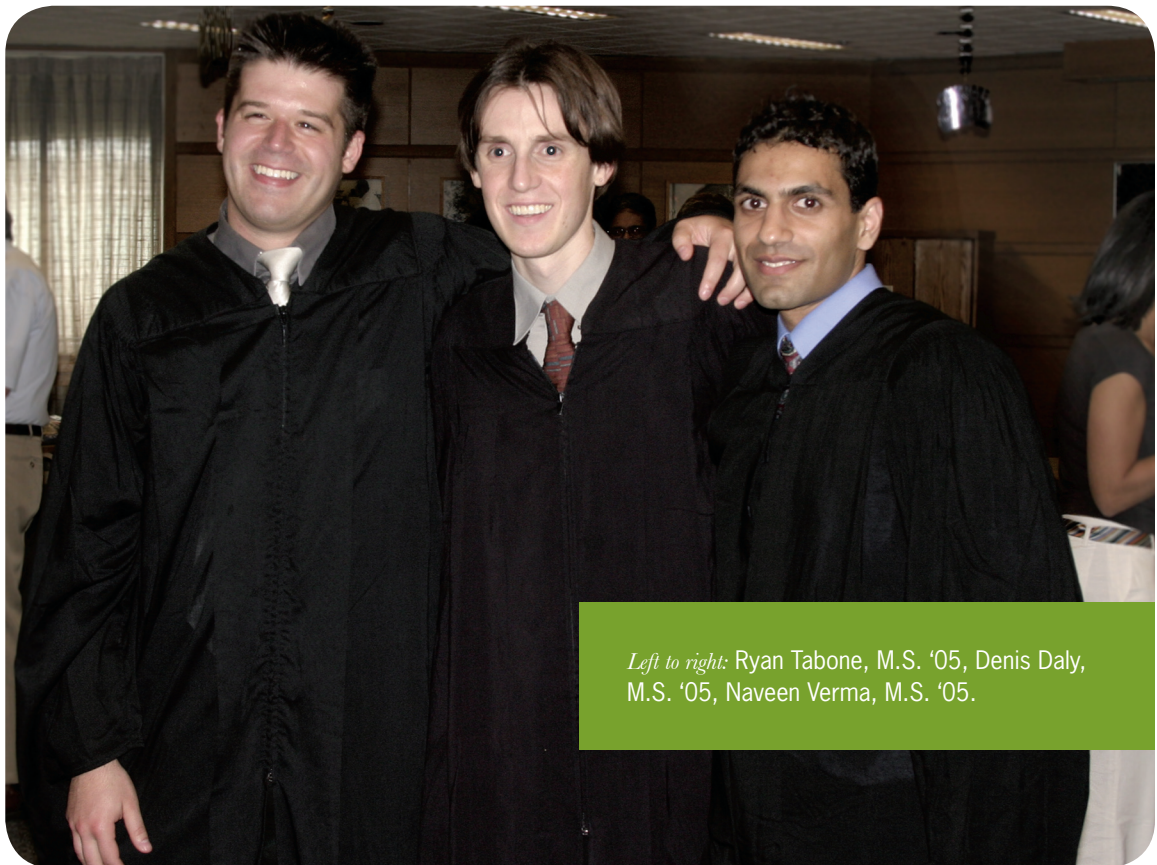
THESES AWARDED



Master of Engineering M.Eng

2006

- Bradley, M.S. (V. Bulović), "Highly Absorptive Thin Films for Integrated Photonic Devices," February 2006.
- Kim, L. (V. Bulović), "Deposition of Colloidal Quantum Dots by Microcontact Printing for LED Display Technology," February 2006.
- Lamba, K. (V. Bulović, C.G. Sodini), "An Integrated Circuit for Feedback Control & Compensation of an Organic LED Display," June 2006.
- Lin, A. (V. Bulović), "A Silicon Current Sensing Amplifier and Organic Imager for an Optical Feedback OLED Display," February 2006.
- Lin, K. (M.L. Culpepper), "Multi-axis Compliant Mechanism-based Nanopositioner for Multi-mode Mechanical Testing of Carbon Nanotubes," February 2006.
- Rayanakorn, S. (H.-S. Lee), "Design of Micropower CMOS Operational Amplifiers," June 2006.
- Reyes-Gonzalez, N.I. (J. Han), "AC-Electrophoresis of Biomolecules in Nanofluidic Filter Array Devices," January 2006.
- Smalley, D. (V.M. Bove, Jr.), "Integrated-Optic Holography," September 2006.
- Timm, R. (M.L. Culpepper), "Visual-based Methods in Compliant Mechanism Optimization," February 2006.
- Young, S. (L.A. Kolodziejski), "Characterization of Novel III-V Semiconductor Devices," June 2006.



Left to right: Ryan Tabone, M.S. '05, Denis Daly, M.S. '05, Naveen Verma, M.S. '05.

THESES AWARDED



Master of Science S.M.

2004

- Abu Ibrahim, F. (A.H. Slocum), "Low-Cost Precision Waterjet," June 2004.
- Au, S. (C. Livermore), "Solder Self-Assembly for MEMS Fabrication," September 2004.
- Caramana, C. (H.I. Smith), "Pattern-Placement-Error Detection for Spatial-Phase-Locked E-Beam Lithography (SPLEBL)," June 2004.
- Crain, E.A. (M.H. Perrott), "Fast Offset Compensation for a 10 Gb/s Limit Amplifier," June 2004.
- Cybulski, J.S. (G. Chen), "Fabrication, Modeling, and Electrical Characterization of Self-Assembling Microscale Rollup Structures," June 2004.
- Hill, S.L. (V.M. Bove, Jr.), "Scalable Multi-view Stereo Camera Array for Real World Real-Time Image Capture and Three-Dimensional Displays," May 2004.
- Jia, J. (C.V. Thompson), "The Mechanism of Thin Film Si Nanomachining Using Femtosecond Laser Pulses," June 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.
- Patel, A. (H.I. Smith), "The Development of a Prototype Zone-Plate Array Lithography (ZPAL) System," May 2004.
- Schmidt, A.J. (G. Chen), "Photothermal Lithography," June 2004.
- Thompson, K. (A.H. Slocum), "MEMS Fluid Coupling," June 2004.
- Verma, H. (C.V. Thompson), "Scanned Pulsed Laser Annealing of Cu Thin Films," June 2004.
- Wei, F. (C.V. Thompson), "The Electromigration Drift Velocity and the Reliability of Dual-Damascene Copper Interconnect Trees," February 2004.
- Wells, B. (C.V. Thompson), "Commercial Applications of Nanostructures Created with Ordered Porous Alumina," June 2004.

2005

- Arango, A. (V. Bulović), "Quantum Dot Heterojunction Photodetector," February 2005.
- Cheung, K. (M.A. Schmidt), "Die Level Glass Frit Vacuum Packaging for a Micro-Fuel Processor System," May 2005.
- Dahl, R.A. (C.V. Thompson), "Femtosecond Laser-Microstructured Silicon for Photodetection: Technology Transfer Analysis," June 2005.
- Dalton, B. (V.M. Bove, Jr.), "Audio Based Localisation for Ubiquitous Sensor Networks," September 2005.
- Daly, D. (A.P. Chandrakasan), "An Energy Efficient Transceiver for Wireless Sensor Networks," May 2005.
- duToit, N.E. (B.L. Wardle), "Modeling and Design of a MEMS Piezoelectric Vibration Energy Harvester," May 2005.
- Finchelstein, D. (A.P. Chandrakasan), "Low-Power Digital Processor for Wireless Sensor Networks," May 2005.
- Frantzeskakis, E. (C.V. Thompson), "Analysis of Potential Applications for the Templated Dewetting of Metal Thin Films," June 2005.
- Gazor, M. (D.S. Boning), "Design for Manufacturability with Regular Fabrics in Digital Integrated Circuits," May 2005.
- Herrington, W. (I. Masaki), "Image Fusion for a Nighttime Driving Display," June 2005.



- Ho Duc, H.L. (M.J. Cima), "Packaging for a Drug Delivery Microelectromechanical System," February 2005.
- In, H.J. (G. Barbastathis), "Origami Nanofabrication of Three-dimensional Electrochemical Energy Storage Devices," June 2005.
- Lajevardi, P. (A.P. Chandrakasan), "Design of a 3-Dimension FPGA," July 2005.
- LeCoguic, A. (J. Han), "Gate Potential Control of Nanofluidic Devices," May 2005.
- Lee, H. (G. Chen), "Thermoelectric Properties of Si-Ge Nanocomposites," January 2005.
- Mao, P. (J. Han), "Fabrication and Characterization of Nanofluidic Channels for Studying Molecular Dynamics in Confined Environments," January 2005.
- Matalon, N. (C.G. Sodini), "An Implementation of a 5.25 GHz Transceiver for High Data Rate Wireless Applications," December 2005.
- McCaghren, N. (D.S. Boning), "Visual Indicators for Process Control," June 2005.
- Nanda, G. (V.M. Bove, Jr.), "Accessorizing with Networks: the Possibilities of Building with Computational Textiles," September 2005.
- Pilpre, A. (V.M. Bove, Jr.), "Self-* Properties of Multi-Sensing Entities in Smart Environments," May 2005.
- Rushfeldt, S. (C.V. Thompson), "Sensor Applications of Carbon Nanotubes," June 2005.
- Ryu, K. (V. Bulović, C.G. Sodini), "Characterization of Organic Field Effect Transistors for OLED Displays," June 2005.
- Tabone, R. (V. Bulović), "Sub-20nm Substrate Patterning Using A Self-Assembled Nanocrystal Template," June 2005.
- Verma, N. (A.P. Chandrakasan), "An Ultra Low Power ADC for Wireless Micro-Sensor Applications," May 2005.
- 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.

2006

- Barabas, J. (V.M. Bove, Jr.), "Sensor Planning for Novel View Generation by Camera Networks," May 2006.
- Garcia, E. (B.L. Wardle), "Characterization of Composites with Aligned Carbon Nanotubes (CNTs) as Reinforcement," May 2006.
- Hadiashar, A. (J.L. Dawson), "Chopper Stabilization in Analog Multipliers," June 2006.
- Hirsh, D. (V.M. Bove, Jr.), "Piecing Together the Magic Mirror: Creating Responsive Spaces with Autonomous Elements," September 2006.
- Mracek, A. (B.L. Wardle), "Towards an Embeddable Structural Health Monitoring Sensor: Design and Optimization of MEMS Piezoelectric Vibration Energy Harvesters," June 2006.
- Quinn, D. (B.L. Wardle), "Microstructure, Residual Stress, and Mechanical Properties of Thin Film Materials for a Microfabricated Solid Oxide Fuel Cell," May 2006.
- Vahey, M. (J. Voldman), "A Novel Method for the Continuous Separation of Microorganisms based on Electrical Properties," January 2006.

THESES AWARDED



Doctor of Philosophy Ph.D.

2004

- Chiang, C. (C.V. Thompson), "Geometrical and Microstructural Effects on Electromigration in Advanced Cu-Based Metallization Systems," June 2004.
- De Mas Valles, N. (K.F. Jensen, M.A. Schmidt), "Scalable Multiphase Microchemical Systems for Direct Fluorination," June 2004.
- Freisen, C. (C.V. Thompson), "Stress Evolution During Growth and Atomic-Scale Surface Structure Effects in Transition-Metal Thin Films," June 2004.
- Kershner, R.J. (M.J. Cima), "Surface Forces During Electrophoretic Assembly of Micron Scale Silica Particles," June 2004.
- Li, J. (A.H. Slocum), "Electrostatic Zipping Actuators and Their Application to MEMS," January 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.
- Moon, E. (H.I. Smith), "Interferometric-Spatial-Phase Imaging for Sub-Nanometer Three Dimensional Positioning," September 2004.
- Shawgo, R.S. (M.J. Cima), "In vivo Activation and Biocompatibility of a MEMS Microreservoir Drug Delivery Device," June 2004.
- Tupper, M.M. (M.J. Cima), "Fabrication and Assembly of Micron-scale Ceramic Components," February 2004.
- Walsh, M. (H.I. Smith), "On the Design of Lithographic Interferometers and their Application," September 2004.

2005

- Ariel, N. (E.A. Fitzgerald), "Integrated Thin Film Batteries on Silicon," September 2005.
- Barwicz, T. (H.I. Smith, H.L. Tuller), "Accurate Nanofabrication Techniques for High-Index-Contrast Microphotonic Devices," September 2005.
- Calhoun, B. (A.P. Chandrakasan), "Low Energy Digital Circuit Design Using Sub-threshold Operation," December 2005.
- Checka, N. (A.P. Chandrakasan, R. Reif), "Substrate Noise Analysis and Techniques for Mitigation in Mixed-Signal RF Systems," June 2005.
- Choy, H.K.H. (C.G. Fonstad, Jr.), "Quantum Wells on Indium Gallium Arsenic Compositionally Graded Buffers realized by Molecular Beam Epitaxy," January 2005.
- Coe-Sullivan, S. (V. Bulović), "Hybrid Organic/Quantum Dot Thin Film Structures and Devices," June 2005.
- Chen, A. (A.I. Akinwande, H.-S. Lee), "CMOS Micro-Display," June 2005.
- Krishnan, R. (C.V. Thompson), "Templated Self-assembly of Nanoporous Alumina: Pore Formation and Ordering Mechanisms, Methodologies, and Applications," June 2005.
- Li, Y. (M.J. Cima), "Mechanical Characterization and in vivo Operation of an Implantable Drug Delivery MEMS Device," February 2005.
- Lauer, I. (D.A. Antoniadis), "The Effects of Strain on Carrier Transport in Thin and Ultra-Thin SOI MOSFETs," September 2005.
- Markina, A. (L.A. Kolodziejski), "Design and Simulation for the Fabrication of Integrated Semiconductor Optical Logic Gates," September 2005.

THESES AWARDED



Doctor of Philosophy Ph.D.

- Meninger, S. (M.H. Perrott), "Low Phase Noise, High Bandwidth Frequency Synthesizer Techniques," June 2005.
- Pham, A. (C.G. Sodini), "Outphase Power Amplifiers in OFDM Systems," December 2005.
- Pitera, A. (E.A. Fitzgerald), "Engineered Substrates for Coplanar Integration of Lattice-Mismatched Semiconductors with Silicon," January 2005.
- Qi, M. (H.I. Smith), "Three Dimensional Nanofabrication of Photonic Crystals and Polarization Splitters and Rotators," April 2005.
- Sprunt, A. (A.H. Slocum), "A Variable Capacitor Made from Single Crystal Silicon Fracture Surface Pairs," August 2005.
- Steyn, L. (A. Epstein, M.A. Schmidt), "A Microfabricated Electrostatic Induction Turbine-generator," May 2005.
- Tandon, S. (H.I. Smith, L.A. Kolodziejski), "Engineering Light Using Large Area Photonic Crystal Devices," June 2005.
- Tavakoli-Dastjerdi, M. (R. Sarpeshkar), "An Analog VLSI Front End for Pulse Oximetry," October 2005.
- Wang, H.R. (M.J. Cima), "Gradient-index (GRIN) Lenses by Slurry-based Three-Dimensional Printing (S-3DP™)," February 2005.
- Zanzotto, A. (K.F. Jensen), "Integrated Microbioreactors for Rapid Screening and Analysis of Bioprocesses," February 2005.
- Zhang, F. (H.I. Smith), "Real-Time Spatial-Phase-Locked Electron-Beam Lithography," September 2005.
- Willoughby, P. (A.H. Slocum), "Elastically Averaged Precision Alignment," June 2005.

2006

- Callebaut, H. (Q. Hu), "Analysis of the Electron Transport Properties in Quantum Cascade Lasers," April 2006.
- Fan, A. (A.I. Akinwande), "3-D Integration Using Copper Wafer Bonding," June 2006.
- Gervais, T. (K.F. Jensen, P.K. Sorger), "Mass Transfer and Structural Analysis of Microfluidic Sensors," February 2006.
- Kralj, J.G. (K.F. Jensen, M.A. Schmidt), "Continuous Flow Separation Techniques for Microchemical Synthesis," February 2006.
- Lee, J.C. (T.P. Orlando), "Resonant Readout of a Superconducting Persistent Current Qubit," June 2006.
- Mallett, J. (V.M. Bove, Jr.), "The Role of Groups in Smart Camera Networks," February 2006.
- Montoya, J. (M.L. Schattenburg), "Towards Nano-accuracy in Scanning Beam Interference Lithography," June 2006.
- Murali, K. (T.P. Orlando), "Electromagnetically Induced Transparency and Electron Spin Dynamics using Superconducting Quantum Circuits," February 2006.
- Sun, W. (G. Barbastathis) "Profilometric Imaging Using Volume Holograms," March 2006.
- Tian, K. (G. Barbastathis) "Three-Dimensional Optical Information Processing," March 2006.
- Yang, H. (R. Sarpeshkar), "An Energy-Efficient Time-Based Analog-to-Digital Converter," January 2006.