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Theses Awarded, 2007-2008

Bachelor of Science	Ashiabor, A. (J. Tilly, D.J. Perreault)	Multiple LED Driver with Independent PWM Dimming and Fast Settling Time
	Berberian, S.J. (S.-G. Kim)	Development of an In-Line Putter for Handicap Friendly Tabletop Golf Games
	Coleman, C. (S.-G. Kim)	Design of a height adjustable wheelchair
	DiGenova, K. (S.-G. Kim)	Design of a height adjustable wheelchair
	Gardner, J. (L. Shtargot, D.J. Perreault)	Low-Ripple Micropower Buck Regulator
	Jeon, J. (S.-G. Kim)	Printing PZT
	Kang, H. (S.-G. Kim)	An analysis of Hybrid-Electric Vehicles as the Car of the Future
	Lah, M. (S.-G. Kim)	Modeling of vortex-induced flow vibration along the trans Alaskan pipeline
	Lin, D. (R. Kapusta, D.J. Perreault)	An Exploratory Design of a 65 nm CMOS Buck Converter for Maximum Efficiency
	Maher, P. (A. Hoefel, D.J. Perreault)	Voltage Control for Permanent Magnet Downhole Alternators
	Mesa, A. (D.J. Perreault, T.A. Keim)	Improved Performance Alternator with Switched-Mode Rectifier
	Pilawa, R. (D.J. Perreault)	Investigation of a Very High Frequency dc-dc Power Converter
	Ranson, J. (D.J. Perreault)	An Induction Teapot Warmer
	Saito, D. (ITA Brazil) (B. Wardle)	Fabrication and Characterization of Aligned Carbon Nanotube Epoxy Composites
	Schrock, K. (J.C. Mayes, D.J. Perreault)	A High-Voltage Low-Loss Three-Level Multi-Stage Inverter
Stonely, A. (D.J. Perreault)	Synchronous Buck Converter and Filter Demo	
Whitaker, M. (M. Vitunic, D.J. Perreault)	Improving the Control Strategy for a Four-Switch Buck-Boost Converter	
Zhou, S. (S. Martin, D.J. Perreault)	New Architecture for USB Powered Battery Charger	
Master of Science	Alexander, B. (E. Wang)	Design of a Microbreather for Two-Phase Microchannel Devices
	Amataya, R. (R.J. Ram)	Optimization of Tunable Silicon Compatible Microring Filters
	Bathurst, S. (S.-G. Kim)	Thermal Ink Jetting of PZT Sol Gel Films using TIPS
	Ben-Simon, Y. (C.G. Sodini)	Where India Fits Within Flextronics Global Supply Chain
	Blitvic, N. (V. Stojanovic)	Channel Coding for High Speed Links

Master of Science <i>Continued</i>	Chandrasekhar, V. (A.P. Chandrakasan)	CAD for a 3-Dimensional FPGA
	Cho, T.S. (A.P. Chandrakasan)	An Energy Efficient CMOS Interface to Carbon Nanotube Sensor Arrays
	Chu, Y.J. (H.-S. Lee)	A High Performance Zero-Crossing Based Pipelined Analog-to-Digital Converter
	Chung, J. (T. Palacios)	Advanced Technologies for Improving High Frequency Performance of AlGaN/GaN High Electron Mobility Transistors
	Colin, I. (C.A. Ross)	Field and current induced magnetization reversal in patterned Pseudo Spin Valve devices
	Communal, C. (D.S. Boning)	Challenges Faced by a Global Team: the Case of the Tool Reuse Program at Intel
	DiLello, N.A. (J.L. Hoyt)	Fabrication and Simulation of CMOS-Compatible Photodiodes
	Dunlop, C. (D.J. Perreault)	Modeling Magnetic Core Loss for Sinusoidal Waveforms
	Godoy, P. (J.L. Dawson)	Nested-Chopper Stabilization for Analog Multipliers and RF Mixers
	Gomez, L. (J.L. Hoyt)	Electron Transport in Ultrathin-body Fully Depleted n-MOSFETs Fabricated on Strained Silicon Directly on Insulator with Body Thickness Ranging from 2 to 25 nm
	Hoegen, M. (German Technical University of Braunschweig) (B. Wardle)	Modeling and Experimental Verification of MEMS and micro Energy Harvesters
	Hu, J. (D.J. Perreault)	Design of a Low-Voltage, Low-Power dc-dc HF Converter
	Hu, X. (K.K. Berggren)	Coupling Light to Superconductive Photon Counters
	Joh, J. (J.A. del Alamo)	Degradation Mechanisms of GaN High Electron Mobility Transistors
	Kalanithi, J.J. (V.M. Bove, Jr.)	Connectibles: Tangible Social Networking
	Khanna, T. (J.L. Dawson)	System-Level Optimization for Large, Mixed-Signal Circuits in Aggressively Scaled CMOS
	Lee, S. (H.-S. Lee)	Zero-Crossing Based Switched-Capacitor Filters
	Leitermann, O. (D.J. Perreault)	Radio Frequency dc-dc Converters: Device Characterization, Topology Evaluation, and Design
Leu, J.C. (K.K. Berggren)	Templated Self-Assembly of Sub-10nm Quantum Dots	
Megalini, L. (Politecnico di Torino, Italy) (B. Wardle)	Synthesis, Modeling, and Testing of Aligned CNTs for Advanced Composite Structures	
Mercier, P.P. (A.P. Chandrakasan)	An All-Digital Transmitter for Pulsed Ultra-Wideband Communication	

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Theses Awarded, 2007-2008

Master of Science *Continued*

Mui, A. (J.L. Dawson)	A 20 dBm 5-14 GHz Power Amplifier with Integrated Planar Transformers in SiGe
Orcutt, J. (R.J. Ram)	Flaw-Limited Transport in Germanium-on-Silicon Photodiodes
Pan, T. (A.P. Chandrakasan)	Carbon Nanotube Field Effect Transistors for Power Application
Pulitzer, S. (D.S. Boning)	Transitioning Technology from R&D to Production
Reticker-Flynn, N.E. (S.-G. Kim)	Nanoparticle filled polymeric switch for nanoscale fluidic control
Sagneri, A. (D.J. Perreault)	Design of a Very High Frequency dc-dc Boost Converter
Sinangil, M.E. (A.P. Chandrakasan)	Ultra-Dynamic Voltage Scalable (U-DVS) SRAM Design Considerations
Taussig, A.R. (C.A. Ross)	Growth and characterization of bismuth perovskite thin films for integrated magneto-optical isolator applications
Traina, Z. (S.-G. Kim)	Thin-film Piezoelectric Artificial Sarcomere for Muscle-like Large Strain Actuation
Zhao, X. (T.A. Palacios)	GaN HEMTs for Millimeter Wave Applications

Master of Engineering (MEng)

Abdu, H. (V. Bulovic)	Molecular and Quantum Dot Floating Gate Non-Volatile Memorie
Blitvic, N. (V. Stojanovic)	Channel Coding for High-Speed Links
Clough, A. (V. Stojanovic)	Increasing Adder Efficiency by Exploiting Input Statistics
Cooper, R. (J.L. Dawson)	Hardware and Software for Hand-held Electrical Impedance Myography Measurement Prototype System
Farahanchi, A. (D.S. Boning)	Characterization and Modeling of Pattern Dependencies and Time Evolution in Plasma Etching
Feng, M.Y. (C.G. Sodini)	Frequency Translation Method for Low Frequency Variable Gain Amplification and Filtering
Friend, D. (V. Bulovic)	Theory and Fabrication of Evanescently-Coupled Photoluminescent Devices
Fu, J. (J. Han)	Microfabricated Nanofilter Array Based Devices for Advanced Biomolecule Separation
Ha, M. (J.L. Dawson)	A Low Power, High Bandwidth LDO Voltage Regulator with no External Capacitor
Palakodety, R. (C.G. Sodini)	Investigating Packaging Effects on Bandgap References
Perez, C.E. (C.G. Sodini)	Variation-Aware Placement Tools for Field Programmable Gate Array Devices
Puchala, K. (J. Voldman)	Selective Micro-organism concentration using a dielectrophoresis-based microfabricated device

Master of Engineering *Continued*

Qazi, M. (A.P. Chandrakasan)	A 4kb Memory Array for MRAM Development
Sampattavanich, S. (J. Voldman)	System to study Colony-Colony Interactions in Embryonic Stem Cells
Sanchez, W. (J.L. Dawson)	System-level Optimization for Discrete-Component Systeme
Scharfstein, M. (J.L. Dawson)	An Impedance Measurement Head for a Clinical EIM System
Shirasaki, Y. (V. Bulovic)	Efficient Förster Energy Transfer From Phosphorescent Organic Molecules to J-aggregate Thin Fi
Sredojevic, R. (V. Stojanovic)	Bridging the Gap: An Optimization-based Framework for Fast, Simultaneous Circuit and System Design Space Exploration
Tang, H. (V. Bulovic)	Near Room Temperature Lithographically Processed Metal-Oxide Transistors
Vitavasiri, S. (A.P. Chandrakasan)	A Non-Coherent Ultra-Wideband Receiver: Algorithms and Digital Implementation
Wang, Y.C. (J. Han)	Electrokinetic Trapping of Biomolecules: Novel Nanofluidic Devices for Proteomic Applications
Wu, Y. (C.G. Sodini)	Null Power Reallocation for Data Rate Improvement in a Wireless Multicarrier System

Doctor of Philosophy (PhD)

Amataya, R. R.J. Ram	Optimization of Tunable Silicon Compatible Microring Filters
Åberg, I. (J.L. Hoyt)	Transport in Thin-Body MOSFETs Fabricated in Strained Si and Strained Si/SiGe Heterostructures on Insulator
Albrecht, J. (K.F. Jensen)	Micro Free-Flow Isoelectric Focusing
Anant, V. (K.K. Berggren)	Engineering the optical properties of subwavelength devices and materials
Arora, W.J. (H.J. Smith, G. Barbastathis)	Nanostructured Origami™: Stress-Engineering of Nanopatterned Membranes to Produce Three-Dimensional Structures
Blackwell, B. (K.F. Jensen)	Design, Fabrication, and Characterization of a Micro Fuel Processor
Brooks, L. (H.-S. Lee)	Circuits and Algorithms for Scaled CMOS Technologies Applied to Pipelined ADCs
Chang, C.-H. (M.L. Schattenburg)	Multilevel Interference Lithography-Fabricating Sub-wavelength Periodic Nanostructures
Chen, J. (V. Bulovic)	Novel Patterning Techniques for Manufacturing Organic and Nanostructured Electronics
Choi, Z.S. (C.V. Thompson)	Reliability of Copper Interconnects in Integrated Circuits
Edalat, F. (C.G. Sodini)	Real-time Sub-carrier Adaptive Modulation and Coding in Wideband Orthogonal Frequency Division Multiplexing Wireless Systems

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Theses Awarded, 2007-2008

Doctor of Philosophy (PhD) continued

Garcia, E.J. (Univ. of Zaragoza, Spain) (B. Wardle)	Characterization of Composites with Aligned Carbon Nanotubes as Reinforcement
Ginsburg, B.P. (A.P. Chandrakasan)	Energy-Efficient Analog-to-Digital Conversion for Ultra-Wideband Radio
Hart, A.J. (A.H. Slocum)	Chemical, Mechanical, and Thermal Control of Substrate-Bound Carbon Nanotube Growth
Helal, B.M. (M.H. Perrott)	Techniques for Low Jitter Clock Multiplication
Jovanovic, N.Z. (L.A. Kolodziejki, J.G. Balakrishnan)	Microstructured Tungsten Thermophotovoltaic Selective Emitters
Kern, A.M. (A.P. Chandrakasan)	CMOS Circuits for VCSEL-Based Optical IO
Khakifirooz, A. (D.A. Antoniadis)	Transport Enhancement Techniques for Nanoscale MOSFETs
Kim, S. (S.-G. Kim)	CNT tip-enhanced Raman Spectroscopy for Protein Identification
Kumar, S. (Q. Hu)	Development of Terahertz Quantum-Cascade Lasers
Lee, F.S. (A.P. Chandrakasan)	Energy Efficient Ultra-Wideband Radio Transceiver Architectures and Receiver Circuits
Limketkai, B.N. (M.A. Baldo)	Charge injection and transport in amorphous organic semiconductors
Ma, H. (A.H. Slocum)	Electrochemical Impedance Spectroscopy using adjustable nanometer-gap electrodes
Mapel, J.K. (M.A. Baldo)	High efficiency organic solar cells
Ni Chleirigh, C. (J.L. Hoyt)	Strained SiGe-channel p-MOSFETs: Impact of Heterostructure Design and Process Technology/
O'Halloran, M.G. (R. Sarpeshkar)	A Wide-Dynamic-Range Time-Based CMOS Imager
Perkins, J. (C.G. Fonstad, Jr.)	Low Threshold Vertical Cavity Surface Emitting Lasers Integrated onto Si-CMOS ICs Using a Novel Hybrid Assembly Technique
Popovic, M. (E.P. Ippen, F.X. Kaertner)	Theory and Design of High-Index Contrast Microphotonic Circuits
Rosenthal, A. (J. Voldman)	Cell Patterning Technology for Controlling the Stem Cell Microenvironment
Rumpler, J.J. (C.G. Fonstad, Jr.)	Micro-Cleaved Ridge Lasers for Optoelectronic Intergration on Silicon
Segal, M. (M.A. Baldo)	Spin engineering in organic light emitting devices
Seneviratne, D. (H.L. Tuller)	Materials and Devices for Optical Switching and Modulation of Photonic Integrated Circuits

Doctor of Philosophy (PhD) continued

Son, S. (J. Kong, M.S. Dresselhaus)	Raman Spectroscopy of Single-walled Carbon Nanotubes
Straayer, M.A. (M.F. Perrott)	Noise Shaping Techniques for Analog and Time to Digital Converters Using Voltage Controlled Oscillators
Tischler, J. (V. Bulovic)	Solid State Cavity QED: Practical Applications of the Strong Coupling Limit
Villanueva, A. (J.A. del Alamo)	Electrical Degradation Mechanisms of RF Power GaAs PHEMTs
Waldron, N.S. (J.A. del Alamo)	Self-Aligned InGaAs HEMT for Logic Applications
Weber, A. (A.H. Slocum, J.H. Lang)	MEMS Relays for Make-Break Power Switching Applications: {111} Si Etched Electrical Contacts
Wei, F.L. (C.V. Thompson)	Effects of Mechanical Properties on the Reliability of Cu/Low-k Metallization Systems
Wentzloff, D.D. (A.P. Chandrakasan)	Pulse-Based Ultra-Wideband Transmitters for Digital Communication
Wu, T.M. (F.R. Stellacci)	Carbon Nanotube Processing and Chemistry for Electronic Interconnect Applications
Yen, B. (J.H. Lang, Z. Spakovsky)	A Fully-Integrated Multi-Watt Permanent-Magnet Synchronous Generator