



elcome to the 225th Commencement of the Georgia Institute of Technology. The entire Tech community extends cordial greetings to parents, spouses, relatives, and friends gathered here for this significant event.

For approximately 900 undergraduate and graduate students, today's ceremony recognizes their academic achievements at Georgia Tech and inaugurates a new era in their careers.

Summer Semester · Undergraduate and Master's Ceremony August 4, 2006 · 9:00 a.m. · Alexander Memorial Coliseum

PROCESSIONAL

MASTER OF CEREMONIES

REFLECTION

NATIONAL ANTHEM

COMMENCEMENT ADDRESS

PRESENTATION OF MASTER'S DEGREE CANDIDATES

CONFERRING OF DEGREES

INTRODUCTION OF ACADEMIC DEANS

PRESENTATION OF UNDERGRADUATE DEGREE CANDIDATES

CONFERRING OF DEGREES Georgia Tech Commencement Ensemble, coordinated by Department of Music

Dr. G. Wayne Clough, President

*Rev. Megan J. Jones,* Lutheran Center at Georgia Tech

Georgia Tech Commencement Ensemble

Dr. Bryan G. Norton, Professor of Philosophy

*Dr. Charles Liotta,* Vice Provost for Research and Dean of Graduate Studies

Dr. Clough

*Dr. Anderson Smith* Vice Provost, Undergraduate Studies and Academic Affairs

Assistant Dean Maureen Biggers College of Computing Dean Sue V. Rosser Ivan Allen College of Liberal Arts Dean Thomas D. Galloway College of Architecture Associate Dean Eugene Comiskey College of Management Associate Dean E. Kent Barefield College of Sciences Associate Dean Jane Ammons College of Engineering

Dr. Clough

## INDUCTION INTO THE ALUMNI ASSOCIATION

*Ms. Janice Wittschiebe,* Class of 1978, 1980 Chair, Georgia Tech Alumni Association

ALMA MATER\*

FACULTY RECESSIONAL

"RAMBLIN' WRECK" \*

Georgia Tech Commencement Ensemble Georgia Tech Commencement Ensemble Graduates and Audience

The listing of master's degree graduates begins on page 11.

Honors Qualifications: Honor designations are for undergraduates at Georgia Tech who have met the minimum residency hours requirement of seventy hours, as well as the minimum GPA.

To achieve honor, the minimum GPA is 3.15.

To achieve high honor, the minimum GPA is 3.35.

To achieve highest honor, the minimum GPA is 3.55.

Changes in honor status may also occur after final printing.

You are requested to refrain from loud expressions of pleasure for individual graduates. Such expressions detract from the recognition due the next graduate in line. Your cooperation is respectfully requested.

\*Please turn to page 23 for song lyrics.



Summer Semester · InD Ceremony August 4, 2006 · 7:00 p.m. · Ferst Center for the Arts\_

PROCESSIONAL

MASTER OF CEREMONIES

REFLECTION

NATIONAL ANTHEM

COMMENCEMENT ADDRESS

PRESENTATION OF DOCTORAL DEGREE CANDIDATES

CONFERRING OF DEGREES *Georgia Tech Commencement Ensemble,* coordinated by Department of Music

Dr. G. Wayne Clough, President

*Rev. Steve Fazenbaker,* Director and Campus Minister, Wesley Foundation at Georgia Tech

Georgia Tech Commencement Ensemble

Dr. Bryan G. Norton, Professor of Philosophy

*Dr. Charles Liotta,* Vice Provost for Research and Dean of Graduate Studies

Dr. Clough

## INDUCTION INTO THE ALUMNI ASSOCIATION

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FACULTY RECESSIONAL

Georgia Tech Commencement Ensemble

"RAMBLIN' WRECK" \*

Graduates and Audience

You are requested to refrain from loud expressions of pleasure for individual graduates. Such expressions detract from the recognition due the next graduate in line. Your cooperation is respectfully requested.

\*Please turn to page 23 for song lyrics.

Doctoral Degree Candidates.

Doctor of Philosophy Paper Science Engineering Andrew Marc DeMaio Thesis: "The Role of Bonding on the

Tensile Creep Behavior of Paper" Advisor: Dr. Timothy F. Patterson

#### Doctor of Philosophy Bioengineering

Catherine Diane Reyes Thesis: "Collagen and Fibronectin Mimetic Integrin-Specific Surfaces that Promote Osseointergration" Advisor: Dr. Andres J. Garcia

#### Doctor of Philosophy Biomedical Engineering/Joint Degree Program

Charles Alan Gersbach Thesis: "Runx2-Genetically Engineered Skeletal Myoblasts for Bone Tissue Engineering" Advisor: Dr. Andres J. Garcia

Manu Omar Platt Thesis: "Role of Shear Stress in the Differential Regulation of Endothelial and Cystatin C" Advisor: Dr. Hanjoong Jo

Ciara Caltagirone Tate Thesis: "The Role of Extracellular Matrix Proteins in Traumatic Brain Injury and Cell Transplantation" Advisor: Dr. Michelle C. LaPlaca

#### Doctor of Philosophy Algorithms, Combinatorics, and Optimizations

Parikshit S. Gopalan Thesis: "Computing with Polynomials over Composites" Advisor: Dr. Richard Lipton

#### Doctor of Philosophy Computer Science

Keke Chen Thesis: "Geometric Methods for Mining Large and Possibly Private Datasets" Advisor: Dr. Ling Liu

Bugra Gedik Thesis: "Scaling Continuous Query Services for Future Computing Platforms and Applications" Advisor: Dr. Ling Liu

Dugald Ralph Hutchings II Thesis: "Making Multiple Monitors More Manageable" Advisor: Dr. John T. Stasko Kristine S. Nagel Thesis: "Using Availability Indicators to Enhance Context-Aware Family Communication Applications" Advisor: Dr. Gregory D. Abowd

Rodric Michel Rabbah Thesis: "Design Space Exploration and Optimization of Embedded Memory Systems" Advisor: Dr. Krishna V. Palem

Weidong Shi Thesis: "Architecture Support for Protecting Memory Integrity and Confidentiality" Advisor: Dr. Hsien-Hsin Sean Lee

Galen Steen Swint Thesis: "Clearwater: An Externsible, Pliable, and Customizable Approach to Code Generation" Advisor: Dr. Calton Pu

Jianjun Zhang Thesis: "Efficient Information Dissemination in Wide-Area, Heterogeneous Overlay Networks" Advisor: Dr. Ling Liu

Xiaotong Zhuang Thesis: "Compiler Optimizations for Multithreaded, Multicore Network Processors" Advisor: Dr. Santosh Pande

#### Doctor of Philosophy Public Policy

Branco Leonidov Ponomariov Thesis: "Student Centrality in University-Industry Interactions" Advisor: Dr. Barry L Bozeman

Jingjing Zhang Thesis: "Technological Innovation of Chinese Firms: Indigenous Research and Development, Foreign Direct Investment, and Markets" Advisor: Dr. Juan Rogers

#### Doctor of Philosophy History and Sociology of Technology and Science Olivia A. Scriven

Thesis: "The Politics of Particularism: HBCUs, Spelman College, and the Struggle to Educate Black Women in Science, 1950-1997" Advisors: Dr. Steven W. Usselman and Dr. Willie Pearson **Doctor of Philosophy Architecture** Ransoo Kim

Thesis: "The 'Art of Building' (Baukunst) of Mies van der Rohe" Advisor: Dr. Ronald B. Lewcock

#### Gayle Nicoll

Thesis: "Taking the Stairs: Environmental Features that Predict Stair Use in Three- to Four-Story Academic Workplace Buildings" Advisor: Dr. Craig M. Zimring

#### **Doctor of Philosophy Management** Sanjiv Erat

Thesis: "Joint Product Development and Inter-firm Innovation" Advisors: Dr. Stylianos Kavadias and Dr. Cheryl Gaimon

Paul W. Gilson Thesis: "Monitoring Versus Incentives" Advisor: Dr. Narayanan Jayaraman

Jinsoo Lee Thesis: "Convergence in Global Capital Markets" Advisor: Dr. Cheol S. Eun

Lan Wu Thesis: "Excessive Buying: The Construct and a Casual Model" Advisor: Dr. Naresh K. Malhotra

#### Doctor of Philosophy Earth and Atmospheric Sciences

Jeral Garcia Estupinan Thesis: "The Direct Influence of Aerosols on UV Irradiance and the Development of a Synthetic Current UV Index" Advisor: Dr. Michael H. Bergin

Oleksandr G. Karabanov Thesis: "Seasonal and Spatial Structure of the Gravity Waves and Vertical Winds over the Central USA derived from the NOAA Profiler Network Data" Advisor: Dr. Robert G. Roper

Sangmyung David Kim Thesis: "Spreading-rate-dependent, Mid-ocean Ridge Processes Expressed in Western Atlantic Lithosphere" Advisor: Dr. Daniel Lizarralde Willis Otieno Shem Thesis: "Biosphere Atmosphere Interaction over the Congo Basin and its Influence on the Regional Hydrological Cycle" Advisor: Dr. Robert Dickinson

Changsub Shim Thesis: "Application of Modeling for Containing Global Biogenic Emissions and Contributions to Tropospheric Ozone" Advisor: Dr. Yuhang Wang

Amy Patricia Sullivan Thesis: "The Ambient Organic Aerosol Soluble in Water: Measurements, Chemical Characterization, and an Investigation of Sources" Advisor: Dr. Rodney J. Weber

Tatiana Detchkova Toteva Thesis: "Semblance-based Imaging of Scatterers with an Application in Identifying Near-surface Heterogeneities" Advisor: Dr. Leland T. Long

Jonathon Stanley Wright Thesis: "Influences of Tropical Deep Convection on Upper Tropospheric Humidity" Advisor: Dr. Rong Fu

Yasuko Yoshida Thesis: "Global Sources and Distribution of Atmospheric Methyl Chloride" Advisor: Dr. Yuhang Wang

#### **Doctor of Philosophy Applied Biology** Delbert Lee Smee

Thesis: "The Ecology of Yikes! Environmental Forces Affect Prey Perception of Predators" Advisor: Dr. Marc J. Weissburg

#### Doctor of Philosophy Mathematics

Rafal Komendarczyk Thesis: "Nodal Sets and Contact Structures" Advisor: Dr. Robert W. Ghrist

#### Doctor of Philosophy Psychology

A. Emanuel Robinson Thesis: "Impact of Causality, Strategies, and Temporal Cues on Games of Decision" Advisor: Dr. Christopher K. Hertzog Aideen Joyce Stronge Thesis: "Understanding the Role of Planning in the Performance of Complex Prospective Memory Tasks" Advisor: Dr. Wendy A. Rogers

#### Doctor of Philosophy Physics

Sameh Ibrahim Dardona Thesis: "Energy Relaxation and Hot-electron Lifetimes in Single Nanocrystals" Advisor: Dr. Phillip N. First

Dzmitry Matsukevich Thesis: "Quantum Networking with Atomic Ensembles" Advisor: Dr. Alexander M. Kuzmich

Igor Alexandrovich Romanovsky Thesis: "Novel Properties of Interacting Particles in Small, Lowdimensional Systems" Advisor: Dr. Uzi Landman

Jiang Xiao Thesis: "Spine-transfer Torque in Magnetic Nanostructures" Advisor: Dr. Andrew Zangwill

Shuangye Yin Thesis: "Ferroelectric and Ferromagnetic Alloy Clusters in Molecular Beams" Advisor: Dr. Walter A. De Heer

#### Doctor of Philosophy Chemistry

Artem Dmitrievich Bochevarov Thesis: "Hybrid Correlation Models for Bond Breaking Based on Active Space Partitioning" Advisor: Dr. C. David Sherrill

Qusai Aunali Darugar Thesis: "Surface Effects on the Ultrafast Electronic Relaxation of Some Semiconductor and Metallic Nanoparticles" Advisor: Dr. Mostafa A. El-Sayed

Susan Eustis Thesis: "Gold and Silver Nanoparticles: Characterization of Their Interesting Optical Properties and the Mechanism of Their Photochemical Formation" Advisor: Dr. Mostafa A. El-Sayed

Swapan Satyen Jain Thesis: "Nucleic Acid Assembly Using Small Molecule Interactions" Advisor: Dr. Nicholas V. Hud Amalia LecLercq Thesis: "Quantum-chemical Investigations of Second- and Third-order Nonlinear Optical Chromosphores for Electrooptic and All-optical Switching Applications" Advisor: Dr. Jean-Luc Bredas

Thabisile S. Ndlebe Thesis: "Oxidative Damage in DNA: An Exploration of Various DNA Structures" Advisor: Dr. Gary B. Schuster

Alexander Wilhem Schill Thesis: "Interesting Electronic and Dynamic Properties of Quantumdot Quantum Wells and Other Semiconductor Nanocrystal Heterostructures" Advisor: Dr. Mostafa A. El-Sayed

Nathan William Schlientz Thesis: "Charge Migration through Duplex DNA: A Study of the Mechanism for Charge Migration and Oxidative Damage" Advisor: Dr. Gary B. Schuster

Kathleen Madara White Thesis: "Low-temperature Synthesis and Characterization of Some Low Positive and Negative Thermal Expansion Materials" Advisor: Dr. Angus P. Wilkinson

#### Doctor of Philosophy

Materials Science and Engineering Namtae Cho

Thesis: "Processing of Boron Carbide" Advisor: Dr. Robert F. Speyer

#### Soon Gi Lee

Thesis: "Quantitative Processing Microstructure Properties Relationships in Pressure Die Cast Magnesium Alloys" Advisor: Dr. Arun M. Gokhale

#### Jianwen Xu

Thesis: "Dielectric Nanocomposites for High-performance Embedded Capacitors in Organic Printed Circuit Board" Advisor: Dr. C. P. Wong



#### Doctor of Philosophy Textile Engineering

Hongming Dong Thesis: "Drop-on-demand Inkjet Drop Formation and Deposition" Advisor: Dr. Wallace W. Carr

#### Sanjay Vohra

Thesis: "A Mechanics Framework for Modeling Fiber Deformation on Draw Rollers and Freespans" Advisor: Dr. Karl I. Jacob

**Doctor of Philosophy Industrial Engineering** Rahul C. Basole

Thesis: "Modeling and Analysis of Complex Technology Adoption Decisions: An Investigation in the Domain of Mobile ICT" Advisor: Dr. William B. Rouse

James Dillon Delaney Thesis: "Contributions to the Analysis of Experiments Using Empircal Bayes Techniques" Advisor: Dr. Roshan J. Vengazhiyil

Paula Jean Edwards Thesis: "Electronic Medical Records and Computerized Physician Order Entry: Examining Factors and Methods that Foster Clinical IT Acceptance in Pediatric Hospitals" Advisor: Dr. Julie Jacko

Dominie Garcia Thesis: "Process and Outcome Factors of Enterprise Transformation: A Study of the Retail Sector" Advisor: Dr. William B. Rouse

Rajeev Namboothiri Thesis: "Planning Container Drayage Operations at Congested Seaports" Advisor: Dr. Alan L. Erera

Dima Nazzal Thesis: "Analytical Approach to Estimating AMHS Performace in 300mm Fabs" Advisor: Dr. Leon F. McGinnis

Melda Ormeci Thesis: "Inventory Control in a Build-to-order Environment" Advisor: Dr. John Vande Vate

Zhiguang Qian Thesis: "Computer Experiments: Design, Modeling and Integration" Advisor: Dr. Chien-Fu Jeff Wu Tolga Tezcan Thesis: "State Space Collapse in Many-server Diffusion Limits of Parallel Server Systems and Applications" Advisors: Dr. Rui Dai and Dr. Amy R. Ward

Ni Wang

Thesis: "Statistical Learning in Logistics and Manufacturing Systems" Advisors: Dr. Jye-Chyi Lu and Dr. Paul H. Kvam

Ying Wang Thesis: "High-volume Conveyor Sortation System Analysis" Advisor: Dr. Chen Zhou

#### Doctor of Philosophy Aerospace Engineering Chang Chen

Thesis: "Development of a Simplified Inflow Model for a Helicopter Rotor in Descent Flight" Advisor: Dr. J. V. R. Prasad

Ju Hyeong Cho Thesis: "Analysis of the Wave Scattering from Turbulent Premixed Flame" Advisor: Dr. Tim C. Lieuwen

Travis William Danner Thesis: "A Formulation of Multidimensional Growth Models for the Assessment and Forecast of Technology Attributes" Advisor: Dr. Dimitrios N. Mavris

Tommer Rafael Ender Thesis: "A Top-down, Hierarchical, System-of-system Approach to the Design of an Air Defense Weapon" Advisor: Dr. Dimitrios N. Mavris

Konstantin A. Kemenov Thesis: "A New Two-scale Decomposition Approach for Large-eddy Simulation of Turbulent Flows" Advisor: Dr. Suresh Menon

#### J. D. Lee Thesis: "Dev

Thesis: "Development of an Efficient Viscous Approach in a Cartesian Grid Framework and Application to Rotor-fuselage Interaction" Advisor: Dr. Stephen M. Ruffin Erin Kathleen McClure Thesis: "An Evolving-requirements Technology Asessment Process for Advanced Propulsion Concepts" Advisor: Dr. Dimitrios N. Mavris

Robert Alan McDonald Thesis: "Error Propagation and Metamodeling for a Fidelity Tradeoff Capability in Complex Systems Design" Advisor: Dr. Dimitrios N. Mavris

Erik Davin Olson Thesis: "Conceputal Design and Technical Risk Analysis of Quiet Commercial Aircraft Using Physicsbased Noise Analysis Methods" Advisor: Dr. Dimitrios N. Mavris

Suraj Unnikrishnan Thesis: "Adaptive Envelope Protection Methods for Aircraft" Advisor: Dr. J. V. R. Prasad

John Marc Zentner Thesis: "A Design Space Exploration Process for Large-scale, Multiobjective Computer Simulations" Advisor: Dr. Dimitrios N. Mavris

#### Doctor of Philosophy Chemical Engineering Shabbir Husain Thesis: "Dual-layer Mixed-matrix Hollow-fibers Membranes for Natural Gas Separations" Advisor: Dr. William J. Koros

Rongrong Jiang Thesis: "Oxidative Biocatalysts with Novel NADH Oxidases" Advisor: Dr. Andreas S. Bommarius

Paul Jason Williams Thesis: "Analysis of Factors Influencing the Performance of CMS Membranes for Gas Separation" Advisor: Dr. William J. Koros

Christopher Michael Young Thesis: "Pressure Effects on Black Liquor Gasification" Advisor: Dr. William Frederick

Doctor of Philosophy Environmental Engineering Elcin Kentel Thesis: "Uncertainty Modeling in Health Risk Assessment and Groundwater Resources Management" Advisor: Dr. Mustafa M. Aral

#### Yonggyun Park

Thesis: "Development and Optimization of Novel Emulsion Liquid Membranes Stabilized by Non-Newtonian Conversion in Taylor-Couette Flow for Extraction of Selected Organic and Metallic Containments" Advisor: Dr. Jaehong Kim

#### Doctor of Philosophy Civil Engineering

Ching-Jen Chang Thesis: "Construction Simulation of Curved Steel I-Girder Bridges" Advisor: Dr. Donald W. White

Se-Kwon Jung Thesis: "Inelastic Strength Behavior of Horizontally Curved Composite I-Girder Bridge Structural Systems" Advisor: Dr. Donald W. White

Joonho Ko Thesis: "Measurement of Freeway Traffic Flow Quality Using GPSequipped Vehicles" Advisor: Dr. Randall L. Guensler

Kimberlie Staheli Thesis: "Jack Force Prediction: An Interface Friction Approach Based on Pipe Surface Roughness" Advisor: Dr. James D. Frost

#### Doctor of Philosophy Electrical and Computer Engineering Mubashir Alam

Thesis: "Localization of Subsurface Targets Using Optimal Manuevers of Seismic Sensors" Advisor: Dr. James H. McClellan

William Chauncey Barott Thesis: "Volumetric Phased Arrays for Satellite Communications" Advisor: Dr. Paul G. Steffes

Jau-Horng Chen Thesis: "Wideband Dynamicbiasing Power Amplifiers for Wireless Handheld Applications" Advisor: Dr. James S. Kenney

Christos-Xenofontas Antonios Dimitropoulos Thesis: "Measuring and Modeling Internet Routing for Realistic Simulations" Advisor: Dr. George F. Riley H. Pooya Forghani-Zadeh Thesis: "An Integrated, Lossless, and Accurate Current-sensing Technique for High-performance Switching Regulators" Advisor: Dr. Gabriel A. Rincon

David Wilson Graham Thesis: "A Biologically Inspired Front End for Audio Signal Processing Using Programmable Analog Circuitry" Advisor: Dr. Paul E. Hasler

Achintya Halder Thesis: "Efficient Alternate Test Generation for RF Transceiver Architectures" Advisor: Dr. Abhijit Chatterjee

Ali Akbar Jafarpour Thesis: "Ultra Low-loss and Wideband Photonic Crystal Waveguides for Dense Photonic Integrated Systems" Advisor: Dr. Ali Adibi

Dae Sin Kim Thesis: "Monte Carlo Modeling of Carrier Dynamics in Photoconductive Terahertz Sources" Advisor: Dr. David Citrin

Hamza Kurt Thesis: "Photonic Crystals: Analysis, Design, and Biochemical Sensing Applications" Advisor: Dr. David Citrin

Sang Hun Lee Thesis: "Theoretical and Experimental Characterization of Time-dependent Signatures of Acoustic Wave-based Biosensors" Advisor: Dr. William D. Hunt

Jian Liu Thesis: "Fractal Network Traffic Analysis with Applications" Advisor: Dr. John A. Copeland

Salman Mohagheghi Thesis: "Adaptive Critic Designsbased Neurocontrollers for a Local and Wide Area Control of a Multimachine Power System with a Static Compensator" Advisor: Dr. Ronald G. Harley

Omid Momtahan Thesis: "Analysis and Optimization for Volume Holographic Recording" Advisor: Dr. Ali Adibi Pezhman Monadgemi Thesis: "Polymer-based, Waferlevel Packaging of Micromachined HARPSS Devices" Advisor: Dr. Farrokh Ayazi

Eileen Devra Moss Thesis: "Flexible Microfluidic Systems for Cellular Analysis Using Low-cost Fabrication Technologies" Advisor: Dr. Albert B. Frazier

Steven K. Moyer Thesis: "Modeling Challenges of Advanced Thermal Imagers" Advisors: Dr. William T. Rhodes and Dr. Gisele Bennett

Rupa Parameswaran Thesis: "A Robust Data Obfuscation Approach for Privacy Preserving Collaborative Filtering" Advisor: Dr. Douglas M. Blough

Satish Rajagopalan Thesis: "Detection of Rotor and Load Faults in Brushless DC Motors Operating under Stationary and Nonstationary Conditions" Advisor: Dr. Thomas G. Habetler

Surendra Kumar Ravula Thesis: "A Multielectrode Microcompartment Platform for Signal Transduction in the Nervous System" Advisor: Dr. Albert B. Frazier

Gail Leigh Rosen Thesis: "Signal Processing for Biologically Inspired Gradient Source Localization and DNA Sequence Analysis" Advisor: Dr. Paul E. Hasler

Shayan Garani Srinivasa Thesis: "Constrained Coding and Signal Processing for Holography" Advisor: Dr. Steven W. McLaughlin

Venkatesh Srinivasan Thesis: "Programmable Analog Techniques for Precision Analog Circuits, Low-power Signal Processing, and On-chip Learning" Advisor: Dr. Paul E. Hasler



Jin Tang Thesis: "Mobile IPv4 Secure Access to Home Networks" Advisor: Dr. John A. Copeland

Hiren Dilipkumar Thacker Thesis: "Probe Modules for Waferlevel Testing of Giga-scale Chips with Electrical and Optical Input/ Output Interconnects" Advisor: Dr. James D. Meindl

Christopher Michael Twigg Thesis: "Floating Gated-based Large-scale Field-programmable Analog Arrays for Analog Signal Processing" Advisor: Dr. Paul E. Hasler

Jerome Jean-Louis Vasseur Thesis: "Multiwavelength Laser Sources for Broadband Optical Access Networks" Advisors: Dr. Gee-Kung Chang and Dr. John R. Barry

Lihui Wang Thesis: "Quantum Mechanical Effects on MOSFET Scaling Limits" Advisor: Dr. James D. Meindl

Xin Zhang Thesis: "Network Formation and Routing for Multi-hop Wireles Ad Hoc Networks" Advisor: Dr. George F. Riley

Jian Zhu

Thesis: "Indoor/Outdoor Location of Cellular Handsets Based on Recieved Signal Strength" Advisor: Dr. Gregory D. Durgin

#### Doctor of Philosophy Nuclear and Radiological Engineering Benoit Forget

Thesis: "A Three-dimensional Heterogenous Coarse Mesh Transport Method for Reactor Calculations" Advisor: Dr. Farzad Rahnema

Nathanael Harrison Hudson Thesis: "The Correction of Pebble Bed Reactor Nodal Cross Sections for the Effects of Leakage and Depletion History" Advisor: Dr. Farzad Rahnema

#### Doctor of Philosophy Mechanical Engineering

Jason Matthew Aughenbaugh Thesis: "Managing Uncertainty in Engineering Design Using Imprecise Probabilities and Principles of Information Economics" Advisor: Dr. Christiaan Jos Jan Paredis

John Rogers Huey Thesis: "The Intelligent Combination of Input Shaping and PID Feedback Control" Advisor: Dr. William E. Singhose

Desiree Nicole Jangha Thesis: "Quantitative Conjugate Imaging of Iodine-123 and Techetium-99m Labeled Brain Agents in the Basal Ganglia" Advisor: Dr. C. K. Wang

Ryan Walter Krauss Thesis: "An Improved Technique for Modeling and Control of Flexible Structures" Advisor: Dr. Wayne J. Book

Jason William Lawrence Thesis: "Crane Oscillation Control: Nonlinear Elements and Educational Improvements" Advisor: Dr. William E. Singhose

Hyunjin Lee Thesis: "Radiative Properties of Silicon Wafers with Microroughness and Thin-film Coatings" Advisor: Dr. Zhuomin Zhang

Kuan-Ming Li Thesis: "Predictive Modeling of Near-dry Machining: Mechanical Performance and Environmental Impact" Advisor: Dr. Steven Y. Liang

Nathan Daniel Masters Thesis: "Efficient Numerical Techniques for Multiscale Modeling of Thermally Driven Gas Flows with Application to Thermal Sensing Atomic Force Microscopy" Advisor: Dr. Wenjing Ye

John Marcus Meacham Thesis: "A Micromachined Ultrasonic Droplet Generator: Design, Fabrication, Visualization, and Modeling" Advisors: Dr. Andrei G. Fedorov and Dr. F. Levent Degertekin Amir Shenouda

Thesis: "Quasi-static Hydraulic Control Systems and Energy Savings Potential Using Independent Metering, Four-valve Assembly Configuration" Advisor: Dr. Wayne J. Book

Mahesh M. Shenoy Thesis: "Constitutive Modeling and Life Prediction in a Directionally Solidified Ni-base Superalloy" Advisor: Dr. David L. McDowell

Shannon Leigh Stott Thesis: "Kinetic Study of Intracellular Ice Formation in Micropatterned Endothelial Cell Cultures Using High-speed Video Cryomicroscopy" Advisor: Dr. Jens Karlsson

Laam Angela Tse Thesis: "Membrane Electrode Assembly (MEA) Design for Power Density Enhancement of Direct Methanol Fuel Cells (DMFCs)" Advisor: Dr. David W. Rosen

Eric James Vanderploeg Thesis: "Mechanotransduction in Engineered Cartilagious Tissues: In Vitro Oscillatory Tensile Loading" Advisor: Dr. Marc E. Levenston

Annica Michelle Wayman Thesis: "Kinetic Study of E-Selectinmediated Adhesion under Flow" Advisors: Dr. Cheng Zhu and Dr. Don P. Giddens

Lizheng Zhang Thesis: "Development of Microelectronic Solder Joint Inspection System: Model Analysis, Finite Element Modeling, and Ultrasound Signal Processing" Advisor: Dr. Ifeanyi C. Ume

Xin Zhang

Thesis: "Development and Validation of a Nanodosimetrybased Cell Survival Model for Mixed High and Low Radiations" Advisor: Dr. C. K. Wang

Master's Degree Candidates.

Master of Science Moritz Allmaras Mathematics

Mark Joseph Brooks Electrical and Computer Engineering

*Selin Caliskan* Mathematics

Anne Theresa Case Earth and Atmospheric Sciences

Theodore Judson Conrad Mechanical Engineering

*Charles Scott D'Agostino* Architecture

Brandon Keith DeKock Aerospace Engineering

Christos-Xenofontas Antonios Dimitropoulos Electrical and Computer Engineering

*Justin Robert Fox* Electrical and Computer Engineering

*Ryan Alan Gesser* Environmental Engineering

*Gulen Kilic* Economics

*So Young Kim* Aerospace Engineering

*Freddrick Masolo Kimaite* Civil Engineering

*Huseyin Eser Kirkizlar* Mathematics

Atay Kizilaslan Economics

*Alexander C. H. Koenig* Electrical and Computer Engineering

Seung Jin Lee Environmental Engineering

Bertrand LeFloch Management

*An Lei* Mathematics *Lei Lei* Economics

*Matthieu Marc Masquelet* Aerospace Engineering

Marcus J. Millard Civil Engineering

*Apurva Mohan* Electrical and Computer Engineering

Dave Donovan Muir Electrical and Computer Engineering

Vishwanath Natarajan Electrical and Computer Engineering

*David Robert Noble* Aerospace Engineering

*Yutong Pan* Textile and Fiber Engineering

*Chongying Qiu* Aerospace Engineering

*Kathleen Lee Stokes* Aerospace Engineering

*Gayatri Subramanian* Electrical and Computer Engineering

*Ramanan Subramanian* Electrical and Computer Engineering

*Eliane Zerbetto Traldi* Mathematics

*Nathalie Tramecourt* Aerospace Engineering

Michelle Kimberly Walker Aerospace Engineering

*Latrice Danette Watkins* Architecture

Yaguang Wei Electrical and Computer Engineering

*Wei Zhang* Mathematics

#### Master of Science in Paper Science and Engineering Widiatmoko Cosmas Bayuadri Courtney Michelle Malbrue Mariefel Bayta Valenzuela

Master of Science in Quantitative and Computational Finance Rui Li Tuan Anh Nguyen

Master of Science in Human-Computer Interaction Courtney Elizabeth Lessl Aaron Michael Levisohn Ji-Won Song Arvind Venkataramani

Master of Science in Bioengineering Sandeep Prabhakara Komal Rambani Nicholas Pabon Shapiro Christopher Matthew Sinotte Matthew Michael Sowd Kathleen Anne Williams Ming Zhong

Master of Science in Polymers Anthony John Cascio

#### Master of Science in Statistics

Amelia Elizabeth Erwin Lei Lei Pylyp Papush Salih Tekin Cuiyun Wang

Master of Science in Information Security Sanjeev Dwivedi

Master of Science in **Computer Science** Jonathan Paul Aguillard Juwon Ahn S. Charles Brubaker Kin Wing Chung Ryan S. Collins Srihari Govindharaj Topraj Gurung Mitchell Paul Halpin Clinton Daniel Hidinger Andrew K. Hill Heather Mahaney Hutchings Justin Jang Jeffrey M. Jo Hyewon Jun Farhan Saleem Khan Daniel Bernhard Mentz

A STATE

Peter Pesti Christopher Michael Plaue Ivan Raikov Paul Harris Royal Jianli Shen Sivagowri Swaminathan Aajav Jyotindra Neeta Trivedi Ye Yan Zongyu Zhang

#### Master of Science in

International Affairs Sarah Marie Blizzard Aneta Komendarczyk Stefan Alexander Link Peter J. Stuart Karen Tiffany Turner

Master of Science in Information Design and Technology Madhur Khandelwal

Master of Science in History and Sociology of Technology and Science William Donald Adkins

Master of Science in Public Policy Nooshin Mahalia John Bernard Slanina

Master of Industrial Design Junhua Gu Allison Laurel Amis Guyton Walter Edward Hargrove III David Frederic Lynn Jason Charles Quick Kevin Douglas Shankwiler

Karen Lindsay Williams Master of Science in Building Construction and Facility Management

Danny E. Banks Jr. Judah Cameron Bradley Donna Tala Fard Lei Gao Charles George Petrakopoulos Michelle H. Price David Yoo

#### Master of Architecture

Tristan Farris Sahib Abdul-Amir Yousiff Hassen Al-Haddad David William Goodman Sheila L. Nash Katherine Marie Siebieda

Master of City and Regional Planning Melissa Marie Mailloux Christian Fowler Volney Master of Science in Management of Technology Samuel Allen Bailey Jr. Christopher Lee Underwood

**Master of Business Administration** *Zachary Ryan Perkel* 

Master of Science in Earth and Atmospheric Sciences Gwendolyn M. Bristow Sawyer Ross Gosnell Timothy James Nowak Benton Whitney Whitesides

#### Master of Science in Psychology

Kelly Erinn Caine Brian D. Gane Nicholas J. Kelling Chia-Huei Ko Susan Rebecca Lagrone Lisa Marie Mauney Matthew K. Minton Marita A. O'Brien Sung Jun Park Thomas Scott Redick Kashi Gill Sehgal

Master of Science in Applied Biology Jessica Elaine Kollmeyer Wenjing Zheng

Master of Science in Bioinformatics Yue Jiang

Master of Science in Mathematics Derrick Norman Hart

#### Master of Science in Physics

Serkan Balyimez Bryce Jason Remesch Matthew Ryan Ross Tyson Robert Shepherd Ian Ceasar Malimit Vicente

Master of Science in Chemistry Emel Eren Jeremy Charles Granger Shaobo Pan Yanping Qin Jareesa Elaine Tucker Zeynep Turunc Linda van Rosmalen

Master of Science in Biomedical Engineering Peter Allen Henning Jessica Mata Master of Science in International Logistics Alec Taur Ang

#### Master of Science in

Medical Physics Xiaowan Chen James Daniel Cover III Amanda Marie Jackson Quyen La Jones Pasquale James Montanaro IV Megan Elizabeth Satterfield Scott Louis Shields Xiaoqin Yang Xiving Zhang

Master of Science in Health Physics Candi Lea Schaub Mark Snider

#### Master of Science in Health Systems

Lorna Raquel Cintron Alycia Marie Donnelly Jessica Chi-Ying Ho Aaron Karl Kanne John Clifford McLean III Vladi Jeremy Vidakovic

Master of Science in Nuclear Engineering Ashby Harrison Bridges Sharon Ann Chandler Steven Mark Jones Aliva Pattnaik

Master of Science in Engineering Science and Mechanics Christian Bermes Florian Josef Kerber Juergen Koreck

Master of Science in Operations Research John Oliver Andrews Theologos Bountourelis Jon David Petersen

#### Master of Science in

Industrial Engineering Melanie Denise Brown Selin Caliskan Aixa Liz Cintron-Diaz Fernando Javier Cruz Lei Deng Aditya Dhanrajani Thomas Drtil Thilo Bernd Frankenhauser Marco Antonio Gutierrez Ahmed Hentati Christina Rene Jones Jacqueline Cristina Jones Stefan Lier Ching-Fang Liu Siao Yong Ly Erik Daniel Lystad Matthias Pauli Claus Josef Reeker Rajani Shenoy Sebastian Rodrigo Urbina Salvador Valencia-Alvarez Monica Cecilia Villarreal Christopher Berthold Waldorf Kai Wittek Jianjun Zhang

#### Master of Science in Aerospace Engineering

Bhuan Agrawal Ludvic Baquie Luis Nicolas Gonzalez Castro Robert Geissler Nathan Wells Graybeal Peter Bartholemew Hart Wendy Marie Hynes Javier Nebero Johnson Alexander Klein Jake Francis Leeber Chris T. Needham Alessio Orsini Valerio Parisi Jong-Gil Park Nandita Yeshala

Master of Science in Materials Science and Engineering Matthew David Willing

Master of Science in Chemical Engineering Samuel M. Davis Ronald William Maurer Jeessy Medina-Atanacio

Master of Science in Environmental Engineering Anh Tien Do Grant Thomas Michalski

#### Master of Science in Civil Engineering Kevin Michael Bott

Secon Michael Bott Stacey Delisa Dillon Stephanie Yvonne Glien Daniel John Gonzalez Eyvindur Gudmundsson Fulvio E. Jaramillo Shane Miguel Johnson Alphonso O'Connor Melanie Ann Parker Richard James Parr Junwon Seo Andreas Willecke Marcus Allan Williams

#### Master of Science in Electrical and Computer Engineering

Daniel Jackson Allred Andrew Clark Batchelder Ierome Francois Bernardes Wade Allen Berzett Ajay Bidani Herbert Brown Jr. William Laws Calley III David Chung Ronald Anthony DeLucia Clement Henri Dieudonne Hua Fan Brian Alexander Faust Amil Haque Anthony Erick Henseler Alexis F. Herve Stephen Jonathan Horst Ryan Michael John David Alan Keeling Hyun Min Kim Melissa Jean Kohtala Prasad Komma Nola Shin-Yih Li Dwi Sianto Mansjur Eric William Massey Atul Nalin Mathuria Sean McAllister Michael Joe McFadden Iill Elizabeth Morris Eric Matthew Mullen Rohit Murthy Edward Joseph Newett III Ryan Daniel Palkki Michael Brian Parker John Kangchun Perng Sergio Piegia III Brian Kevin Ramey Charles M. Reinke Michael H. Rich Anil Rohatgi Anna Christina Stelzenmuller Mario E. Vittes Eric Chinsan Wong Edward Yee Robert Trevor Yhap Dalibor Zulim

### Master of Science in

Mechanical Engineering David Forbes Blackburn Margaret Amelia Bolton William John Bonneau Donald Albert Bradley Peter J. K. Cameron William Leroy Carbaugh Matthieu Choix Mark R. Claffee Carter Reynolds Dietz Etienne J. Dufour Brian Jacob Fatkin Charles Nelson Gaylord IV Samuel Aaron Golbuff

Brian Matthew Gollenberg Jason Tully Hanlin Jeffrey Allen Howard Lander Ibarra Mohammad Kamran Jeelani Elliott Vincent Jernigan Omkar Gopalkrishna Karhade Brian James Kern Matthew Kenneth King James Patrick Kitchen Wichit Liewkongsataporn Jay Michael Ling Lauren Beth Margolin Russell Kenneth Marzette Jr. Nicholas Brian Maser Brett Vaughan Mauro Benjamin Daniel Morlang Michael Colan Moscinski Michael Christopher Muir Zi Yen Ng Shannon M. Okuyama Zachary Ryan Perkel Ghislain Jean Retaureau James Phillip Roudeski Olivier Marie Roulleaux-Dugage Shubham Saxena Andrew Robert Schnell Angela C. Stay Keith David Suda-Cederquist Erik Oscar Sunden Randy Wadie Tadros Wei Tan Mark Paul Telesz Siarhei G. Tsiareshka Raghvendra Vijaywargiya

Care Care

Bachelor's Degree Recipients

College of Computing

Bachelor of Science in Computer Science Highest Honor Hai Tan Phan Jeff Taylor Watson

High Honor Richard Allen Bryan Travis Lee Shepherd

Honor Fred L. Moore IV Elizabeth Efua Solomon Mark Andrew Sponsler Scott Alan Thompson

Mohammad Abolfathian Ayoyimika Mumeen Alaran Mostafa Medhat Alattar Mark Adam Brown Andrew Brown Calvin Wendy Coll Joseph Duero Michael Ross Flournoy **Justin Thomas Friel** Colin DeLeon Gillens William Pemberton Hinson IV Iason Monroe Ho Evan Price Hodgson Izudin Ibrahimbegovic Kevin Bernard Legette Mark Alan Lewis Jason Markowitz Edwin Marty Tri Minh Nguyen Mark Steven Nichols Blake Patrick O'Hare Vimal M. Patel Ricky Everett Pattillo William Walter Phillips Scott Benjamin Platt Brandon William Plunkett Adam Racht Cyrus Benjamin Radfar Arif Rahman Christopher William Rogers Vitaliy Y. Romanchik Christopher Martin Ruegsegger Albert William Sacks Christopher Galloway Scheibe Carlo F. Tambuatco Chinh Dinh Tran Long Bao Tran Yang Wang

Bachelor of Science in Computer Science Cooperative Plan Highest Honor Long Man Ram Lau Kevin Marshall Ruffin Roman Yaroslavovych Savaryn Steven Wayne Studniarz

Honor Stefan Plamenov Tzanev

Chung Hoon Kim William Stuart Miller Katrina Janette Pickett

Joan Allen College of Liberal Asts

Bachelor of Science in Public Policy Honor Melody Joy Pugh

lla Ansley Cleveland Andrew Manning Colligan John Justin Putrich

Bachelor of Science in History, Technology, and Society Honor George Orin Boone Virginia Gail King

Sheree Chavonne Brown-McGill Sherida Nicole Heath Larry Obadiah Stokes

Bachelor of Science in Science, Technology, and Culture Highest Honor Ryan Lafayette Harwell

Honor Julianne Leigh Davis

Amanda Lea Minino Nigel Joseph O'Rear Jason George Reeves Lauren Christine Schlechte Joshua Thomas Testo

Bachelor of Science in International Affairs and Modern Language Leigh Ellen Collins

Bachelor of Science in International Affairs Highest Honor Patricia Diane Voorheis Jay M. Johnson Jonathan Randall Watts

**Bachelor of Science in Global Economics and Modern Language** *John Cory Bennett* 

**Bachelor of Science in Economics** Highest Honor *Lauren Michelle Forbes Long Man Ram Lau* 

High Honor Amit Agarwal Mark Connor Iannucci

Gregory Benjamin Buck Pooja Reddy Kadire Ronnie Tramonze Lee McCord

College of Architecture

**Bachelor of Science** High Honor Erin Bridget Connolly Michele Marie Rockoff

Honor Katie Lauren Aloisio Anna Khalo

Nicholas Andrew Faulconer Brandi Nicole Flanagan Stephanie Bina Gobler

Bachelor of Science in Building Construction Kevin Andrew Cablik John Su Il Kwon Omeed Sajjadieh

Bachelor of Science in Industrial Design Honor Wesley Tillman Barker

James C. Bang Blake Christopher Clem Matthew Thomas Crowe Aaron G. Gardner Martin Conrad Jacobson Aman Solomon Kidane Jacquelyn Rae Lynch Jake Satterlee Urman

College of Management

Bachelor of Science in Management Highest Honor Christen Denise Caines Shannon Nicole Joiner

14

High Honor Matthew Lee Bauerkemper Jr. Nancy Lee Graves Eric Bannerman Shaver

Honor Ashish S. Arya Ashley Renee Hightower Javier Alberto Orraca

Mohsin Ali

Christopher John Anderson Marla Diane Aronson Bradford Paul Brezina Kathleen S. Christensen Joseph Carsten Connell Natalie Grey Cook David Paul Daigle Daniel James Davenport Matthew Iason Elrod Matthew Everett Gould Warren B. Grau Eric Charles Henderson Stephanie Lin Henderson Amy Jean Hosier Kevin John Hurley Lindsey Christine Laband Laura Thanh Thao Le Rachel Elizabeth LeBlanc Shawn Hsih-Ying Li Ronnie Tramonze Lee McCord Devin Gregory McGraw Caroline Suzanne Medley Jessica Lauren Merritt Lynnette Marie Moster Christopher Steven Pace Cheytoria Markeita Phillips Jose Antonio Silva Joel Brandon Stevens James Keith Stewart III Erin Courtney Studstill Jessica Ann Thompson Adam Ross Underwood Elizabeth Ruby Warren Allison Patricia Wise Matthew Tyler Young

Bachelor of Science in Management Cooperative Plan Michael Christian Greuel David Emmanuel Pepka

College of Sciences

Bachelor of Science in Earth and Atmospheric Sciences Nathan Wu

Bachelor of Science in Applied Biology Highest Honor Jungwon Joun High Honor Kirk Justin Grubbs

Honor Kendra Jean Pelletier

Nina Amir Helen Chang-Chien Stephanie Carrieann Cooke Kate McNeal Flowe Sara Ruth Kuoch John Chen-Tao Lee Sareh Sabripour Michael Wang

Bachelor of Science in Applied Biology Cooperative Plan Honor Sara K. Jones

Bachelor of Science in Applied Psychology Robbin Haynes Brooks Sarah Lynn Whitlock

**Bachelor of Science in Applied Mathematics** High Honor *Yo Han Yoon* 

Honor *Randy Heaton* 

Justin Ray Michael

**Bachelor of Science in Physics** Highest Honor *Stephen Medina* 

Aakash Bharatkumar Jariwala

**Bachelor of Science in Chemistry** Highest Honor *Michael Douglas Chambers* 

Bachelor of Science in Chemistry Cooperative Plan Matthew Clayton Hampton

College of Engineering

Bachelor of Science in Biomedical Engineering Highest Honor Ahmed Magdy Elkalliny

High Honor Daniel Patterson Tonatiuh Rios-Alba Matthew McRae Spicer

Vishnu Kuttappan

Bachelor of Science in Biomedical Engineering Cooperative Plan Kathryn Jean Boehle

Bachelor of Science in Materials Science and Engineering Cooperative Plan Highest Honor Kevin Dale Rodkey

Bachelor of Science in Computer Engineering Regional Engineering Program Carl William Bonebright

Bachelor of Science in Computer Engineering Highest Honor Alexei Ilich Dachevski Eric Russell Fontaine Ayan Kishore Jorge Mario Mejia Ramirez

Honor Bradley H. Smith Ifiok Etim Udowana

Bryan Fredrick Chapman Keon Padrell Copeland Russell Tyler Lewis David Liu Ryan Matthew Lockhart Phillip Benjamin Michael Eric Akio Pierce Antonio Cabatingan Rodriguez Michael Alan Smith Manish Jay Surati Edward McCue Henry Tamsberg

Bachelor of Science in Computer Engineering Cooperative Plan Honor Derek Lee Edwards

Michael Joseph Schork

Bachelor of Science in Nuclear and Radiological Engineering High Honor Jane Sara Wagner

Bachelor of Science in Industrial Engineering Highest Honor Esteban Devoto Apurva Anil Doshi Bradford Kyle Edwards Brian Jeffrey Fosse Steven Lee Hale Jr. Viktoriya Miteva Rachkova High Honor Sann-Thidar Aung William Stephen Byington Jr. Daniel Le Huynh

#### Honor

Michael Bustamante Deona Tenae DeClue Mustafa Burc Ozbey Benjamin Merrick Ward Valerie Louise Williams

Ahmed M. Ahmed Seth Peter Andrews Sumayyah Ansari Linda Ann Barwick Jeremy Dean Cannon Barbara Ann Caranto Joseph T. Chen Corrine Bright Cope Anne Elizabeth Costello Chukwuemeka Charles Ezeoke Elizabeth Ann Iurick Sean Andrew Lombard Alexander David Molnar Monica Eliana Parra Saurin Chandrakant Patel Roger Tan Ramos Christopher S. Reed Brandon D. Richardson Alex Ives Root Rebecca Ann Shannon Alan Tam Joseph Francis Taragowski Michael Joseph Ulasewicz Haley Munro Varner Brandon Earl Ylvisaker

Bachelor of Science in Industrial Engineering Cooperative Plan Highest Honor LaToya Nicole Drumgoole

High Honor Kristin Ashley West

Steven Anson Hammond William Richard Waits Kristin Melaina Wall

#### **Bachelor of Science in Aerospace Engineering**

Kimberly Lee Cooper Amanda Elaine Lowry Eiji Ozawa Alexander Ellis Pace Douglas David Palmer Ashwin P. Rao Joshua William Stephenson Matthew David Stone Brandon Keith White Bachelor of Science in Aerospace Engineering Cooperative Plan High Honor Christian Aidan De Jong

Honor Kristopher Robin Herrmann

Christina Leigh Efland Sean Paul Padfield

Bachelor of Science in Chemical and Biomolecular Engineering Highest Honor Christopher John Dumler Tien Le Andrew Scott Mudd Marja Nicki-Dee Mullings

High Honor Christine Julia Erdy Thomas David Lesniak Jr.

Honor Laura Ann Wood

Hunter Dunn Altland On Ki Cheung Odion Ayotunde Edeki William Thomas Freeman Jonathan Michael Freitag Samba Jarju Kai Pong Lam Ryan Paul Lively John Michael Melnyczuk Jean Claudio Mino Michael Andrew Riddle Tomecia Nicole Riley

Bachelor of Science in Chemical and Biomolecular Engineering Cooperative Plan Highest Honor Kevin David Nagy Joshua Clayton Quarterman Mitchell James Sutheimer Graham Mark Thorsteinson

Honor Derek Luke Curry Brian S. Fields

Bachelor of Science in Polymer and Fiber Engineering Alexander Werner Klaas Jacob Joseph Tompkins

Bachelor of Science in Polymer and Fiber Engineering Cooperative Plan Amy Brooks Solomon Bachelor of Science in Civil Engineering Regional Engineering Program Highest Honor Jennifer Ann Goldberg Margaret Louise Kicklighter

#### Daniel J. Fogal

Bachelor of Science in Civil Engineering Highest Honor Brian C. Jones Chris Alan Lytle Matthew Paul Wilkinson

High Honor David Arza Ashiqueali Raffique Boga Edward Colin Johnson

Honor Jason Chadwick Coffee Margaret Elizabeth Monaco Philip Anthony Panos Matthew Ray Thompson

Jason Brett Bach David Michael Butdorf Andrew William Chew Titus Watchman Chow Christopher Lee Cochran Langston Randolph Davis Suzanne Elizabeth Duncan Patrick Michael Johnson Justin Carl Lott William David Martin Sr. Keisha Kiwe Mbiwan Sandra Woodard Reeves Hasan Ali Rizvi

Bachelor of Science in Civil Engineering Cooperative Plan Robert Brooks Carswell Jr. Joel Lavelle Wicks

Bachelor of Science in Electrical Engineering Regional Engineering Program Honor Huy Bao Nguyen

Megattina L. Jackson

Bachelor of Science in Electrical Engineering Highest Honor Jesse Ellis Berman Sthithaprajn Garapaty John Burton Helder Gedeon T. Kamga Shyam S. Seshadri Nitin Yadav

High Honor Amit Mohan Agarwal Seung Jae Lee Chika Ifeoma Umolu Yo Han Yoon

Honor Devpratim Chakraborty Chinmay Arvind Patel

Sourjo Bir Basu Justin Patrick Bennett Thong M. Doan Paras Mani Ghimire Benjamin Aaron Humphries Robert Edwin Jenkins Carlton Russell Iones Danelle Elise Jones Bradley Nelson Kimpling Chike George Lindsay-Ajudua Isaac Bernard Lockett Ir. Dinesh Mantri Vivek Mehta Brett Douglas Poche Ashok D. Prabhakar Deepa Rashmikant Shah Jonathan Boone Torian Stephen E. Waddell John Rayford Wise

Bachelor of Science in Electrical Engineering Cooperative Plan Highest Honor Philip Michael Brady Mandy Yang Chiang

Honor Steven Michael Fine

Thomas Hoyt Davis III Aakash Bharatkumar Jariwala Richard J. Klareich Matthew Wade Manning

Bachelor of Science in Mechanical Engineering Highest Honor Waqas J. Abbasi Robert James Cross Gregory Martin Freisinger Jimmy Jinghua Jiang Kenneth Shane Poland Nathan Alan Smiga Michael Aaron Stilwell Logan Todd Williams High Honor Varun Ashok Nicolis Foster Davis Yuki Miyasaka Andrew D. Ogden Richard Douglas Rogers

Honor Kevin Richard Bray Jared Michael Grace Stephen Lee Markey Jarron Syh Eric Allen Walthall

Louay Ibrahim Abdul-Hadi Faris Mohammed Al-Battashi Dustin Andrew Ashberry Joseph Atkins Baker Christopher Miller Brabson Adam Staunton Brown Jeffrey M. Butler Jamie Marie Cruce Jennifer Mae Edwards Gary Andrew Eisla Jr. Parag Gajarawala Sarah Elizabeth Gleaton Nicholas Arthur Gritz Chadwick Matthew Harris Iames Rexton Holland Peter John Iannuzzi Marie Elizabeth Jenkins Tracy Michelle Jenkins Nicholas Peter Theodore Karnezos Arnab Khan Naoman Firasat Malik Richard W. McClave Iared Keith McKinnon Robert Hall McWilliams Jr. Timothy Alwin Monroe Thomas Elam Murphy Adevanju Babatunde Olivide Anthony John Palladino Benjamin Rich Pecora Michael Francis Plachta David Gregory Price Whitney Amanda Price Iames Daniel Puckett Robert Dickson Ricaud Moninder Singh Sandhu Robert Miller Stephenson Matthew David Todhunter Richard Allen Warren Ty Michael Watson

Bachelor of Science in Mechanical Engineering Cooperative Plan Highest Honor Steven Louis Larsen David Arthur Wade

High Honor Jerry Vance Foster Richard Bradley Schwartz Hayato Shimizu Matthew David Sims

Honor Alistair Jonathan Graves Joel Kerry Schuetz

David Andrew Condon Sean Michael Conner William Richard Dahlin Jr. David Michael Dishman Jr. Patrick Christopher Farrell Lee Thomas Hamilton Jr. Matthew Stephen Hunt Robert L. Sanford

# President G. Wayne Clough, 9hD Georgia Institute of Technology \_\_\_



In September 1994, Dr. G. Wayne Clough became the tenth president of the Georgia Institute of Technology and the first alumnus to serve as president. Dr. Clough received his BS and MS degrees in civil engineering from Georgia Tech in 1964 and 1965, respectively, and a PhD in civil engineering from the University of California, Berkeley, in 1969.

Formerly a faculty member at Duke University, Stanford University, Virginia Tech, and the University of Washington, Dr. Clough served as head of the Civil Engineering Department and dean of the College of Engineering at Virginia Tech, and as provost and vice president for Academic Affairs at the University of Washington.

During his tenure as president, Georgia Tech has served as the Olympic Village for the 1996 Centennial Games, research expenditures have doubled from \$212 million to \$425 million, a required computer initiative for all students was implemented, and enrollment has increased from 13,000 to 17,100. More than \$1 billion in private gifts have been secured, and the statewide Georgia Tech Regional Engineering Program has been implemented. A building program of more than \$900 million has been completed, with another \$300 million in planning or design.

Dr. Clough has received eight national awards from the American Society of Civil Engineers, including the 2004 OPAL Award for Lifetime Achievement in Education. He is one of a handful of civil engineers to have been twice awarded civil engineering's oldest recognition, the Norman Medal, in 1982 and in 1996. He received the George Westinghouse Award from the American Society of Engineering Education in 1986 for outstanding teaching and research. Elected to the National Academy of Engineering (NAE) in 1990, Dr. Clough was awarded the 2002 National Engineering Award by the American Association of Engineering Societies and in 2002 was named an honorary member of the American Society of Civil Engineers.

In 2001, President George W. Bush appointed Dr. Clough to the President's Council of Advisors on Science and Technology, and he currently chairs a nanotechnology task force and previously chaired the Federal Research and Development panel. President Bush also nominated him to the National Science Board in 2004, and he is the only person to serve simultaneously on both of these national advisory bodies. Dr. Clough is vice chairman of the U.S. Council on Competitiveness and recently co-chaired the Council's National Innovation Initiative. He also chairs the Committee on New Orleans Regional Hurricane Protection Projects for the National Research Council and the National Academy of Engineering, and recently chaired the Engineer of 2020 initiative of the National Academy of Engineering. He serves as a special consultant to the San Francisco Bay Area Rapid Transit System for ongoing major seismic retrofit operations.

Closer to home, Dr. Clough is a member of the Executive Committee of the Metro Atlanta Chamber of Commerce and a trustee of the Georgia Research Alliance. He serves on the Board of Advisors for Noro-Moseley Partners, the Southeast's largest venture capital fund, and the Board of Directors of TSYS of Columbus, Georgia. For nine years, *Georgia Trend* magazine has listed him among the 100 Most Influential People in Georgia.

Dr. Clough's interests include technology and higher education policy, economic development, diversity in higher education, and technology in a global setting. His academic specialty is geo-technical and earthquake engineering, and he has published more than 120 papers and reports and 6 book chapters.

18

Commencement Speaker Bryan G. Norton, MD



Dr. Bryan G. Norton is a professor of philosophy in the School of Public Policy at the Georgia Institute of Technology. Norton received his bachelor's degree with distinction and honors in political science from the University of Michigan in 1966 and his doctoral degree in philosophy from the same institution in 1970.

Specializing in environmental policy, Norton writes on intergenerational equity, sustainability theory, biodiversity policy, and valuation methods. His current research is directed at clarifying spatio-temporal bounding in the formulation of environmental problems, and his ongoing research addresses intergenerational ethics and sustainability, biodiversity policy, and environmental pragmatism.

Norton is the author of Linguistic Frameworks and Ontology (Mouton Publishers, 1978); Why Preserve Natural Variety? (Princeton University Press, 1987); Toward Unity Among Environmentalists (Oxford University Press, 1991); Searching for Sustainability (Cambridge University Press, 2002); and Sustainability: A Philosophy of Adaptive Management (University of Chicago Press, 2005). He is the editor of The Preservation of Species (Princeton University Press) and co-editor of several volumes, including Ethics on the Ark (Smithsonian Press). He has also contributed to journals in several fields, including philosophy, biology, ecology, economics, ecological economics, and environmental management.

Norton has served on numerous panels, including the Environmental Economics Advisory Committee of the Environmental Protection Agency's Science Advisory Board. He was a research associate at the Institute for Philosophy and Public Policy at the University of Maryland from 1981 to 1983, and was a Gilbert White Fellow at Resources for the Future from 1985 to 1986. He recently completed a second term as a member of the Governing Board of the Society for Conservation Biology, as well as three terms as a member of the Board of Directors of Defenders of Wildlife.



## The Mace

In academic ceremonies, the mace is an ornamental staff carried as a symbol of authority. The office of the mace bearer, though purely ornamental, dates back to medieval England when special occasions required the use of a bodyguard. In colonial America, the mace became a symbol of office when it was used in conjunction with academic regalia.

The Georgia Tech mace carried in today's ceremony was designed by Cabell Heyward, a former research scientist in the College of Architecture, and was first used in April 1988 at the presidential installation of John P. Crecine. The mace was made possible by a gift from the Georgia Tech Student Foundation and the Class of 1934.

The primary focus of the mace is its three brass rods, which demonstrate the principle of "tensegrity," a concept of structure combining tension and integrity developed by R. Buckminster Fuller in 1927. The integrity, or wholeness, of the mace is maintained by each of the rods being held in place by the tension of the steel wire; the rods do not touch one another at any point.

The brass rods symbolize the three primary components of Georgia Tech's mission: education, research, and service. The gold color of the brass and the white color of the steel wire represent Georgia Tech's colors. The mace also incorporates three silver metallic seals, which are reproductions of the official seal of the state of Georgia, the original seal of Georgia Tech, and the current seal of the Institute.

The mace was fabricated by Mr. Heyward and Arthur Schoenfeld, who are both formerly with the Center for Assistive Technology and Environmental Access in the College of Architecture, in conjunction with Atlanta jeweler Robert Nagle.



# Academics, Research, and Athletics

### College of Computing

The College of Computing houses one of the largest interdisciplinary computer science programs in the country, forging relationships across campus and with universities around the world. The College provides the highest quality instruction and is dedicated to the integration of computing knowledge into all aspects of life.

The College also has four interdisciplinary research centers: the Georgia Tech Information Security Center (GTISC); the Graphics, Visualization, and Usability Center (GVU); Center for Experimental Research in Computer Systems (CERCS); and the Modeling and Simulation Research and Education Center (MSREC).

More than 1,500 students are enrolled in the College, including approximately 1,100 undergraduates and 476 graduate students. Prominent alumni of the College include Craig Mundie (1971, 1972), senior vice president and CTO, Advanced Strategies and Policy, Microsoft; Jim Allchin (1983), platform group vice president, Microsoft; Timothy Saponas (1981), worldwide higher education manager, Intel; James Folsom (1970, 1972), strategic advisor and CEO, Motorola; Edith M. Martin (1976, 1980), chief financial officer, Eastman Kodak; and Githesh Ramamurthy (1983), president, CCC Information Services.

Joan Allen College of Liberal Arts

The Ivan Allen College, created in 1990, is the liberal arts college of Georgia Tech. The curriculum and research initiatives of the College explore the crucial intersections of technology, the physical sciences, the humanities, and the social sciences. The College includes six degree-granting schools: Economics; History, Technology, and Society; the Sam Nunn School of International Affairs; Literature, Communication, and Culture; Modern Languages; and Public Policy. The College currently has 1,000 graduate and undergraduate majors.

Ivan Allen College is a nationally recognized leader in a range of fields including digital information and interactive game design, educational technologies, Internet governance, international economics, international security, and the advancement of women in science and engineering, environmental policy, and technology policy. It offers a range of language and culture programs including the Languages for Business and Technology Program. It is also the home of Georgia Tech's Army, Navy, and Air Force ROTC units. Ivan Allen graduates have gone on to leadership roles in law, industry, government, and education.

### College of Architecture

The School of Architecture became the College of Architecture in 1975. In the fall of 2005, 748 undergraduate and 340 graduate students were enrolled in the various academic programs of the College, including architecture, building construction, city and regional planning, doctoral studies, industrial design, and music. Although the College presently offers only a minor in music, approximately 1,140 students, representing all colleges at Georgia Tech, enrolled in music courses each semester in 2004-2005.

Some of the College's more prominent alumni include John Portman (1950), John Portman and Associates, designer of Peachtree Center; George Heery (1950), former chairman of the board, Heery International, designer of the Coca-Cola Building; Thomas W. Ventulett III (1958), senior principal of Thompson, Ventulett, Stainback and Associates, designer of Technology Square in Atlanta and the McCormick Place complex in Chicago; Mack Scogin (1967), former chair of the Department of Architecture at Harvard University; and Michael Arad (1999), designer of the World Trade Center Memorial in New York.

Research programs in the College include the Center for Assistive Technology and Environmental Access, the Construction Resources Center, the Center for Geographic Information Systems, the IMAGINE Group, the Advanced Wood Products Laboratory, and the Center for Quality Growth and Regional Development.

### College of Management

The intersection of business and technology is at the heart of the College of Management, the business school at Georgia Tech. Today that focus is more relevant than ever before. Leveraging Georgia Tech's strengths in entrepreneurship and technology innovation, the program grounds students in critical thinking and teaches them to perform in a highly technological and global environment. The interdisciplinary nature of the curriculum stresses teamwork, cultural diversity, and relevant solutions to real-world problems to create a solid educational foundation for the business leaders of tomorrow.

Georgia Tech's business school, which enrolled approximately 1,080 undergraduates, 180 graduate students, and 85 executive master's students in fall 2005, has earned a place among the most highly respected business programs in the nation since it was established in 1913. Today, the business school offers bachelor's, MBA, executive master's, and PhD degrees, as well as a wide range of programs for executives and professionals.

College of Sciences

Established from the former College of Sciences and Liberal Studies, the College of Sciences provides programs in the natural, mathematical, and behavioral sciences.

The specialized academic programs in the Schools of Applied Physiology, Biology, Chemistry and Biochemistry, Earth and Atmospheric Sciences, Mathematics, Physics, and Psychology attract students who have a



strong interest in science and mathematics and are interested in relating their educational experience to social, governmental, industrial, and postgraduate fields.

In the fall of 2005, the College enrolled 1,039 undergraduate students and 768 graduate students. Some high-profile graduates of the College of Sciences are Ashworth Stull (1937), inventor of the "White Glue" that became known as Elmer's Glue; Glen P. Robinson Jr. (1948, 1950), founder of Scientific-Atlanta and owner of patents on solar energy and antenna systems and energy; Kary B. Mullis (1966), inventor of polymerase chain reactions and a 1993 Nobel Prize recipient in chemistry; Gilbert F. Amelio (1965, 1967, 1968), former chairman and CEO, Apple Computer; and Nancy "Jan" Davis (1975), astronaut.

## College of Engineering

From the opening of the Institute and the establishment of the School of Mechanical Engineering in 1888, the College of Engineering has continually grown. Today, the College incorporates ten degree-granting units with a fall 2005 full-time enrollment of 9,124 students. It consistently ranks among the top five engineering schools in the country, both in size and program quality.

The current dean of the College, Don P. Giddens (1967), earned all three of his degrees at Tech. Other outstanding alumni include Ronald Wayne Allen (1964), former chairman and CEO, Delta Air Lines; C. Garry Betty (1979), CEO, EarthLink; former President Jimmy Carter (1946); Michael T. Duke (1971), president and CEO, Wal-Mart USA; Thomas L. Gossage (1957), former chairman, president, and CEO, Hercules; H. Scott Howell (1951), executive vice president (retired), Russell Corp.; James R. Jolly Jr. (1964), chairman and CEO, Johnson and Johnson Industries; John W. Keys III (1964), commissioner, U.S. Bureau of Reclamation; Thomas J. Malone (1963), executive vice chairman (retired), Milliken and Co.; Sandra H. Magnus (1996), NASA astronaut; David A. Perdue (1972, 1976),

22.

chairman and CEO, Dollar General; Agustin A. "Gus" Ramirez (1968, 1969), chairman, president, and CEO, Husco International; Malcolm T. Stamper (1946), vice chairman of the board, Boeing Co.; Robert T. "Bobby" Jones (1922), worldrenowned golfer; Arthur Murray (1923), legendary dance instructor; and George W. Woodruff (1917), philanthropist.

### Athletics

At Georgia Tech, academics and athletics truly do mix, and the Institute is rich in both traditions. Tech competes on the NCAA Division I level within the twelvemember Atlantic Coast Conference, a league that places high emphasis on academics. Memorable alumni include Robert Tyre "Bobby" Jones, 1930 winner of golf's Grand Slam; Olympic track gold medalists Antonio McKay, Derrick Adkins, and Derek Mills; basketball standouts Mark Price and John Salley; baseball greats Nomar Garciaparra and Jason Varitek; professional golfers David Duval, Stewart Cink, and Matt Kuchar: and fourteen members of the National Football Foundation's College Football Hall of Fame.

Tech athletes have been led by legendary coaches such as Bobby Dodd, 1945-66; John Heisman, 1904-19; William Alexander, 1920-44; John "Whack" Hyder, 1952-73; and Bobby Cremins, 1982-2000.

Intramural sports are available to all students. More than twenty activities, ranging from crew to weight training, are offered.

Georgia Tech Research Institute

The Georgia Tech Research Institute (GTRI) is the nonprofit, applied research arm of the Georgia Institute of Technology. GTRI conducts groundbreaking research, educational programs, and economic development initiatives that advance the global competitiveness and security of Georgia, the region, and the nation.

The GTRI team includes many of the nation's leading researchers,

who spend each day helping make the world a better, safer place.

GTRI's approximately 1,200 employees perform or support more than \$130 million in research yearly for clients in federal, state, local, and international government agencies, industrial firms, academic institutions, and private organizations.

Research areas include aerospace, transportation, advanced systems, electronics systems, electro-optics, environmental science, materials characterization, information technology and telecommunications, sensors, electromagnetic applications, and signatures technology, among others.

GTRI's work promotes Georgia's industrial and economic development; encourages development of Georgia's natural resources; and supports national programs of science, technology, emergency preparedness, national defense, and homeland security.

Library and Information Center

The Georgia Tech Library functions as a client-oriented information center focusing on the data and information needs of students, faculty, and staff.

The first library of Georgia Tech was established in 1899 and consisted of a room in the Administration Building housing fewer than two thousand volumes. Now the library contains more than 1 million volumes, a complete collection of U.S. patents, and more than 2 million technical reports, government documents, and industrial standards.

The explosion of scientific and technical information and the advent of computing, networking, and multimedia technologies are the foundation of the evolution of the library from a building of books to a learning and information center. The library was the first in the nation to provide local online information retrieval capabilities.

The Georgia Tech Electronic Library offers a variety of databases to students and faculty for research, class assignments, and personal information.

Praditions.

## Academic Regalia

The academic regalia worn by today's participants is a colorful relic dating back to the Middle Ages, when education was a function of religious organizations. The monks' habit and the cowl worn over their heads were predecessors of the modern black gowns and hoods. The mortarboard was developed from the skullcaps worn during medieval days by churchmen officiating at religious services.

In 1894, American universities standardized gown styles for the three different types of degrees. Doctoral degree candidates wear the traditional black gown with full, round sleeves, velvet facings on the front, and velvet bars on the sleeves. Hoods are lined with the color of the university granting the degree. Hoods at Georgia Tech are lined in white and gold. The doctoral hood is distinguished by its blue trim, which is the color representing philosophy.

Master's degree candidates also wear the traditional black gown with full-length square sleeves that have a crescentshaped piece hanging from each sleeve. The master's hoods are also lined in white and gold and are distinguished on the outside by gold trim, the color of science. Recipients of the bachelor's degree at Tech wear a plain black gown and no hood.

Caps used by all Tech graduates are traditional mortarboards, and tassels are white and gold.

The Bachelor's Degree: The bachelor's degree is the oldest academic degree used by American colleges and universities. The degree, which represents completion of a fouryear course of study, was first awarded in 1642 to the graduating class of Harvard College.

The Master's Degree: The master's degree represents the completion of one or two years of study beyond the bachelor's degree. The degree

dates back to the oldest universities in Europe and usually requires a thesis and an oral examination.

The Doctoral Degree: The doctoral degree is the most advanced academic degree conferred by American institutions of learning. "Doctor," which means teacher or instructor, was used as a title in the twelfth century to denote men of great learning.

The Alma Mater

Music by Frank Roman Words by I. H. Granath

Oh, sons of Tech, arise, behold! The Banner as it reigns supreme, For from on high the White and Gold Waves in its triumphant gleam. The spirit of the cheering throng Resounds with joy revealing A brotherhood in praise and song, In memory of the days gone by. Oh Scion of the Southland! In our hearts you shall forever fly. We cherish thoughts so dear for thee, Oh, Alma Mater in our prayer. We plead for you in victory, And in the victory we share! But when the battle seems in vain Our spirits never falter, We're ever one in joy or pain And our union is a lasting bond. Oh! May we be united Till the victory of life is won.

The Ramblin' Wreck

I'm a Ramblin' Wreck from Georgia Tech And a hell of an engineer A helluva, helluva, helluva Helluva, hell of an engineer. Like all the jolly good fellows, I drink my whiskey clear. I'm a Ramblin' Wreck from Georgia Tech And a hell of an engineer.

Oh! If I had a daughter, sir, I'd dress her in white and gold And put her on the campus To cheer the brave and bold. But if I had a son, sir I'll tell you what he'd do— He would yell "To Hell with Georgia" Like his daddy used to do. Oh! I wish I had a barrel of rum And sugar three thousand pounds, A college bell to put it in, And a clapper to stir it 'round. I'd drink to all good fellows Who come from far and near. I'm a Ramblin', Gamblin' Hell of an engineer.

Commencement Committee

Alumni Programs David Stokes

Announcer Dr. Vicki Galloway and Dr. William Johnson

Campus Police Police Chief Teresa Crocker and staff

Ferst Center Theatre Aishah Pacheco and staff

Graduate Studies Maureen Kilroy and Tatianna Matthews

Institute Communications and Public Affairs Aimee Anderson, David Arnold, Mark Baran, Rob Felt, Eric Huffman, Laura Kenney, Megan McRainey, Angie Spann, and Lindsay Sprung

Music Department Terri Bassett, Frank Clark, Ron Mendola, Christopher Moore, and Jerry Ulrich

Parking Office Robert Furniss and staff

Plant Operations Brandon Ford and Staging staff

Registrar's Office Candy Carson, LaWanda Cole, Ann Laros, David Lowery, Reta Pikowsky, Deanna Sterns, Debbie Williamson, Craig Womack, and staff

Student Affairs (AdAPTS) Tameeka Hunter

White and gold ribbons on today's diplomas were hand-tied by disabled employees of the Bobby Dodd Center in Conyers, Georgia. Former Georgia Tech Coach Bobby Dodd was instrumental in securing funding for the vocational rehabilitation training facility that bears his name.

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24

