Real Time

Electrical and Computer Engineering Department

The University of Alabama in Huntsville

Spring 2005

National Defense Industrial Association Post Graduate Fellowship Award Recipients

ECE NDIA Post Graduate Fellowship recipients (from left to right) Sean Moultrie, Jonathan Carlson, Dane Phillips, William Lovelace, and Spencer Cole.

Five Graduate students in the ECE Department at UAH received a National Defense Industrial Association (NDIA) Space and Missile Defense Post Graduate Fellowship Award. The Awards were presented on April 28th at the National Defense Industrial Association, Tennessee Valley Chapter, annual awards dinner at the Huntsville Marriott.

Three of the recipients, Spencer Cole, Sean Moultrie, and Dane Phillips, work with Dr. Richard Fork in the Optics Program in ECE primarily pursuing high energy laser research and laser power beaming. Jonathan Carlson and William Lovelace, also fellowship awardees, are pursuing their research under the guidance of Dr. Jennifer English in the Electrical Engineering Program in the area of MEMS (Micro Electro-Mechanical Systems).

There were only seven Post Graduate awards available to the Tennessee Valley Chapter of the NDIA, which includes Southern Tennessee and Northern Alabama. The remaining two fellowships went to Vanderbilt and Auburn. At the time of the original request for fellowship applications it was stated that there would only be five awarded. Due to the record response and "quality of the applicants" this number was increased to seven. This is a great compliment to the ECE graduate program and the research being done at UAH relating to the defense industry.

If you would like more information on the NDIA-TVC please visit www.ndia-tvc.org.

Jonathan Berry Awarded the NDIA Undergraduate Software Engineering Scholarship

Jonathan Berry was awarded a National Defense Industrial Association Software Engineering Scholarship in March 2005. The Scholarship was presented by Jim Pepper, President of National Defense Industry Association, Tennessee Valley Chapter, along with Joel Thomas (past President) and Dr. Reza Adhami, ECE Chair.

Jonathan graduated from Whitesburg Baptist Christian School in 2002 and is currently a Computer Engineering major in his junior year, minoring in Mathematics. He took Calculus at UAH as a senior in high school through the dual-enrollment program. He has worked for the past two years at the National Space Science and Technology Center (NSSTC) with the Gamma Ray Astronomy group for UAH. He plans to work part-time at Advanced Optical Systems (AOS) this summer.

Jonathan is on the College of Engineering Dean's List and is an Honor Scholar. He received the UAH Platinum Award scholarship and a scholarship for being a National Merit Scholar Finalist. He is a member of the Alpha Lambda Delta, Tau Beta Pi, Eta Kappa Nu, and Phi Kappa Phi honor societies.

Jonathan is an Eagle Scout and is active in his College group at church, helping with the technical aspects of the contemporary worship service when he has time.

Jonathan Berry (2nd, left) accepts the award from Jim Pepper (left), President of the National Defense Industrial Association, Tennessee Valley Chapter, with Joel F. Thomas, Past President, and Dr. Reza Adhami, ECE Dept. Chair.

Commencement 2004-2005, ECE Graduates

Doctors of Philosophy

Jian Fu Hefei — **P.R. China**
Field: Computer Engineering
Dissertation: "Joint Exploration of Artificial Color and Margin Setting: An Innovative Approach in Color Image Segmentation"
Advisor: Dr. Seong-Moo Yoo

Ayman K. Ghobrial — **Huntsville, Alabama**
Field: Electrical Engineering
Dissertation: "Interference Mitigation in DSL Systems"
Advisor: Dr. Reza Adhami

Don R. Krupp, Jr. — **Madison, Alabama**
Field: Electrical Engineering
Dissertation: "Dynamic Sliding Manifold-Based Control in Systems with Unmodeled Cascade Dynamics"
Advisor: Dr. Yuri Shtessel

Peter Martin Meenen III — **Nashville, Tennessee**
Field: Electrical Engineering
Dissertation: "A Multi-Level Fingerprint Feature Extraction and Verification System Using Pores"
Advisor: Dr. Reza Adhami

Milena Milenkovic — **Madison Alabama**
Field: Computer Engineering
Dissertation: "Architectures for Run-Time Verification of Code Integrity"
Advisor: Dr. Emil Jovanov

Craig H. Newborn II — **Harvest, Alabama**
Field: Electrical Engineering
Dissertation: "A Mems Ceramic Vertical Leaf Spring Actuator"
Advisor: Dr. Jennifer English

Randall Mark Tillman — **Huntsville, Alabama**
Field: Electrical Engineering
Dissertation: "Response of First-Order and Second-Order Phase-Locked Loops to the Sum of Sinusoidal Signals"
Advisor: Dr. John Stensby

Michael D. Watson — **Madison, Alabama**
Field: Electrical Engineering
Dissertation: "Electrical Transfer Function and Poling Mechanisms for Nonlinear Optical Polymer Modulators"
Advisor: Dr. M. Abushagur

Jingbo Cai Kunming — **P. R. China**
Field: Optical Science and Engineering
Dissertation: "Rigorous Analysis and Design of Compact Photonic Components"
Advisor: Dr. Gregory P. Nordin

Jaime Cardenas Gonzalez — **Monterrey, Mexico**
Field: Optical Science and Engineering
Dissertation: "Microphotonic Devices for Compact Planar Lightwave Circuits and Sensor Systems"
Advisor: Dr. Gregory P. Nordin

Bin Wang — **Huntsville, Alabama**
Field: Optical Science and Engineering
Dissertation: "Compact Waveguide Grating Couplers Operating in the Strong Coupling Regime"
Advisor: Dr. Gregory P. Nordin

Masters of Science

Kranti Ram Agrawal (Electrical) — Huntsville, Alabama
Shadi A. Alboon (Electrical) — Irbid, Jordan
Reetika Bhandari (Computer) — New Delhi, India
Robert L. Brakefield III (Electrical) — Harvest, Alabama
Rodger Lloyd Burcham (Electrical) — Huntsville, Alabama
Thomas Michael Burleson (Electrical) — Huntsville, Alabama
Chen Jay Chang (Electrical) — Taipei, Taiwan
Preston Chidubem Chidebelu (Electrical) — Harvest, Alabama

Masters of Science (continued)

Jeremy Edward Clark (Electrical) — **O'Fallon, Missouri**
Thesis: "The Effects of Disturbance-Modeling Errors on Performance of Disturbance Accommodating Control (DAC) Systems"
Advisor: Dr. Carroll D. Johnson

Dennis Clinton Cox (Electrical) — Huntsville, Alabama
Jonathan Erman Creekmore (Electrical) — Madison, Alabama
Jonathan Thomas Densford, Jr. (Electrical) — Huntsville, Alabama
Jeremy Daniel Duncan (Electrical) — Boaz, Alabama
April Freeman Gero (Electrical) — Cullman, Alabama
Joel Stephen Gonepogu (Electrical) — Tirupathi, India
Susan Carole Green (Electrical) — Gurley, Alabama

Charles E. Hall (Electrical) — **Huntsville, Alabama**
Thesis: "Sliding Mode Control of a Reusable Launch Vehicle Using Sliding Mode Observers and Gain Adaptation"
Advisor: Dr. Yuri Shtessel

Maulik Handiwala (Electrical) — **Baroda, India**
Thesis: "Transform Domain Adaptive Filtering Based on Modified Orthogonal Transformation and Modified Normalization"
Advisor: Dr. Alexander Poularikas

Susan Carol Hill (Electrical) — **Huntsville, Alabama**
Thesis: "Electromagnetic Excitation of Dielectric Cylinders"
Advisor: Dr. John M. Jarem

Dennis Wayne Hite (Electrical) — **Huntsville, Alabama**
Thesis: "A Simple Fermi-Dirac Integrator Using a Transistor Pair Differential Amplifier"
Advisor: Dr. TImothy B. Boykin

Kyle D. Hittle (Electrical) — **Madison, Alabama**
Thesis: "Numerical Implementation of Ampere's Force Law Between Two Arbitrary Current Systems"
Advisor: Dr. Nagendra Singh

Kavitha Kanagaraj (Electrical) Chennai, India
Bhupinderjit Kaur (Electrical) Huntsville, Alabama

Parisa Kaveh (Electrical) — **Tehran, Iran**
Thesis: "Harmonic Oscillator Control Using Traditional and High Order Sliding Modes"
Advisor: Dr. Yuri Shtessel

Igor G. Khazanov (Electrical) — **Madison, Alabama**
Thesis: "2-D EMCodes for Simulating Alfven Waves"
Advisor: Dr. Nagendra Singh

Richard Paul King (Electrical) — Gautier, Mississippi

Deen Kotturi (Electrical) — **Khammam, India**
Thesis: "An AES-128 Crypto Chip Using a High Speed Parallel Pipelined Architecture"
Advisor: Dr. Seong-Moo Yoo

Mahesh Krishnakumar (Electrical) — Chennai, India
Abhishek Krishnamurthy (Computer) — Huntsville, Alabama
Daniel W. Lambert (Computer) — Huntsville, Alabama
Gurunath Rao Mallapragada (Computer) — Visakhapatnam, India
Anna Ivanovna McGary (Computer) — Madison, Alabama

Adityasankar Medury (Electrical) — **Mumbai, India**
Thesis: "Structural Fault Diagnostics in Phase-Locked Loops"
Advisor: Dr.John L. Stensby

Shrife Mohamed Mohamed (Electrical) — Madison, Alabama

Manish Mohan (Electrical) — **Chennai, India**
Thesis: "A Load Based Hybrid Routing Protocol for Mobile Ad Hoc Networks"
Advisor: Dr. Emil Jovanov

Mahesh Nalasani (Electrical) — **Huntsville, Alabama**
Thesis: "Motion Estimation Algorithms Based on Motion Models"
Advisor: Dr. David Pan

Balaji Nallakannu (Electrical) — Huntsville, Alabama

Dane J. Phillips (Electrical) — **Houston, Texas**
Thesis: "Maximizing Photovoltaic Potential for Laser Power Beaming Applications"
Advisor: Dr. Richard L. Fork

Sundar Purusothaman (Electrical) — Chennai, India
Kavitha Raghavan (Electrical) — Huntsville, Alabama
Zayed M. Ramadan (Electrical) — Huntsville, Alabama
Pallavi Sredhar Rao (Electrical) — Mysore, India
Joseph Crawford Robinson (Electrical) — Madison, Alabama

Carole Christiane Sadate (Electrical) — **Waounde, Cameroon**
Thesis: "Spectral Estimation of Segmented Signals"
Advisor: Dr. Alexander Poularikas

Masters of Science (continued)

Jason Edward Schock (Electrical)	Metairie, Louisiana
Mukesh Sehgal (Computer)	New Delhi, India
James Edward Stott, Jr. (Electrical)	**Milwaukee, Wisconsin**
Thesis: "Reusable Launch Vehicle Attitude Controls Using TIme Varying Sliding Modes"	
Advisor: Dr. YuriShtessel	
Fathima Ayesha Tareen (Electrical)	Hyderabad, India
Smitha Teegala (Electrical)	Hyderabad, India
Thomas James Thrasher (Electrical)	Rogersville, Alabama
Praveen Kumar Tirunagari (Electrical)	Hyderabad, India
Vinuthna Vattikonda (Computer)	**Hyderabad, India**
Thesis: "Hardware Implementation of Stream BasedTrace Compression"	
Advisor: Dr. Rhonda K. Gaede	
Anant Gopalakrishnan Veeravalli (Electrical)	Chennai, India
Badrinath Venkatesan (Computer)	Chennai, India
Patrick Shane White (Electrical)	Cullman, Alabama
Chandra S. Yatharla (Electrical)	Hyderabad, India
Ri On Yi (Electrical)	Madison, Alabama

Masters of Science in Software Engineering

David Austin (Software)	Huntsville, Alabama
Michael Keegan Baum (Software)	Huntsville, Alabama
David William Boyett (Software)	Huntsville, Alabama
Edward Carpenter (Software)	Harvest, Alabama
Holly Shea Garrison (Software)	Huntsville, Alabama
Brooks James Mattox (Software)	Madison. Alabama
Marsha Nicole Robinson (Software)	Lacey's Spring, Alabama
Matthew Thomas Sweet (Software)	Huntsville. Alabama
Peter Robert Trenkle (Software)	Huntsville, Alabama
Jana L. Wooten (Software)	Huntsville. Alabama

Bachelors of Science

Preston L. Adams (Electrical)	Madison, Alabama
*Nicholas Orion Allaway (Electrical)	Athens, Alabama
David Lee Ashby (Electrical)	Winchester, Tennessee
Lemuel Cole Barnes (Computer)	Huntsville, Alabama
Shane Oneal Basham (Computer)	Somerville, Alabama
Crystal Michelle Beard (Electrical)	Killen, Alabama
Bradley Andrew Beckman (Electrical)	Madison, Alabama
Christopher M. Best (Electrical)	Huntsville, Alabama
Mason Bibles (Electrical)	Portland, Oregon
Jason Giles Bradford (Electrical)	Winchester, Tennessee
*Elissa Marie Daniel Brelland (Electrical)	Huntsville, Alabama
Christopher M. Brown (Electrical)	Flintville, Tennessee
Kristine G. Brown (Electrical)	Huntsville, Alabama
Wesley Michael Brown (Computer)	Athens, Alabama
Nicholas Stephen Bryant (Computer)	Trussville, Alabama
Clarissa Nicole Byrd (Optical)	Huntsville, Alabama
Matthew C. Cabaniss (Electrical)	Florence, Alabama
Stephen Mark Cagle (Electrical)	Huntsville, Alabama
Eulice Abigail Chapman (Electrical)	Huntsville, Alabama
William Drake Clark (Computer)	Florence, Alabama
James Adam Collins (Electrical)	Huntsville, Alabama
Stephen E. Conover (Electrical)	Huntsville, Alabama
Lloyd Lee Copeland II (Electrical)	Lewisburg, Tennessee
Jeffrey Paul Cotten (Computer)	Huntsville, Alabama
Stephen Joseph Cross (Electrical)	Pittsburgh, Pennsylvania
*John Russell Crosswy (Electrical)	Tullahoma, Tennessee
*Cara Nicole Cummins (Electrical)	Muscle Shoals, Alabama
John Angelo Curreri (Computer)	Huntsville, Alabama
Daniel Reid Davenport (Electrical)	Madison, Alabama
John Esten Davenport (Computer)	Huntsville, Alabama
*Jeremy Ray Davidson (Electrical)	Boaz, Alabama
Thu Thi Duong (Electrical)	Madison, Alabama
Joseph Egbe Egbe (Electrical)	Memphis, Tennessee
LaToya Renee Eggleston (Electrical)	Huntsvil1e, Alabama
Ibrahim Izzeldin Elsaeed (Computer)	Huntsville, Alabama
*LaToya Sharee Epps (Electrical)	Huntsville, Alabama

Bachelors of Science (continued)

Thomas Christian Farless (Electrical)	Huntsville, Alabama
Randell Harold Forrester III (Computer)	Moulton, Alabama
Miles Thomas Foshee (Electrical)	Decatur, Alabama
Chadwick Eugene Garber (Computer)	Huntsville, Alabama
Joseph Shane Gordon (Computer)	Athens, Alabama
Michael Brad Hamilton (Electrical)	Huntsville, Alabama
*Derek Austin Harkins (Computer)	Harvest, Alabama
Brian Marshall Harrison (Computer)	Huntsville, Alabama
Gabriel Roy Hester (Electrical)	Russellville, Alabama
Marshonia Chantell Hubbert (Electrical)	Guin, Alabama
Craig Scott Igo (Electrical)	Meridianville, Alabama
Tabitha Michelle Ivey (Electrical)	Huntsville, Alabama
Eric William Jackson (Computer)	Huntsville, Alabama
John Brandon Jett (Computer)	Cul1man, Alabama
Jonathan Ross Jones (Electrical)	Ashville, Alabama
Edward Katamba (Electrical)	Kambala, Uganda
Kevin Kee (Electrical)	Madison, Alabama
David Courtney Keith (Electrical)	Chattanooga, Tennessee
David Anthony Kel1ey (Computer)	Toney, Alabama
Randall Timothy Knight (Electrical)	Haleyvil1e,Alabama
Justin Scott Knighten (Electrical)	Union Grove, Alabama
Bryan Michael Layne (Electrical)	Hazel Green, Alabama
Kevin Michael League (Electrical)	Albertville, Alabama
Darren J. Lil1ey (Electrical)	Huntsville, Alabama
Joshua R. Lovvorn (Electrical)	Decatur, Alabama
Mark Paul Mann (Electrical)	Madison, Alabama
Rodge Maxwel1 (Computer)	Madison, Alabama
Marcy Eileen McDonald (Electrical)	Athens, Alabama
*Brandon Jay Miller (Electrical)	Crossville, Tennessee
Michael James Milly (Electrical)	Harvest, Alabama
Douglas Troy Eric Moore (Computer)	Huntsville, Alabama
*Brian Morris (Electrical)	Chattanooga, Tennessee
Sean Dylan Moultrie (Optical)	Huntsville, Alabama
James Brian Murphy (Computer)	Prospect, Tennessee
Michael G. Murphy II (Electrical)	Flintvil1e,Tennessee
Jeffery Wayne Norman (Electrical)	Huntsville, Alabama
Kyle Dustin Olson (Computer)	Navarre, Florida
Karen Moreland Potter (Electrical)	Huntsville, Alabama
Chadwick Stephen Pressnell (Electrical)	Athens, Alabama
Gregory Charles Preston (Electrical)	Hartselle, Alabama
Larry Brandon Rhodes (Electrical)	Decatur, Alabama
Jason LeVoy Rogers (Electrical)	Decatur, Alabama
Amanda A. Rose (Optical)	Huntsville, Alabama
Corey Lamar Sanders (Computer)	Birmingham, Alabama
*Amy Hovater Sapp (Electrical)	Mount Hope, Alabama
Roy James Seaton, Jr. (Electrical)	Newton, Alabama
Dustin Donavon Sierk (Computer)	Huntsville, Alabama
Joshua Caleb Smith (Electrical)	Littleville, Alabama
*Keith Carol-Marcus Smith (Electrical)	Huntsville, Alabama
Nathan T. Smith (Electrical)	Decatur, Alabama
Seung-mi Son (Electrical)	Madison, Alabama
*Carol Elaine Steelman (Electrical)	Hazel Green, Alabama
Jonathan Ryan Stephens (Electrical)	Hazel Green, Alabama
Fernando Jose Tajalle (Electrical)	Huntsville, Alabama
Daichi Tanaka (Electrical)	Anniston, Alabama
Kevin N. Wade (Computer)	Newton, Iowa
Jesse Lymon West (Electrical)	Huntsville, Alabama
Jennifer Michelle Whitton (Electrical)	Rainsville, Alabama
*Olufemi Williams (Electrical)	Lagos, Nigeria
Christopher James Wolfe (Electrical)	Hazel Green, Alabama
Patricia Z. Wright (Electrical)	Madison, Alabama
Stephen David Yarbrough (Electrical)	Decatur, Alabama
Drew Johnson Young (Computer)	Athens, Alabama
James DouglasYoung, Jr. (Computer)	Huntsville, Alabama
Minhas Zaman (Electrical)	Ooha Qatar, Pakistan

*Summer Candidate

Distinguished Engineers – 2005 Alumni Awards

Dr. Lori Mann Bruce

Dr. Lori Mann Bruce received the College of Engineering Distinguished Engineer Alumni Award in 2005 for her outstanding contributions in Electrical and Computer Engineering.

Dr. Lori Mann Bruce earned her Bachelor of Science degree in 1991 and Doctor of Philosophy degree in 1996 from the University of Alabama in Huntsville and her Master of Science degree in 1993 from the Georgia Institute of Technology. All three degrees are in Electrical and Computer Engineering.

Dr. Bruce is a Professor in Electrical and Computer Engineering at Mississippi State University. She is also a member of the research faculty with the Geospatial Resources Institute at Mississippi State University. Prior to joining Mississippi State University, Dr. Bruce was a faculty member at the University of Nevada, and she previously worked on the research staff of the U.S. Army Strategic Defense Command.

Dr. Bruce's main areas of research include advanced feature extraction and automated target recognition methods for remotely sensed images and for medical images. Her work in remote sensing has led to the use of multi-temporal and hyper-spectral satellite imagery for detecting and tracking the spread of invasive species in the U.S. Her work in medical imaging has led to the design of computer aided diagnosis systems for the early detection of breast cancer.

Dr. Bruce's research has been funded primarily by the National Aeronautics and Space Administration (NASA), the U.S. Department of Energy Remote Sensing Laboratory, and the National Science Foundation. She has been invited to present her research around the nation and the world, including Belgium, France, Italy, and Australia. Dr. Bruce's outstanding research has led to more than 85 refereed journal and conference publications.

Dr. Bruce has taught more than 30 courses, including graduate courses in the areas of digital signal processing, digital image processing, and automated target recognition, as well as undergraduate courses such as digital devices, electronics, and signals and systems. Dr. Bruce greatly values her role as an educator, and it is no surprise that she is well loved by her students and has won several teaching awards.

Dr. Robert Berinato

Dr. Robert Berinato received the College of Engineering Distinguished Engineer Alumni Award in 2005 for his outstanding contributions in Electrical Engineering.

Dr. Berinato earned his Master of Science and Doctor of Philosophy degrees in Electrical Engineering from the University of Alabama in Huntsville (UAH) in 1987 and 1993, respectively. He earned his Bachelor of Science in Applied Physics and Bachelor of Mechanical Engineering degrees from Georgia Tech in 1985.

Since 1985, Dr. Berinato has been employed at Dynetics, Inc., in Huntsville AL. His work at Dynetics has focused on sensor system analysis and design, including technical and leadership responsibilities in the areas of radar and optical signal processing, missile seeker analysis, prototype hardware development, and foreign technology assessments. This work has resulted in 3 patents over 60 technical publications. Dr. Berinato also leads the highly-successful "Dynetics University" technical education program, which provides internal education opportunities for employees with courses taught by employees.

Dr. Berinato was recognized by the Huntsville IEEE chapter as the Outstanding Educator in 2004 for his part-time teaching activities. Since 1995, Dr. Berinato has served as an adjunct professor in the Electrical Engineering Department of the UAH, teaching courses in the areas of communication theory, signal and systems analysis, random processes, and information theory. Dr. Berinato has also been active teaching Short Courses through the UAH Professional Development program since 2000, including courses in radar signal processing, radar-guided missiles, optical system design and analysis, sensor fusion, and tri-mode seeker technology.

Dr. Berinato has been a member of many scientific and professional societies including IEEE Information Theory Society, IEEE Signal Processing Society, Mathematical Association of America, Optical Society of America, SPIE, and the Huntsville Alliance for Optical Technology.

College of Engineering
2004-2005 Outstanding ECE Student Awards

Outstanding Student in Optical Engineering Amanda Rose

Amanda Rose completed the requirements for a BSE with an option in Optical Engineering in May 2005.

Amanda's many activities and awards include: Co-op with US Army Space and Missile Defense Command; UAH National Science Foundation Scholarship; Who's Who Among American College Students; UAH Charger Chaser; Undergraduate Tutor for Engineering Student Affairs; Past President of UAH Student Chapter of SPIE (The International Society of Optical Engineers), which she helped reestablish; Past Senator in Student Government Association and served as Organization Chair; Past Vice-President and Corresponding Secretary of Tau Beta Pi Honor Society (UAH Student Chapter); Past Vice President of Society of Women Engineers (UAH Student Chapter).

Amanda has accepted a job with General Dynamics in Scottsdale, Arizona after graduation.

Outstanding Student in Computer Engineering John Curreri

John Curreri completed the requirements for a BSE with an option in Computer Engineering in May 2005 .

John's many activities and awards include: UAH Academic Excellence Scholarship; National Industrial Association Software Engineering Scholarship; Past Treasurer of Eta Kappa Nu Honor Society; Member of the Eta Kappa Nu, Phi Kappa Phi, Alpha Lambda Delta, Tau Beta Pi Honor Societies; Volunteer service to the Technology Assistance for Special Consumers building computers for individuals with disabilities; as a hobby he collects the world's brightest light emitting diodes. While at Grisson High School he won 1st Place in Engineering and Grand Prize the 1997 Alabama State Science and Engineering Fair.

John plans to pursue a PhD degree in Electrical and Computer Engineering after graduation.

Outstanding ECE Graduate Student Askan Ashrafi

Ashkan Ashrafi received his BSEE and MSEE degrees from K.N. Toosi University of Technology, Tehran, Iran and MSE degree in Electrical Engineering from the University of Alabama in Huntsville, Huntsville, AL, in 1991, 1995 and 2004, respectively (all with honors). He is currently working toward a Ph.D. degree in the Department of Electrical and Computer Engineering at UAH.

Ashkan is a graduate teaching assistant, teaching undergraduate courses in the area of signals and systems. His research interests are analog and mixed-signal circuit and systems, direct digital frequency synthesizers and matrix theory and applications. He is a member of IEEE and has attained membership in the honor society of Phi-Kapa-Phi. Ashakan has been on Dean's List since he began his education at UAH.

Ashkan has co-authored 8 journal articles and 9 conference papers.

Outstanding Student in Electrial Engineering Carolina Huamani

Carolina Huamani completed the requirements for a BSE with an option in Electrical Engineering in May 2005.

Carolina's many activities and awards include: Finished her undergraduate degree in three years straight out of high school where she earned 27 Advanced Placement credit hours; Worked with the University's Hands-On Activity Science Program to develop Math and Science projects for Middle Schools; UAH Platinum Scholarship as both a Hispanic finalist and a National Merit finalist in the PSAT; COE Joseph C. Dowdle Scholarship; Member of Tau Beta Pi Honor Society.

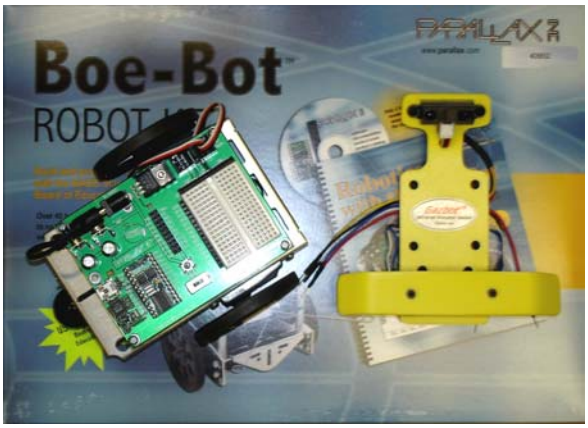
Carolina plans to pursue a Master's Degree in engineering in the area of robotics after graduation.

Electrical and Computer Engineering Laboratories

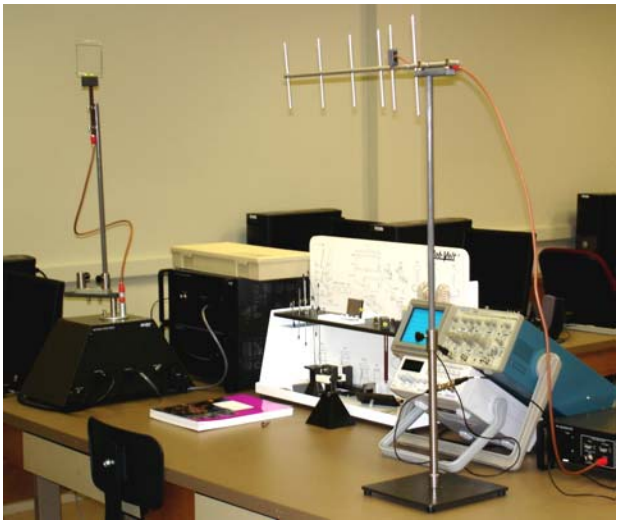
By: Dennis Hite
ECE Laboratory Manager

The department is continuing to upgrade the laboratory computers. Over the past two months the Communication Systems, ADTRAN TDP, Dynamic Systems Simulation/Computation, and both EE Senior Design laboratories have had Pentium 4 computers and flat screen monitors installed. If funds become available the Micro-computer, Rapid Prototyping, Digital Signal Processing / Micro-controller, and the CPE Senior Design laboratories are scheduled for upgrades in 2006.

In an effort to improve the laboratory associated with the Fundamentals of Computer, Electrical and Optical Engineering course several projects will be added in the fall 2005 term. The planned additions are, five Parallax Boe-Bot Robots including several sensor add-on modules, a Lab-Volt Antenna Training and Measuring System, and two FACET training modules from Lab-Volt, the Fiber Optic Communications module and the Digital Signal Processor module. The new projects should provide students taking EE100 an opportunity to explore several topics covered in the Computer, Electrical, and Optical Engineering curriculum.



The Parallax Boe-Bot Robot with infrared distance sensor.



The Lab-Volt Antenna Training and Measuring System.

UAH Wins 2nd Place in Hardware Competition at IEEE SoutheastCon

UAH Electrical and Computer Engineering students took second place in the IEEE SoutheastCon Student Hardware Competition held at Fort Lauderdale, FL on April 9th. The student design team, led by team captain Austin Harkins (CPE), and several members of the UAH IEEE Student Branch, traveled to Florida after two semesters of preparation. The ECE students designed three independent robots to vie for the honor of representing UAH.

Josh Lovvorn and Austin Harkins with the winning robot.

2nd Place trophy.

Winning design team members (for the Fall Semester) included Jerry Davidson (EE), Austin Harkins (CPE), Jonathon Jones (EE), and Joshua Lovvorn (EE). ***The project was continued, and the robot completely re-built, in the Spring semester by Austin Harkins and Joshua Lovvorn.*** Austin and Josh were supported at the competition by student branch members Ande Boyer, Corey Johnson, Matt McDougal, Simon Porter, Taka Shikero, and Joseph Swanson.

Of the thirty nine teams that registered for the hardware competition, twenty seven qualified and of those only nine completed at least two of the three rounds. UAH was the only team to complete all three rounds without disqualification. After the first two rounds UAH was in the lead; after the third round, Mississippi State was first with 200 points, UAH second with 180 points, and the rest of the field was far behind. In the final round, held during the society banquet, both UAH and Mississippi State scored the maximum number of points, with Mississippi State winning the time-based tie breaker.

This year's competition was on a 4x8 foot, black playing field marked off with white line boundaries and little else. The task was to start on a signal from an IR LED and collect five ½ inch metal balls in holes at the other side of the starting square. Opposing robots started on opposite sides of the playing field. The rules required returning to the starting square within the five minute time limit. The UAH robot used line sensors for navigation, a BasicX microcontroller, and rare earth magnets that were raised and lowered by a small servo motor to collect the balls. The robot navigated to the center of the collection area and used a spiral search pattern to retrieve the balls. The Mississippi State robot used stepper motors and open loop control to make a lawn mower style sweep of the playing field.

These competitions involve a lot of hard work, perseverance, and skill. Corey Johnson, IEEE Student Branch Present, expressed his experience as "We feel this year has been a success because of how much each person has learned. Charger IEEE is very excited about next year". Team captain Austin Harkins observed that, "This experience allowed me to bring together knowledge from a variety of different disciplines into one challenging project. Everything from math to microcontrollers. It was a lot of hard work, but I would recommend doing this to anyone." There are other rewards as well. During the competition Western Digital offered to fly Josh and Austin to California for job interviews.

UAH participates in the hardware competition each year, placing first in 2000. We are looking ahead to the 2006 competition to be held in Memphis.

The 2005 Linda Mauldin Hooper Outstanding ECE Staff Service Awards

Angelia Heulett
Staff Assistant

Angelia Heulett was presented with the 2005 Linda Mauldin Hooper Outstanding Staff Award at an ECE social evening on April 28, 2005 at Lowe House in downtown Huntsville.

Angelia joined the ECE staff in January 2003, working with ABET documentation and personnel action forms for the department.

As Staff Assistant, Angelia is ECE's ABET coordinator and is also responsible for all PAF's, Timesheets, Retro's and PAR's for the ECE Department which includes full-time and part-time faculty, staff, undergraduate students, GTA's and GRA's.

Before joining us, Angelia worked at Alabama A&M University for 4 years as a Secretary for the Departments of Marketing and Office Systems Management and for the Madison/Marshall County Chapter, American Red Cross for 9 years.

Jo Ferrando
Staff Assistant

Jo Ferrando was presented with the 2005 Linda Mauldin Hooper Outstanding Staff Award at an ECE social evening on April 28, 2005 at Lowe House in downtown Huntsville.

Jo Ferrando joined the ECE staff in April 2004 as the technical Staff Assistant.

As Staff Assistant, Jo's duties include preparing draft and final copies of professional conference manuscripts and proposals submitted electronically to NSF and NASA, formatting camera-ready technical papers for professional journals, and scanning documents, graphics, and photos for the ECE Dept.

Jo also spent over 16 years in the military in Personnel and Logistics fields. She served as both military instructor and drill instructor in the Maryland Army National Guard NCO and OCS academies.

The 2005 Iliana Martin Chittur Outstanding ECE Graduate Student Awards

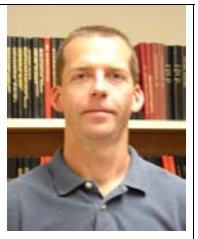
Ashkan Ashrafi
Ph.D. Candidate

Ashkan Ashrafi was presented with the 2005 Iliana Martin Chittur Outstanding ECE Graduate Student Award at an ECE social evening on April 28, 2005 at Lowe House in downtown Huntsville.

Ashkan Ashrafi was born in Tehran, Iran in 1969. He received his BSc and MSc degrees in Electronics Engineering from K. N. Toosi University of Technology, Tehran, Iran and MSE degree in Electrical Engineering from the University of Alabama in Huntsville, Huntsville, AL in 1991, 1995 and 2004, respectively (all with honors). He is currently working toward a Ph.D. degree at the University of Alabama in Huntsville, Huntsville, AL, where he is also a graduate teaching assistant in the Electrical and Computer Engineering Department.

His research interests are analog and mixed-signal circuit and systems, direct digital frequency synthesizers and matrix theory and applications. He has attained membership in the honor society of Phi-Kapa-Phi. He has also attained the honor of being on the Graduate Dean's List in the calendar years 2002 and 2003.

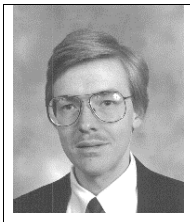
Dennis Hite
Master of Science
In Engineering



Dennis Hite was presented with the 2005 Iliana Martin Chittur Outstanding ECE Graduate Student Award at an ECE social evening on April 28, 2005 at Lowe House in downtown Huntsville.

Dennis completed the requirements for the Masters of Science in Engineering in May 2005. He is originally from Indianapolis, Indiana, but moved to Huntsville to continue his education after receiving his Bachelor of Science Degree (Physics Major) from Purdue University in 1998. His education and work experience has given him a broad background in Physics, Mathematics, Computer Science, Electronics and Optics.

He is currently employed by UAH in the Department of Electrical and Computer as Senior Laboratory Manager, acquiring and maintaining the test and measurement equipment and computer systems in the department's instructional laboratories. As time permits he also assists Faculty and students with their laboratory course material and projects.



Dr. Timothy Boykin
Associate Professor

Journal Articles

Timothy B. Boykin and Gerhard Klimeck, "The discretized Schrödinger equation and simple models for semiconductor quantum wells," *European Jouornal of Physics* **25**, 503 (2004).

Timothy B. Boykin, Gerhard Klimeck, M. A. Eriksson, Mark Friesen, S. N. Coppersmith, Paul von Allmen, Fabiano Oyafuso, and Seungwon Lee, "Valley splitting in low-density quantum-confined heterostructures studied using tight-binding models," *Phys. Rev. B* **70**, 165325 (2004).

Timothy B. Boykin and Gerhard Klimeck, "Practical Application of Zone-Folding Concepts in Tight-Binding," *Physical Review B* **71**, 115215 (2005).

Dennis Hite, Timothy B. Boykin, Nagendra Singh, and Dashen Shen, "A simple Fermi-Dirac Integrating Circuit," *American Journal of Physics* (2005).

Conference Papers

Anisur Rahman, Gerhard Klimeck, Nizami Vagidov, Timothy B. Boykin, and Mark S. Lundstrom, "Nanoscale Device Simulation at the Scaling Limit and Beyond," *International Conference on Solid State Devices and Materials* (SSDM 2004), Tokyo, Japan, Sept. 14-17, 2004.

Yun Zheng, Cristian Rivas, Roger Lake, Khairul Alam, Timothy B. Boykin, and Gerhard Klimeck, "Electronic Properties of Silicon Nanowires," *IEEE Proceedings of the 10th International Workshop for Computational Electronics* (IWCE), Purdue University, West Lafayette, Oct. 24-27, 2004.

Seungwon Lee, Paul von Allmen, Fabiano Oyafuso, Gerhard Klimeck, Timothy B. Boykin, S.N. Coppersmith, Mark Friesen, and Mark Erikson., "Electron Exchange Interaction in Electronically Confined Si Quantum Dots," *IEEE Proceedings of the 10th International Workshop for Computational Electronics* (IWCE), Purdue University, West Lafayette, Oct. 24-27, 2004.

Timothy B. Boykin, Gerhard Klimeck, S. N. Coppersmith, Mark Friesen, Paul von Allmen, Seungwon Lee, and Fabiano Oyafuso, "Valley splitting in low-density quantum-confined heterostructures: Superposition, not Spin!" *APS March Meeting*, Los Angeles, CA, March 21-25, 2005.

Dr. David Coe
Assistant Professor

Conference Paper

C.H. Newborn, J.M. English, and D.J. Coe, "A Micromachined Ceramic Vertical Leaf Spring Actuator Using LTCC Materials," *IMAPS – Ceramic Interconnect Technology: The Next Generation II*, Denver, Colorado, Presented in April 2004.

Sponsored Activities

Todd Kaiser (PI), [MSU-Bozeman], David Coe (PI) [UAH], Jennifer English (Co-PI) [UAH], "Inductively Coupled Flexural Plate Wave Resonator Sensing," NSF Sensor and Sensor Networks, September 1, 2004 – August 31, 2007.

Jennifer English (PI) [UAH], David J. Coe (Co-PI) [UAH], "MEMS Reliability Testing," Westar Corporation, March 1, 2004 – April 30, 2005 : Extended to May 2005.

Dr. Laurie Joiner
Assistant Professor

Journal Articles

Bhaskar, V. and L. L. Joiner. "Variable energy adaptation for asynchronous CDMA communications over slowly fading channels," *Elsevier Journal on Computers and Electrical Engineering*, vol. 31, no. 1, pp. 33-55, January 2005.

Bhaskar, V. and L. L. Joiner. "Modeling scheduled data flow architecture - an open queuing network model approach," *International Journal on Pure and Applied Mathematics*, vol. 18, no. 3, pp. 271-283, 2005.

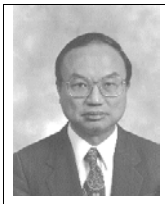
Bhaskar, V. and L. L. Joiner. "Performance of punctured convolutional codes in asynchronous code division multiple access communications under perfect phase tracking conditions," *Elsevier Journal on Computers and Electrical Engineering*, vol. 30, no. 8, pp. 573-592, November 2004.

Dr. Jennifer English Honored by UAH University Foundation Distinguished Teaching Award

Dr Jennifer English received the University Foundation Distinguished Teaching Award at the UAH Academic Honors Convocation in April 2005.

Dr. Jennifer English joined the ECE faculty in August 2000 as an Assistant Professor. She received her Ph.D., M.S., and B.S. degrees in Electrical Engineering from the Georgia Institute of Technology in 2000, 1996, and 1993, respectively.

Dr. English's research interests include the design and fabrication development of MEMs devices using silicon and ceramic-based materials, the integration of CMOS and MEMs fabrication, MEMs packaging, implementing control schemes for MEMS and wireless operation of MEMs devices. Her recent research focused on wireless ceramic MEMs pressure sensors for use in high temperature environments, where she developed a design and fabrication technology for the manufacture of ceramic pressure sensors for aircraft turbine engines. She also developed a testbed for the wireless operation of these devices in high temperature and high pressure conditions.



Dr. Fat Duen Ho
Professor

Conference Papers

Michael Walter Payton and Fat Duen Ho, "Large-Signal Nonquasi-Static MOSFET Model for Computer Aided Device and Circuit Simulation Part I: MOSFETS and CMOS Inverters," *2005 IEEE International Symposium on Circuits and Systems*, Kobe, Japan, May 23-26, 2005.

Michael Walter Payton and Fat Duen Ho, "Large-Signal Nonquasi-Static MOSFET Model for Computer Aided Device and Circuit Simulation Part II: The CMOS NOR Gate and the CMOS NAND Gate," *2005 IEEE International Symposium on Circuits and Systems*, Kobe, Japan, May 23-26, 2005.

Thomas A. Philips, Todd C. MacLeod, and Fat Duen Ho, "Modeling of A Metal-Ferroelectric-Semiconductor Field-Effect Transistor NAND Gate," *17th International Symposium on Integrated Ferroelectrics*, Shanghai, China, April 17-20, 2005.

Todd C. MacLeod, Thomas A. Philips, and Fat Duen Ho, "Characteristics of Ferroelectric Logic Gates Using a SPICE-Based Model," *17th International Symposium on Integrated Ferroelectrics*, Shanghai, China, April 17-20, 2005.

Dr. Richard Fork
Professor

Conference Papers

"Efficient Direct Conversion of Sunlight to Coherent Light at Multi-Kilowatt Average Power for Power Beaming in Near Earth Space," Richard L. Fork, Wesley W. Walker, Rustin L. Laycock, Dane J. Phillips, Spencer T. Cole, Kevin B. Frederick, Sean D. Moultrie, and Jason J. A. Green, *International Astronautical Conference*, Vancouver British Columbia, Oct 3-7, 2004.

"Efficient Direct Conversion of Sunlight to Coherent Light at High Average Power in Space," Richard L. Fork, Rustin L. Laycock, Dane J. Phillips, Wesley W. Walker, Spencer T. Cole, Kevin B. Frederick, and Sean D. Moultrie, *NASA Institute for Advanced Concepts M*eeting, Seattle, WA, Oct. 19-20, 2004.

"High-Energy Space Power Infrastructure Using Coherent Light," Richard L. Fork, Wesley W. Walker, Rustin L. Laycock, Dane J. Phillips, Spencer T. Cole, Kevin B. Frederick, and Sean D. Moultrie, *NASA Capability Meeting*, Washington, DC, Nov 29-30, 2004.

"Optical Power for Human and Robotic Exploration of Space," Richard L. Fork, Wesley W. Walker, Rustin L. Laycock, Dane J. Phillips, Spencer T. Cole, Kevin B. Frederick, and Sean D. Moultrie, Xerox Palo Alto Research Center, *Applied Technology Group Meet*ing, Palo Alto, CA Jan 6, 2005.

"Efficient Direct Conversion of Sunlight to Coherent Light at High Average Power in Space", Richard L. Fork, Rustin L. Laycock, Dane J. Phillips, Wesley W. Walker, Spencer T. Cole, Sean D. Moultrie, and John C. Reinhardt, *NASA Institute for Advanced Concepts Meeting*, Atlanta, GA March 16, 2005.

Dr. C. D. Johnson
Distinguished Professor

Conference Papers

C. D. Johnson, "Beyond Bellman's Principle of Optimality; The Principle of Real-Time Optimality," Invited Plenary Talk and Paper, *Proceedings of the 37th IEEE Southeastern Symposium on System Theory*, March, 2005; pp. 326-335; IEEE#05EX961.

C. D. Johnson, "Controller Design Algorithms for MIMO Linear Systems; Part 1: Continuous-Time Controllers for State-Stabilization with High Performance Disturbance-Immunity," *Proc. 37th IEEE Southeastern Symposium on System Theory*, March, 2005; pp. 201-208; (peer reviewed by web-based review process); IEEE#05EX961.

C. D. Johnson, "Controller Design Algorithms for MIMO Linear Systems; Part 2: Discrete-Time Controllers for State-Stabilization with High Performance Disturbance-Immunity," *Proc. 37th IEEE Southeastern Symposium on System Theory*, March, 2005; pp. 209-215; (peer reviewed by web-based review process); IEEE#05EX961.

C. D. Johnson, "Auto-Endogenization of Input Dynamics in the Experimental Modeling of Dynamic Systems," *Proceedings of the 2004 Huntsville Simulation Conference*; Oct., 2004; Proceedings in printing process at The Society for Modeling and Simulation International, San Diego, CA.

Dr. Emil Jovanov
Associate Professor

Journal Articles

Milena Milenkovic, Aleksandar Milenkovic, Emil Jovanov, "Using Instruction Block Signatures to Counter Code Injection Attacks," *Computer Architecture News*, Vol. 33, No. 1, March 2005, pp. 108-117.

E. Jovanov, A. Milenkovic, C. Otto, P. de Groen, "A wireless body area network of intelligent motion sensors for computer assisted physical rehabilitation," *Journal of NeuroEngineering and Rehabilitation*, March 1, 2005, 2:6, 2005, http://www.jneuroengrehab.com/content/2/1/6

R.S.H. Istepanian, E. Jovanov, Y.T. Zhang, "Guest Editorial Introduction to the Special Section on M-Health: Beyond Seamless Mobility and Global Wireless Health-Care Connectivity," *IEEE Transactions on Information Technology in Biomedicine*, Vol.8, Issue 4, Dec. 2004, pp. 405 - 414.

Conference Papers

Chris Otto, John P. Gober, Reggie W. McMurtrey, Aleksandar Milenković, Emil Jovanov, "An Implementation of Hierarchical Signal Processing on Wireless Sensor in TinyOS Environment," in *Proc. 43rd Annual ACM Southeast Conference ACMSE 2005*, Vol. 2, pp. 49-53, Kennesaw, Georgia, March 18-20, 2005.

Dennis Cox, Aleksandar Milenkovic, Emil Jovanov, "Time Synchronization for ZigBee Networks," *Proceedings of the 37th Southeastern Symposium on System Theory* (SSST2005), Tuskegee, Alabama, 20-22 March 2005, pp. 135 – 138.

Aleksandar Milenkovic, Milena Milenkovic, Emil Jovanov, Dennis Hite, "An Environment for Runtime Power Monitoring of Wireless Sensor Network Platforms," *Proceedings of the 37th Southeastern Symposium on System Theory* (SSST), Tuskegee, AL, March 2005, pp. 406–410.

Dr. David Pan
Assistant Professor

Conference Papers

M. Nalasani and W. Pan, "Object Transformation Estimation with Low Complexity," *Proc. of IEEE Southeastern Symposium on System Theory*, Tuskegee, Alabama, March 2005.

A. G. Veeravalli, M. Nalasani and W. Pan, "Covariance Analysis of Non-Translational Motion-Compensated," *Proc. of IEEE Southeastern Symposium on System T*heory, Tuskegee, Alabama, March 2005.

R. Al Na'mneh, W. Pan, and R. Adhami, "Parallel Implementation of 1-D Fast Fourier Transform without Inter-processor Communication," *Proc. of IEEE Southeastern Symposium on System Theory*, Tuskegee, Alabama, March 2005.

A. G. Veeravalli, W. Pan, R. Adhami, and P. G. Cox, "A Tutorial on Using Hidden Markov Models for Phoneme Recognition," *Proc. of IEEE Southeastern Symposium on System Theory*, Tuskegee, Alabama, March 2005.

Al Na'mneh, W. Pan, and R. Adhami, "Communication Efficient Adaptive Matrix Transpose Algorithms for FFT on Symmetric Multiprocessors," *Proc. of IEEE Southeastern Symposium on System Theory*, Tuskegee, Alabama, March 2005.

M. Nalasani and W. Pan, "Performance Evaluation of MPEG-2 Codec with Accurate Motion Estimation," *Proc. of IEEE Southeastern Symposium on System Theory*, Tuskegee, Alabama, March 2005.

Dr. Alex Milenkovic
Assistant Professor

Journal Articles

J. Djordjevic, B. Nikolic, A. Milenkovic, "Flexible Web-based Educational System for Teaching Computer Architecture and Organization," *IEEE Transactions on Education*, Vol. 48, No. 2, 2005.

E. Jovanov, A. Milenkovic, C. Otto, P. C. de Groen, "A wireless body area network of intelligent motion sensors for computer assisted physical rehabilitation," *Journal of NeuroEngineering and Rehabilitation*, 2:6, March 1, 2005. [http://www.jneuroengrehab.com/content/2/1/6]

M. Milenkovic, A. Milenkovic, E. Jovanov, "Using Instruction Block Signatures to Counter Code Injection Attacks," *Computer Architecture News*, Vol. 33, No. 1, March 2005, pp. 108-117.

Conference Papers

C. Otto, J. P. Gober, R. W. McMurtrey, A. Milenkovic, Emil Jovanov, "An Implementation of Hierarchical Signal Processing on a Wireless Sensor in Tiny OS Environment," *Proceedings of the 43rd ACM Southeastern Conference*, Kennesaw, GA, March 2005, Vol. 2, pp. 49-53.

A. Milenkovic, M. Milenkovic, E. Jovanov, D. Hite, "An Environment for Runtime Power Monitoring of Wireless Sensor Network Platforms," *Proceedings of the 37th IEEE Southeastern Symposium on System Theory* (SSST'05), Tuskegee, AL, March 2005, pp. 406-410.

D. Cox, E. Jovanov, A. Milenkovic, "Time Synchronization for ZigBee Networks," *Proceedings of the 37th IEEE Southeastern Symposium on System Theory* (SSST'05), Tuskegee, AL, March 2005, pp. 135-138.

Dr. Yuri Shtessel
Professor

Journal Article

Yuri Shtessel and Ilia Shlkolnikov, "Output Tracking in Causal Nonminimum-Phase Systems Using Sliding Modes," in *IEE Control Series,* Vol. 66, *Variable structure systems: from principles to implementation,* E. Sabanovich, S. Spurgeon and L. Fridman (eds.), IEE-publisher, pp. 197-219, 2004.

Conference Papers

C. Tournes, Y. Shtessel, I. Shkolnikov, "Autopilot for Missiles Steered by Aerodynamic Lift and Divert Thrusters using Nonlinear Dynamic Sliding Manifolds," *Proceedings of the Conference on Guidance, Navigation and Control,* paper AIAA-2005-6382, 2005.

C. Hall, Y. Shtessel, "Sliding Mode Observer Driven Sliding Mode Control of a Reusable Launch Vehicle," *Proceedings of the Conference on Guidance, Navigation and Control,* paper AIAA-2005-6145, 2005.

G. Michael Marks, Y. B. Shtessel, Harvey Gratt, I. A. Shkolnikov, "Effects of High Order Sliding Mode Guidance and Observers On Hit-to-Kill Interceptions," *Proceedings of the Conference on Guidance, Navigation and Control,* paper AIAA-2005-5967, 2005.

Damien Galzi and Yuri Shtessel, "UAV Formations Control Using High Order Sliding Modes," *Proceedings of the Conference on Guidance, Navigation and Control,* paper AIAA-2005-6367, 2005.

Dr. Nagendra Singh
Professor

Journal Article

Singh, N., and I. Khazanov, "Planar double layers in magnetized plasmas: Fine structures and their consequences," *J. Geophys. Res.*, *110*, A04209, doi:10.1029/2004JA010620, 2005.

Conference Papers and Abstracts

Khazanov, G.V., N. Singh, K.V. Gamayunov, and E. Krivorutsky, "The role of the heavy ions in the wave magnetospheric phenomena," *AGU Fall Meeting*, San Francisco, December 13-17, Invited, 2004.

Singh, N., "A Review of Recent Studies on Double Layers Using Modeling and Simulations," *Eos Trans. AGU, 85*(17), Jt. Assem. Suppl., SM41B-02, Invited, 2004.

Puthumbhakum, N. , I. Khazanov, N. Singh, "Nature of Parallel Electric Fields in a Diverging Auroral Flux Tube with Upward Current," *Eos Trans. AGU, 85*(17), Jt. Assem. Suppl., SM53A-03, 2004.

Coffey, V. N., M. O. Chandler, N. Singh, J. A. Miller, "Observed Relationship Between Ion Energization and the Broadband ELF Spectrum," *Eos Trans. AGU, 85*(47), Fall Meet. Suppl., Abstract, SM23A-0495, 2004.

Khazanov, G.V., N. Singh, D. L. Gallagher, and J. F. Spann, "Cross-Scale Coupling in the Inner Magnetosphere," *Huntsville 2004 Workshop Challenges to Modeling the Sun-Earth System*, 18-22 October, Invited, 2004.

Coffey V. N., M. O. Chandler, N. Singh, L. Avanov, "End-to-End Study of the Transfer of Energy from Magnetosheath Ion Precipitation to the Cusp," *Huntsville 2004 Workshop on Challenges to Modeling the Sun-Earth System*, Huntsville, AL, October 18-22, 2004.

Dr. Dahsen Shen
Professor

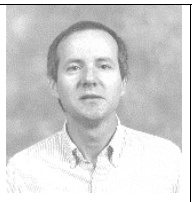
Journal Articles

"A novel analytical model for the breakdown voltage of thin-film SOI power MOSFETs," W.W. Yang, X.H. Cheng, Y.H. Yu, Z.R. Song, D.S. Shen, *Solid-State Electronics,* Vol. 49, p. 43-48, 2005.

"A novel LDMOS structure in thin film patterned-SOI technology with a silicon window beneath p-well," X. Cheng, W. Yang, Z. Song, Y. Yu and D.S. Shen, *Chinese Journal of Semiconductors*, (in English), Vol. 25, p. 1580, 2004.

"Preparation of high-quality H_fO_2 thin films on SOI materials," *Functional Material*s, (in Chinese), Vol. 35, p. 736, 2004.

Dr. John Stensby
Professor



Journal Article

J. Stensby, "An Improved Lock Detector for Phase-Locked Communication Receivers," *Journal of the Franklin Institute*, Volume 342, Issue 2, March 2005. This paper was peer-reviewed.

Conference Papers

J.Stensby, "Near Real-Time Signal Processing in the Classroom Using a Sound Card Equipped Personal," *Southeastern Symposium on System Theory 2005*, Tuskegee, AL, March 2005.

E. Masters, J. Stensby, "Dual Tone-Pair Modulation for Narrow-Band Data Transmission," *Southeastern Symposium on System Theory 2005*, Tuskegee, AL, March 2005.

Dr. Sam Yoo
Associate Professor

Journal Article

M. M. Thaturi, S.-M. Yoo, and R. Gaede, "An efficient VLSI implementation of IDEA encryption algorithm using VHDL," *Microprocessors and Microsystems*, Vol. 29, Issue 1, pp. 1-7, Feb. 2005.

Conference Papers

Y. Kanamori, S.-M. Yoo, and M. Al-Shurman, "A Quantum No-Key Protocol for Secure Communication," *ACM Southeast Conference* (ACMSE-05), Atlanta, pp. 2-92-93, March 2005.

M. Al-Shurman, S.-M. Yoo, and Y. Kanamori, "Decreasing Broadcast in Route Discovery Using Vectors," *ACM Southeast Conference* (ACMSE-05), Atlanta, pp. 2-103-104, March 2005.

J. Eisbrener, G. Murphy, D. Eade, C. K. Pinnow, K. Begum, S. Park, S.-M. Yoo, J.-H. Youn, "Hot/Cold Routing in Mobile Ad Hoc Networks," *IEEE Vehicular Technology Conference* (VTC-2004-fall), Los Angeles, September 2004.

Dr. Earl Wells
Associate Professor

Conference Papers

"Improved Microarchitecture Support for Dynamic Task Scheduling on Reconfigurable Architectures," Zexin Pan, Juanjo Noguera, B. Earl Wells, *Proceedings of the 2005 International Conference on Engineering of Reconfigurable Systems and Algorithms* (ERSA-05), Las Vegas, Nevada, USA, June 27-30, 2005.

"Applying Fuzzy-Reinforcement Learning to Track a Mobile Target using a Wireless Sensor Network," Yahya Tahtoush, B. Earl Wells, and Thomas C. Jannett, *Proceedings of the 2005 International Conference on Wireless Networks* (ICWN-05), Las Vegas, Nevada, USA, June 27-30, 2005.

"A Comparison of Two Parallel Particle-in-Cell Methodologies for Dynamic Auroral Plasma Simulation," B. Earl Wells, Igor G. Khazanov and Nagendra Singh, Presented ongoing research at the *Simulation Methodology Section of the Huntsville Simulation Conference*, Huntsville, AL, October 20, 2004.

Other Faculty Notes:

Congratulations to Dr. Timothy Boykin on being elevated to the grade of Senior Member of The IEEE.

Congratulations to Dr. Charles Corsetti on being elevated to the grade of Senior Member of The IEEE.

IEEE Senior Member is the highest professional grade for which application may be made and requires experience reflecting professional maturity. Approximately 7.3% of the 365,000 IEEE members have achieved this grade.

Congratulations to Dr. Fat Duen Ho on receiving the 2005 Outstanding Educator Award from the IEEE Huntsville Section.

Congratulations to Dr. Laurie Joiner on her award of Tenure and promotion to Associate Professor for the 2005/2006 academic year.

Congratulations to Dr. Earl Wells on his promotion to Professor for the 2005/2006 academic year.

ADTRAN TDP Class of 2005

Pictured above at the ADTRAN graduation reception (left to right): Kevin Schneider (ADTRAN CTO), Reza Adhami (UAH Chair of ECE), Dennis Cox (ADTRAN TDP graduate), Jonathan Creekmore (ADTRAN TDP graduate), Jason Shock (ADTRAN TDP graduate), Trey Brakefield (ADTRAN TDP graduate), Mark Smith (ADTRAN CEO), Frank Franz (UAH President) and Jorge Aunon (UAH Dean of Engineering).

We celebrated the graduation of the sixth group of Master's students from our ADTRAN Technical Development Program (TDP) in Electrical and Computer Engineering in May 12, 2005. Four students graduated from the TDP in Spring 2005. This was not simply a worthy achievement for these individual students, but it is a milestone for a unique partnership between UAH and ADTRAN, and a tribute to a new kind of alliance between academia and industry.

The TDP is a two-year program that integrates engineering design work experience with university graduate study. TDP participants are full time employees at ADTRAN while active in the program. Participants receive paid, 50% released time from work during academic terms when taking nine semester hours. Both internal and external candidates may apply to the program (e.g., current employees, new graduates, and experienced non-employees). TDP participants are selected using the normal evaluation and selection process utilized by ADTRAN.

Trey Brakefield is originally from South Carolina where he went to Clemson University to get a BS degree in Computer Engineering. During his time at Clemson he co-oped at Adtran from his Sophomore year until the semester before he graduated from Clemson. He then moved to Huntsville to continue working for Adtran developing Enterprise products. Trey enjoys almost any physical activity including working and playing outdoors around lakes, mountains, or the beach. He volunteers in many local missions and in Habitat for Humanity where he can use his experience in building and repairing.

Dennis Cox was born in Germany where his father was stationed in the Army. He and his family moved wherever the Army sent them, living in Texas, Oklahoma, and Georgia. Dennis graduated with a Bachelor of Electrical Engineering degree from Georgia Tech in December 1996. He then served for four years as an officer in the Army stationed in Oklahoma. Later, he and his family settled in Huntsville where he works as a design engineer at Adtran, Inc. Dennis enjoys spending time with his family and trying to keep up with his six children, ages 8 to newborn.

Jonathan Creekmore is originally from Columbus, Mississippi and graduated with a BS in Computer Engineering in December 2002. After graduation, he began working at ADTRAN as a software design engineer in the Enterprise Networks division. When not at work, Jonathan enjoys doing small home-improvement projects and reading just about anything, from fiction to books on programming language design.

Jason Schock is originally from Metairie, Louisiana. After graduating from Holy Cross High School in 1996, he began his undergraduate career at the University of Alabama in Tuscaloosa. While working towards a Bachelor of Science in Electrical Engineering, Jason participated in the cooperative education program. He rotated semesters of school and work and accumulated approximately two years of work experience at Adtran, Inc. in Huntsville. Upon graduation in December 2001, Jason accepted an offer to work at Adtran, Inc. as a design engineer in the Enterprise Division. He plays in a variety of sports leagues in which Adtran, Inc. sponsors teams. In addition, Jason and his wife are expecting their first child later this year.

Congratulations ADTRAN Grads!

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We want to hear from you!

The ECE Department looks forward to hearing your views and your success stories. Contact us to share your news and comments about your career and interests. Your story should be sent to realtime@ece.uah.edu

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