

# Real Time

*Electrical and Computer Engineering Department*  
The University of Alabama in Huntsville

Spring 2006

## ***2006 College of Engineering Distinguished Engineer Alumni***

Three ECE Alumni received prestigious Distinguished Engineer Alumni awards from the College of Engineering in May 2006. Stages of the ceremony are pictured below. The citations are on pages 6 & 7.



Dr. Haik Biglari and Dean Aunon Listen to the Citation Reading



Dr. William Bishop Receives the Award From Dean Aunon



Dr. Claudette Owens Speaks After Receiving the Award

## ***Dr. Robert Lindquist Named Director of UAH Center for Applied Optics***



Dr. Robert Lindquist was named Director of the Center for Applied Optics in Fall 2005.

Dr. Lindquist returned to the ECE Department as Professor in the Electrical and Optical Engineering programs in August 2003 after spending six years at the Corning Incorporated research facility in Corning, NY. He received both the Ph.D. and B.S. degrees in Electrical and Computer Engineering at The Pennsylvania State University in 1992 and 1986, respectively. He brought liquid crystal fabrication equipment with him to UAH, adding to existing micro and nanofabrication capabilities.

At Corning Incorporated, Dr. Lindquist worked in the areas of liquid crystal devices for optical networking, electronics on glass for display and SOI applications. His work at Corning led to the product launch of the PurePath™ wavelength selective switch and dynamic spectral equalizer, which was awarded an OFC 2000 Top Ten Product Award. Dr. Lindquist holds eight patents related to his work at Corning.

In addition to his teaching as Professor of ECE and his duties as Director of the CAO, Dr. Lindquist will continue his research on optical networking devices and liquid crystal components. He will continue to collaborate with Corning Inc. in the area of electronics on glass for display and RF applications.

In his spare time, he enjoys hiking, coaching and playing soccer, and spending time with his wife, Wendy, and his three children, Ryan, Caitlin, and Jordan.



UAH Optics Building and Center for Applied Optics

# Commencement 2005-2006, ECE Graduates

## Doctors of Philosophy

<b>Ashkan Ashrafi</b>	<b>Iran</b>
Field:	Electrical Engineering
Dissertation:	"A Quasi-Linear Interpolation Method to Develop a Direct Digital Frequency Synthesizer with VLSI Implementation"
Advisor:	Dr. Reza Adhami
<b>William Yancy Bishop</b>	<b>Huntsville</b>
Field:	Electrical Engineering
Dissertation:	"Thermal Analysis of Novel Buried Insulator Materials and Geometries for the SOI LDMOSFET and Resulting Stability in Electrical Performance"
Advisor:	Dr. Dashen Shen
<b>Zexin Pan</b>	<b>Huntsville</b>
Field:	Computer Engineering
Dissertation:	"Hardware Supported Task Scheduling on Dynamically Reconfigurable SOC Architectures"
Advisor:	Dr. B. Earl Wells
<b>Zayed M. Ramadan</b>	<b>Jordan</b>
Field:	Electrical Engineering
Dissertation:	"Adaptive Filtering Algorithms With Error Normalization"
Advisor:	Dr. Alexander Poularikas
<b>Yahya Mohammad Suleiman Tashtoush</b>	<b>Huntsville</b>
Field:	Computer Engineering
Dissertation:	"Applying Fuzzy Logic and Reinforcement Learning to Track a Mobile Target Using a Wireless Sensor Network"
Advisor:	Dr. B. Earl Wells

## Masters of Science in Engineering

Robert Daniel Alferink .....	Huntsville
Electrical	
Naresh Kumar Balasubramanian .....	India
Electrical	
Stephanie Elaine Brown .....	Huntsville
Electrical	
Jared Robert Bruns .....	St. Charles, MO
Electrical	
Terry Dean Buhler .....	Huntsville
Electrical	
Brian W. Burkhardt .....	Huntsville
Electrical	
Thesis: "An Implementation of Ambulatory, Wire-Free Single-Lead Electrocardiograph Telemetry"	
Advisor: Dr. Reza Adhami	
Ronald Alexander Burns .....	Huntsville
Computer	
Woo-Hyuck Choi .....	Huntsville
Electrical	
Thesis: "The Capacitive Transduction Techniques for the Liquid Crystal-Based Chemical and Biological Sensor"	
Advisor: Dr. Robert Lindquist	
Samuel G. Clayton .....	New Market
Electrical	
Jason Howard Cuneo .....	Inverness, FL
Electrical	

## Masters of Science in Engineering (continued)

Senthil Kumar Dassan .....	India
Electrical	
Dennis Wayne Driggers .....	Tyler, TX
Electrical	
Andria Elise Dyess .....	Montgomery
Computer	
Adam Kendall Dyess .....	Madison
Computer	
Sussan Einakian .....	Huntsville
Computer	
Thomas P. Etheredge .....	Huntsville
Electrical	
David John Fatzer .....	Huntsville
Computer	
Brian Ray Ganus .....	Huntsville
Electrical	
James Brant Garner .....	Hartselle
Electrical	
Thesis: "Spectral Estimation of Signals with Missing Data Blocks"	
Advisor: Dr. Alexander Poularikas	
Brian Eugene Grantham .....	Athens
Electrical	
Thesis: "Two-Axis MEMS Gyroscope with Electrostatic Drive and Piezoelectric Pickoff"	
Advisor: Dr. Jennifer English	
Nathan Michael Hanish .....	Madison
Computer	
Thomas Allen Hogue .....	Harvest
Electrical	
William Craig Ivey .....	Clinton, MS
Electrical	
Dreamlyn S. Johnson .....	Newport News, VA
Computer	
Julian Johnson .....	Cincinnati, OH
Electrical	
Thomas Kanik IV .....	Madison
Electrical	
Thesis: "Long Wave Infrared Liquid Crystal Tunable Thin Film Filter"	
Advisor: Dr. Robert Lindquist	
Michael S. Karle .....	Hartselle
Computer	
Thesis: "Software Inspired Hardware Design for Radar Application"	
Advisor: Dr. B. Earl Wells	
Allis Marie Kennedy .....	Huntsville
Computer	
Santha Mohan Manoj Kumar .....	Huntsville
Electrical	
Larry Jay Levitt .....	Bronx, NY
Electrical	
Tatum Delon Lindsey .....	Huntsville
Electrical	
Timothy Wayne Lindsey .....	Huntsville
Electrical	
Brooks Anthony Lombardy .....	Atlanta, GA
Computer	
Kaushik Macherla .....	India
Electrical	
Timothy Brian Medley .....	Huntsville
Electrical	
Thesis: "Field Programmable Gate Array Complex Logic Block in Adiabatic Form"	
Advisor: Dr. Fat Ho	
Jong Wook Noh .....	Korea
Electrical	
Christopher Aaron Otto .....	Huntsville
Computer	
Thesis: "An Implementation of a Wireless Body Area Network for Ambulatory Health Monitoring"	
Advisor: Dr. Emil Jovanov	

### ***Masters of Science in Engineering (continued)***

Sridhar Pathina .....	India
Electrical	
Ramnath Rajagopalan .....	India
Electrical	
Thesis: "Image Acquisition and Analysis to Measure the Deflection of a Microcantilever"	
Advisor: Mr. David B. Pollock	
Ogirala Rajasekhar .....	India
Electrical	
Lee Alice Ray .....	Huntsville
Electrical	
Thesis: "Dual Tree Discrete Wavelet Transform with Application to Image Fusion"	
Advisor: Dr. Reza Adhami	
James Carlos Romine III .....	Athens
Electrical	
Jeena Rani Sadhakkathulla .....	India
Electrical	
Michael Anthony Sims .....	Cullman
Electrical	
Thesis: "Demonstration of a Semi-Active Eight-Element Linear Phased Array"	
Advisor: Dr. John Stensby	
Nicolas Spiegelberg .....	Huntsville
Computer	
Arun Srinivasan .....	India
Electrical	
Surya Prakash Vallabhaneni .....	Huntsville
Electrical	
Kevin W. Welsch .....	Huntsville
Electrical	
Scott Corey Wolfson .....	Harvest
Electrical	
Thesis: "Program, Erase, and Read Transient Models for a Flash EEPROM"	
Advisor: Dr. Fat Ho	
Manoj Yegnaraman .....	Huntsville
Electrical	
Thesis: "Microcantilever Sensor Using Second Order Sliding Mode Control"	
Advisor: Dr. Yuri Shtessel	

### ***Masters of Science in Software Engineering***

Roy Thomason Cole .....	Cullman, AL
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### ***Bachelors of Science in Engineering***

Khalid Khalil Al-Haddad (Computer) .....	Qatar
Nicholas Orion Allaway (Electrical) .....	Athens
Christopher Stewart Arthur (Computer) .....	Russellville
Patricia Namondo Balimba (Electrical) .....	Cameroon
Vicki N. Beavers-Hogan (Electrical) .....	Eva
Jonathan Allan Berry (Computer) .....	Huntsville
Elissa Marie Danielle Brelland (Electrical) .....	Huntsville
Anthony Alan Briglia (Electrical) .....	Madison
Nathan Garrett Brown (Electrical) .....	Athens
David J. Cassel (Computer) .....	Tulsa, OK
Brad T. Champion (Electrical) .....	Russellville
Jordon Scott Christensen (Electrical) .....	Athens
Misty Michelle Clemons (Electrical) .....	Huntsville
Ronald Cohen (Electrical) .....	Dellrose, TN
John Russell Crosswy (Electrical) .....	Tullahoma, TN
Cam Nicole Cummings (Electrical) .....	Muscle Shoals
Roland A. Daniel (Electrical) .....	Decatur
Jeremy Ray Davidson (Electrical) .....	Boaz
Kristin Marie Davis (Electrical) .....	Tuscaloosa
Joshua Matthew Derbort (Computer) .....	Harvest
Peter Thanh Duong (Electrical) .....	Huntsville
Hussein Elhady (Electrical) .....	Madison
Tyler John Englestad (Computer) .....	Pinehurst, NC
LaToya Sharee Epps (Electrical) .....	Huntsville
Paul Fredrick Evans (Electrical) .....	Huntsville
David Ben Fisher (Electrical) .....	Tullahoma, TN
Mark R. Fleming (Electrical) .....	Arab
Cody Lee Flores (Electrical) .....	Huntsville
Joshua Harrison Freeman (Computer) .....	Cullman

### ***Bachelors of Science in Engineering (continued)***

Koushik Kumar Ghosh (Electrical) .....	Huntsville
John Phillip Gober (Computer) .....	Huntsville
Xue Sheng Brandon Gu (Electrical) .....	Athens
Roger Dale Guthrie (Electrical) .....	Hartselle
Jonathan Braun Hanks (Electrical) .....	Brentwood, TN
Sarah Jones Hard (Electrical) .....	Fayetteville, TN
Derek Austin Harkins (Computer) .....	Harvest
Michael Fielding Holt (Optical) .....	Huntsville
Ashley Nicole Hunt (Electrical) .....	Huntsville
Jonathan Thomas Ibarra (Electrical) .....	Huntsville
Joseph Louis Icard (Electrical) .....	Huntsville
Brandon Michael Ijames (Electrical) .....	Phil Campbell
Marcus Lonnell Johnson (Electrical) .....	Tuscaloosa
Jason Alan Keener (Electrical) .....	Leoma, TN
Peter Donald Kessler (Electrical) .....	Huntsville
Gayle Michelle Kuby (Computer) .....	Decatur
Peter Joseph Landers (Electrical) .....	Montgomery
James Ray LeBlanc (Electrical) .....	Huntsville
Quentin Walker Lowe (Electrical) .....	Huntsville
Franklin Ludgood (Computer) .....	Mobile
Richard Moises Lizama Manglona (Electrical) .....	Guam
Jacquelyn Michelle Kuzmic Mayes (Computer) .....	Sardis
Matthew Robert McDougal (Computer) .....	Fayetteville, TN
Reggie Wayne McMurtrey (Computer) .....	Florence
Eduardo Ixtlixochitl Medina (Electrical) .....	Madison
Brandon Jay Miller (Electrical) .....	Crossville
Emily Michele Miller (Optical) .....	Mobile
Brian Morris (Electrical) .....	Chattanooga, TN
Michael G. Murphy II (Electrical) .....	Flintville, TN
Mitchell Blake Neilan (Electrical) .....	Winchester, TN
Jeb Stuart Orr (Computer) .....	Philadelphia, PA
Joshua Steven Parker (Computer & Electrical) .....	Decatur
Jonathan Arthur Parks (Computer & Electrical) .....	Winchester, TN
Kelvin Pettway (Electrical) .....	Boykin
Leif Allen Pitcock (Computer) .....	Center Star
Timothy Seth Pitt (Electrical) .....	Arab
Amy Lynn Ratledge (Electrical) .....	Huntsville
Steven B. Rauseo (Electrical) .....	Huntsville
Errol Reid (Electrical) .....	Orlando, FL
James Matthew Rhodes (Optical) .....	Clanton
Jonathan Roop (Electrical) .....	Colorado Springs
James Frederick Rose (Electrical) .....	Huntsville
John David Samples (Computer) .....	Nashville, TN
Amy Hovater Sapp (Electrical) .....	Mount Hope
James Jedediah Schaeffel (Electrical) .....	Cullman
Carl Scharenberg (Computer) .....	Shawnee, KS
Keith Carol-Marcus Smith (Electrical) .....	Huntsville
Timothy Smith (Electrical) .....	Talladega
Zetha Sovyanhadi (Computer) .....	Torrance
Carol Elaine Steelman (Electrical) .....	Hazel Green
Raymond Ronald Sumera (Electrical) .....	Huntsville
Dane Ryan Sutherland (Optical) .....	Huntsville
Carrie Beth Swanner (Electrical) .....	Athens
Michael Joseph Swanson (Computer) .....	Lester
David Wen Thornton (Electrical) .....	Killen
Max Jason Thornton (Electrical) .....	Rogersville
Reed Benjamin Thornton (Computer) .....	Cullman
Brian D. Trotter (Electrical) .....	Madison
Benjamin J. Tucker (Computer) .....	Wichita, KS
Charlotte Lee Tucker (Computer) .....	Geneva, NY
Bradley James Turner (Electrical) .....	Madison
Justin Parker Vaden (Optical) .....	Huntsville
David N. Wachira (Electrical) .....	Kenya
Jason Wayne Walker (Computer) .....	Athens
John Whitfield (Electrical) .....	Tupelo, MS
Olufemi Williams (Electrical) .....	Nigeria
Ryan Boyd Wincey (Computer) .....	Huntsville
Lauren Carol Nelson Woodfin (Computer) .....	Elkmtont
James Joseph Wooley (Electrical) .....	Cordova
Benjamin Scott Yeske (Optical) .....	Huntsville
James Alan Yeske (Computer) .....	Madison

### ***Congratulations Graduates of 2006!***

# College of Engineering

## 2005-2006 Outstanding ECE Student Awards



### **Outstanding Student in Optical Engineering Justin Vaden**

Justin Vaden graduated *Summa Cum Laude* from UAH in May 2006 with a B.S.E. degree, majoring in Optical Engineering with a minor in Mathematics.

Justin is a member of Tau Beta Pi and Eta Kappa Nu engineering honor societies, and the Huntsville Electro-Optical Society (HEOS). He was on the Dean's list in the 2003, 2004 and 2005 academic years. He was awarded a SPIE Academic Scholarship, National Science Foundation Academic Scholarship, and a UAH Academic Scholarship.

Justin is employed as an Engineer at Polaris Sensor Technologies, Inc., Huntsville, AL, doing research supporting the development of custom optical systems for a number of Phase I and Phase II SBIR's and building a handheld nonimaging polarimeter. His work includes alignment and optimization of optics, setup and execution of calibration and validation experiments, electronics assembly and troubleshooting, and testing, and supporting the opto-mechanical design of a handheld LWIR system.

Justin has assembled a beam-riding telescope for a laser lightcraft (BeRT) which included detailing mechanical drawings and managing the machining/procurement of components; and performed Phase I experiments to eliminate parasitic interference fringing for a 3D Display.



### **Outstanding Student in Computer Engineering Jonathan Berry**

Jonathan Berry graduated *Summa Cum Laude* in May 2006 from UAH with a B.S.E. degree, majoring in Computer Engineering and minoring in Math.

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. He was also awarded a National Defense Industrial Association Software Engineering Scholarship.

He has worked for the National Space Science and Technology Center (NSSTC) with the Gamma Ray Astronomy group for UAH, installing and maintaining the Linux OS and developing software in C/C++.

He is now working as an engineer at Advanced Optical Systems, Inc. (AOS) in the area of hardware development using FPGAs. His main project over the past year at AOS has been the development of a configurable, hardware neural network to run in an FPGA and a Visual C++ application and DLL to interface to the hardware.

Jonathan is an Eagle Scout and is active in the college group at his church.



### **Outstanding ECE Graduate Student Dane Phillips**

Dane Phillips earned a Master's Degree in Electrical Engineering at UAH in December 2004. His Bachelor's Degree in EE was earned at Tennessee Technological University in December 2002. He is currently writing his dissertation for a Ph.D. degree in the Department of Electrical and Computer Engineering at UAH, completing his course work in May 2006.

Dane's undergraduate degree was focused in Digital Logic, Electromagnetics, and Electronics. His graduate course work was concentrated in Lens Design, Laser Systems, Optical Testing, Antenna Theory, MEMS, Radar, Analytical Methods of E.M., Optomechanical Design, and Digital Logic Design.

Dane conducted research under direction of Dr. Richard Fork from August 2003 to May 2006 in High Power Laser systems, WPT "Power Beaming", and Photovoltaic Cells, creating a WPT "Power Beaming" Demonstration. As a Graduate Teaching Assistant, Dane taught Physical Optics and Photonics Labs and wrote the lab manual from January 2003 to August 2003.

He is a member of Eta Kappa Nu (Electrical Engineering Honor Society), SPIE (Society for Photo-Optical Instrumentation Engineers), HEOS (Huntsville Electro-Optics Society), and is an officer in PHI GAMMA DELTA (social fraternity). He received a 2005 NDIA Space and Missile Defense Post Graduate Fellowship.

Dane has been author, co-author and presenter of engineering journal and conference papers during his graduate studies.



### **Outstanding Student in Electrical Engineering Bradley Turner**

Bradley Turner graduated *Summa Cum Laude* from UAH with a B.S.E. degree, majoring in Electrical Engineering.

Bradley is a member of Phi Kappa Phi Honor Society, Tau Beta Pi engineering honor society, and Eta Kappa Nu electrical engineering honor society. He has been on the Engineering Dean's List and an honor scholar since Fall 2002. He was awarded the Erich W. Neubert Memorial Scholarship for 2005-2006.

Bradley was employed as an Engineering Aide for the U.S. Army Aviation & Missile Research Development & Engineering Center on Redstone Arsenal from 2002-2006. During his many projects he has performed engineering evaluations in support of spare parts procurements for Army Aviation and Missile Systems; developed technical data to: promote competitive procurement of spares; maintain required quality of the parts procured; support new source development, review of engineering change proposals, development of technical data packages, technical clarifications of manufacturing issues, and resolution of parts obsolescence and replacements.

Bradley has also worked with various supporting engineering and technical data organizations to develop a unified response in support of spares procurements for various Army Aviation and Missile systems including: the Multiple Launch Rocket System, Patriot, Chinook, Blackhawk, and Apache.

Bradley is now employed as an engineer at Dynetics, Inc.



## **Engineering Week 2006 Outstanding Student in Electrical Engineering Gregory Reed**

Gregory Reed, a senior majoring in Electrical Engineering, is set to graduate at the end of the Fall semester. He is currently working as an undergraduate research assistant for the UAH Center for Modeling, Simulation, and Analysis; his tasks include developing the center's website, helping plan the university's role in the regional Future Cities competition, and working on enhancements to the America's Army training simulator. He plans to pursue the field of modeling and simulation as a master's and Ph.D. focus.

He had held many leadership positions in campus organizations. He has been webmaster of Charger IEEE, Vice President of Eta Kappa Nu, the Student Government Association's Director of Communications, Vice President of Administration for the Engineering Student Council, Secretary for the Mathematics Club, representative of the College of Engineering for the SGA, and webmaster for the Association for Campus Entertainment. He is also a member of the Eta Kappa Nu, Tau Beta Pi, and Phi Kappa Phi honors societies.

As President of Charger IEEE, Gregory worked to expand the group's role in the College of Engineering, working with faculty and other Charger IEEE members to provide seminars, tours, speakers, tutoring sessions, online tutorials, and many varied and interesting electronics and programming projects for freshmen and seniors alike. He has helped to streamline communication within the Student Government Association and to allow students easy access to information on SGA events, projects, and legislation. As a member of the Mathematics Club, Student Government Association, and Tau Beta Pi, he has also tutored students and participated in various service projects across the campus.

In addition, he has contributed greatly to the SGA's Campus .NET project, a set of networked monitors with the aim to showcase campus events. Among his most prominent course projects have been research into guidance and computing systems for use on a robotic lunar lander and the design and construction of a guitar pedal.

Gregory was awarded the UAH Foundation Presidential scholarship, the National Defense Industrial Association Software Engineering scholarship, and has been on the Honor Scholar and Dean's Lists since he enrolled at UAH. His personal hobbies include music composition, geocaching, woodworking, and, of course, his personal electronics and software projects.

## **Elise Haley Awarded the NDIA Undergraduate Software Engineering Scholarship**

Elise Haley was awarded a National Defense Industrial Association Software Engineering Scholarship in March 2006. The Scholarship was presented by Jim Pepper, President of National Defense Industrial Association, Tennessee Valley Chapter, and Dr. Reza Adhami, ECE Chair.



Elise was granted admission to UAH in the fall semester of 2003 at age 17 with an ACT score of 32. Majoring in computer engineering, she was inducted into Alpha Lambda Delta, a national scholastic honor society for freshmen, in 2004. She was inducted into Phi Kappa Phi, a national honor society open to all fields, and Tau Beta Pi, a national honor society for engineering majors, in 2005, and inducted into Eta Kappa Nu, honor society for electrical and computer engineering majors, Spring 2006. While attending UAH she has also received the Presidential scholarship, two endowed scholarships, and the Alabama Space Grant Consortium undergraduate scholarship.

Elise's work experience has consisted of volunteer positions, most notably working for the Challenger Learning Center at the McWane Center in Birmingham, AL. There she achieved the rank of Commander while leading student and faculty groups in simulated space missions. Her contribution to the Challenger program was enhanced by her experiences attending Space Camp, Brightest Stars, Space Academy, Advanced Space Academy and Aviation Challenge at the US Space and Rocket Center in Huntsville.

## **NDIA Space & Missile Defense Post Graduate Fellowship Awards**



ECE NDIA Post Graduate Fellowship recipients are (from left to right) Spencer Cole, Johnny Daniel, and Ashley Hunt.

Three Graduate students in the UAH ECE Department received a 2006 National Defense Industrial Association (NDIA) Space and Missile Defense Post Graduate Fellowship Award. The Awards were presented in May at the National Defense Industrial Association, Tennessee Valley Chapter, annual awards dinner at the Huntsville Marriott.

Spencer Cole, currently writing his Ph.D. dissertation in the area of lasers and optics, has already participated in the invention of a novel optical gyroscope and a novel multi-pass thin disk optical amplifier relevant to space and missile defense interests.

Johnny Daniel, pursuing a Ph.D. in Electrical Engineering, plans to continue studies in digital and analog circuitry. Communications, telemetry, and data acquisition are just a few examples how digital and analog circuits are vital to our nation's defense.

Ashley Hunt is working on a Master's Degree in Electrical Engineering in the area of control theory, which includes the stabilization of systems, set-point regulation, and disturbance accommodation directly related to launch, and guidance systems of rockets and missiles.

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](http://www.ndia-tvc.org).



# Distinguished Engineers – 2006 Alumni Awards

## Dr. Haik Biglari

Dr. Haik Biglari, P.E., received the College of Engineering Distinguished Engineer Alumni Award in 2006 for his outstanding contributions in Electrical Engineering.

Dr. Biglari earned a Doctor of Philosophy degree in Electrical Engineering at University of Alabama at Huntsville in 1990, a Master of Science degree in Electrical Engineering at Columbia University, New York, in 1977, and a Bachelor of Science (ES) with Highest Honors at City University of New York in 1976.

As Systems Design Chief & Director of Electronic Systems for Fairchild Controls Corporation in Frederick, Maryland since November 1998, Dr. Biglari is responsible for the creation and management of the electronic systems and controls design group. The group conducts all electrical engineering development, Validation and Verification (V&V), Environmental Stress Screening (ESS) and product support activities. Some projects include: Air Drive Unit for the Boeing 767, Digital Control Unit for Passive Cooling System of F-18 Pod, Digital Control Unit for Active Cooling System of F-15 Pod, Environmental Control System for Advanced Amphibian Assault Vehicle (AAAV), Controller HW/SW for the Crusader Fan. He also develops proposals and provides resource and budgetary estimates, does high level system simulation for risk mitigation and reduction, supervises day to day activities of hardware and software engineers, and interfaces with the Mechanical Engineering Department for system level solutions.

Dr. Biglari has also worked as Control Systems Supervisor at Sverdrup Technology, Inc. in Huntsville supporting NASA's Science and Engineering activities. Tasks included: 1) Modeling and Simulation of Environmental Control and Life Support System of Space Station, 2) Application of Multi-objective Control Methodology to large flexible space-based structures, 3) Thrust Vector Control system stability analysis and simulation for Transfer Orbit Stage vehicle used for Advanced Communication & Telemetry Satellite and Mars Observer payloads 4) Modeling of Space Shuttle Main Engine, simulation and failure detection, 5) Extended Kalman Filter development for Guidance, Navigation and Control of the Tethered Satellite System and X-33 single stage to orbit vehicle. Specifically, he was responsible for modeling, simulation, analysis and design of control laws and observers for spacecraft using MATLAB/Simulink software on a Personal Computer.

Dr. Biglari started with The Boeing Company as Specialist Engineer in Seattle, Washington. He worked on both terrestrial as well as space-based control systems applications for three years. Terrestrial projects included development of real-time operator training simulator for Energy Management Systems. Later he joined the Space Station Freedom proposal team and was transferred to Huntsville for closer interaction with NASA counterparts. He was promoted to Lead Principal Engineer and in this capacity performed state-of-the-art R&D in the area of intelligent embedded control systems development. This research finally led to the development of the Automatic Code Generators.



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## Dr. William Bishop

Dr. William Y. Bishop, P.E., received the College of Engineering Distinguished Engineer Alumni Award in 2006 for his outstanding contributions in Electrical Engineering.

Dr. Bishop earned a B.S. in Electrical Engineering from Auburn University in 1968. He earned a Master of Science in Engineering in Electrical Engineering in 1974 and Master of Administrative Science in 1978 from the University of Alabama in Huntsville. In December 2005 he successfully completed his Dissertation Defense. The Ph.D. degree is expected in May 2006 from the University of Alabama in Huntsville, Department of Electrical and Computer Engineering.

As Senior Program Manager for Technical Consultant Systems Studies and Simulation, Inc. in Huntsville, Alabama, since July 2002, Dr. Bishop leads, consults, and advises research, design, and development activities involving tactical missile tri-mode seeker/sensor systems and subsystems, including advanced electronics, optical, and electro-optical components. He leads the Joint Common Missile Tri-Mode Seeker/Sensor and Guidance Electronics Integrated Product Team (IPT) composed of approximately 30 multi-disciplined scientific and engineering personnel. The IPT is charged with the responsibility for design and development of three (3) Risk Reduction Trimode Seeker/Sensors and associated electronics that will eventually be flight-tested in tactical missile prototypes during 2006.

Dr. Bishop served as Chief Engineer, NATO Medium Extended Air Defense System Management Agency, Huntsville, AL, from June 1999 – July 2002. There he directed all technical activity involving approximately 25-30 scientific and engineering international personnel engaged in advanced development of a major NATO International Air Defense Missile Program; provided executive level technical advice to the General Manager and served as the Technical Manager for all matters related to the system engineering aspects of the Program, including system design and engineering, technical risk assessments, risk abatement, system integration, test and evaluation, and logistics/supportability; formulated and ensured technical direction and integrity of all technical aspects of MEADS Air Defense system; and served as the Senior Technical Consultant to senior level staff members of the Ministries of Defense of Germany and Italy regarding the technical aspects of the MEADS System design and development and means for which associated advanced technologies can be combined as part of an integrated air defense structure.

As Chief Engineer and Chief of Technical Management Division PEO Tactical Missiles, Javelin Project Office, Redstone Arsenal, AL, in close collaboration with scientific and engineering personnel from the Army Aviation and Missile Command, Marine Corps, DARPA, and the Army Research Labs, Dr. Bishop developed a comprehensive "Research and Development Road Map" for technology insertion at strategic points over the projected twenty year life of the Javelin system, including estimates of technical risks and required funding needed to execute the Road Map.



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## Dr. Claudette Owens

Dr. Claudette C. Owens received a College of Engineering Distinguished Engineer Alumni Award in 2006 for her outstanding contributions in Electrical and Computer Engineering.

Dr. Owens earned a Bachelor of Science in Engineering degree in Electrical and Computer Engineering at the University of Alabama in Huntsville in 1986, a Master of Science degree in Physics at Alabama A&M University in 1993, and a Doctor of Philosophy degree in Physics at Alabama A&M University in 2002.

Dr. Owens is a Supervisory Electronics Engineer at the Space and Missile Defense Command Future Warfare Center/Information & Computational Engineering Division (formerly the Computer Resources Division) Huntsville. She currently serves as Acting Chief of the Information & Computational Engineering (ICE) Division with responsibility for long-range planning, scheduling, managing and implementing goals, objectives, and deadlines of the organization. She is responsible for program management and oversight of the Advanced Research Center and the Simulation Center, and for the operation, maintenance, scheduling, utilization, and system services for the ICE Division. She is also responsible for maintaining and ensuring the adequacy of the command's technical computing resources and for fostering and maintaining a High Performance Computing program to support the Space and Missile Defense Community. She directs the efforts of engineers and scientists responsible for conducting the assigned resource management tasks.

Previously, Dr. Owens was a General Engineer for the SMDC Battlelab/Computer Resources Division in Huntsville, serving as Technical Monitor for the Advanced Research Center (ARC). She was responsible for directing and managing day-to-day operations of the ARC and ARC portion of SMDC High Performance Computing Distributed Center (SMDC HPC DC). Responsible for providing technical direction to ARC contractor involving hardware and software acquisitions, simulation tools, HW upgrades, technical studies, networks communications, customer support, technical directives, user requirements, memoranda of agreement, simulation and modeling techniques; responsible for planning, directing, coordinating and scheduling technical review meetings; overseeing contract activities, team lead providing guidance for lower-level technical personnel, executing the ARC budget and interacting with other government agencies and contractors and coordinating with users and sponsors of various SMDC, DoD, MDA, HPCMO, and GMD/TMD programs/projects; and responsible for writing Scope of Work (SOW), developing contracts requirements package, source selection and acquisition plans for the ARC recompetete. She served as Team Lead and division chief as required, responsible for providing guidance, supervision and input to performance evaluation for CRD personnel. Responsible for providing guidance to CRD ARC/SC/SETA contractors and managing CRD budget. She also served on Army Modeling Simulation Council and Huntsville Simulation Conference Planning Committee.



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## Electrical and Computer Engineering Laboratories

by Tim Torrie, ECE Laboratory Manager

In our continuing effort to improve our Engineering Laboratories, the EE100 lab manual, *Laboratory Tutorials and Exercises for Entry-Level Computer, Electrical and Optical Engineers* has been revised. The EE 100L classes that are located in EB109 now have some rather interesting lab additions.

New and interesting experiments have been incorporated. The new labs required the addition of new measuring and test equipment such as multimeters, scopes and power supplies. Additionally, an ELMO projector has been added which will allow instructors to project through the ceiling mounted projector.

In addition to the new laboratory equipment, 150 new lockers have been installed in EB109. These will allow the students to store their experiments between classes.

More changes are on the way; four ECE laboratories are scheduled to have computers upgraded this summer (2006). Additionally, three classrooms will be receiving a much needed face lift with the replacement of desks as well as the installation of white-marker boards.

(More Lab News on page 12)

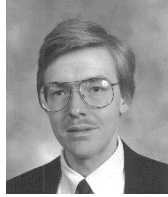


EE 100 Lab with Ceiling Mounted Projector in EB 109



Workstations and Lockers in EB109

## ECE Faculty Publications, Presentations and Awards



**Dr. Timothy Boykin**  
Associate Professor

### Journal Articles

Timothy B. Boykin, Gerhard Klimeck, Paul von Allmen, Seungwon Lee, and Fabiano Oyafuso, "Valley-splitting in V-shaped quantum wells," *Journal of Applied Physics* **97**, 113702 (2005).

Anisur Rahman, Gerhard Klimeck, Mark Lundstrom, Nizami Vagidov, and Timothy B. Boykin, "Atomistic Approach for Nano-Scale Devices at the Scaling Limit and Beyond - Valley Splitting in Si," *Japanese Journal of Applied Physics* **44**, 2187 (2005).

Jeremy Green, Timothy B. Boykin, Corrie D. Farmer, Michel Garcia, Charles N. Ironside, Gerhard Klimeck, Roger Lake, and Colin R. Stanley, "Quantum cascade laser gain medium modeling using a second-nearest-neighbor sp<sup>3s\*</sup> tight-binding model," *Superlattices and Microstructures* **37**, 410 (2005).

Yun Zheng, Cristian Rivas, Roger Lake, Khairul Alam, Timothy B. Boykin, and Gerhard Klimeck, "Electronic Properties of Silicon Nanowires," *IEEE Transactions on Electron Devices* **52**, 1097 (2005).

A. S. Martins, Timothy B. Boykin, Gerhard Klimeck, and Belita Koiller, "Conduction-band tight-binding description for Si applied to P donors," *Physical Review B* **72**, 193204 (2005).

Timothy B. Boykin, Neerav Kharche, and Gerhard Klimeck, "Allowed wavevectors under the application of incommensurate periodic boundary conditions," *European Journal of Physics* **27**, 5 (2006).

Timothy B. Boykin and Gerhard Klimeck, "The discretized Schrodinger equation for the finite square well and its relationship to solid-state physics," *European Journal of Physics* **26**, 865 (2005).

### Conference Papers

Neerav Kharche, Clemens Heitzinger, Gerhard Klimeck, Mathieu Luisier, Timothy Boykin, "Bandstructure Effects in Unstructured AlGaAs Nanowires," *March Meeting of the American Physical Society*, March 13-17, 2006, Baltimore, MD.



**Dr. Richard Fork**  
Professor

### Journal Articles

"Surface High Energy Laser," Richard L. Fork, Rustin L. Laycock, Wesley W. Walker, Spencer T. Cole, Sean D. Moultrie, Dane J. Phillips, John C. Reinhardt, Invited Paper, *Proceedings of the IEEE*, **93**, 1864-1873 (2005).

### Conference Presentations

"Technology Demonstrations and Flight Experiments Validating an Optical Energy Infrastructure for Earth-Moon Space," Dane J. Phillips, Rustin L. Laycock, Richard L. Fork, Spencer T. Cole, Wesley W. Walker, Sean D. Moultrie, and John C. Reinhardt, *56<sup>th</sup> International Astronautical Congress*, October 17-21, 2005 Fukuoka, Japan. (Invited to be published in *Astra Astronautica*)

"Novel Space-Based Solar Power Technologies and Architectures for Earth and Beyond," Joe T. Howell, Mark J. O'Neill, John C. Fikes, and Richard L. Fork, *56<sup>th</sup> International Astronautical Congress*, October 17-21, 2005, Fukuoka, Japan.

"Optical Power Infrastructure for Earth-Moon Space," Richard L. Fork, Wesley W. Walker, Rustin L. Laycock, Dane J. Phillips, Spencer T. Cole, Benjamin S. Yeske, Sean D. Moultrie, John C. Reinhardt, *International Space Development Conference*, Washington DC, May 18-21 (2005).

*Visit our Faculty web pages:*

<http://www.ece.uah.edu>



**Dr. Jennifer English**  
Assistant Professor

### Conference Paper

M. Yegnaman, Y. Shtessel, M. George, and J. English, "Microcantilever Sensor via Second Order Sliding Mode Control," presented at the *Nanotech 2006*, May 7-11, 2006, in Boston, Massachusetts, U.S.A.

M. Yegnaman, Y. Shtessel, M. George, and J. English, "Microcantilever Sensor Using Second Order Sliding Mode Control," presented at the *American Control Conference*, June 11-14, 2006 in Minneapolis, Minnesota.



**Dr. Junpeng Guo**  
Associate Professor

### Conference Papers

Portnoy, N. Pitsianis, D. J. Brady, J. Guo, M. A. Fiddy, M. R. Feldman, and R.D. DeKolste, "Thin digital imaging system using focal plane coding," *Proceedings of SPIE*, vol. 6065, January 2006.

D. J. Brady, M. Feldman, N. Pitsianis, J. Guo, A. Portnoy, M. Fiddy, "Compressive Optical MONTAGE Photography," *Proc. SPIE*, vol. 5907, pp. 52-58, September 2005.

Portnoy, J. Guo, N. Pitsianis, D. J. Brady, M. Fiddy, M. R. Feldman, R.D. Te Kolste, "Thin digital imaging systems using focal plane coding," *IS&T and SPIE 18th Annual Symposium-Electronic Imaging*, January 15-19, 2006. San Jose, California.





**Dr. Fat Duen Ho**  
**Professor**

**Journal Articles**

Thomas A. Philips, Todd MacLeod and Fat Duen Ho, "Modeling of a Metal-Ferroelectric-Semiconductor Field-Effect Transistor NAND Gate," *Ferroelectrics*, April-May Issue, 2006.

Todd MacLeod, Thomas A. Phillip and Fat Duen Ho, "Characteristics of Ferroelectric Logic Gates Using a Spice-Based Model," *Ferroelectrics*, April-May Issue, 2006.

**Conference Papers**

Thomas A. Philips, Todd C. MacLeod, and Fat Duen Ho, "Switching Time Analysis Metal-Ferroelectric-Semiconductor Field-Effect Transistor NAND Gate," Presented at the 18<sup>th</sup> International Symposium on Integrated Ferroelectrics in Honolulu, Hawaii, April 23-27, 2006.

Todd C. MacLeod, Thomas A. Philips, and Fat Duen Ho, "Design of a Multi-Level/Analog Ferroelectric Memory Device," Presented at the 18<sup>th</sup> International Symposium on Integrated Ferroelectrics in Honolulu, Hawaii, April 23-27, 2006.

**Congratulations, Dr. Ho, on receiving the Outstanding Educator Award for 2005 from the IEEE Huntsville Section.**



**Dr. Laurie Joiner**  
**Assistant Professor**

**Journal Articles**

Komo, J. J. and L. L. Joiner. "Upper and lower bounds on the binary input AWGN channel capacity," *Communications in Applied Analysis*, vol. 10, no. 1, Jan. 2006.

Burst, K., L. Joiner and G. Grimes. "Delay based congestion detection and admission control for voice quality in enterprise or carrier controlled IP networks," *IEEE eTransactions on Network and Service Management*, vol. 2, no. 1, November 2005.

Bhaskar, V. and L. L. Joiner. "Adaptive rate coding using convolutional codes for asynchronous code division multiple access communications over slowly fading channels," *Elsevier Journal on Computers and Electrical Engineering*, vol. 31, no. 3, pp. 217-240, May 2005.

Bhaskar, V., K. H. Adjallah and L. L. Joiner. "Subspace based channel estimation for downlink W-CDMA," *International Journal on Pure and Applied Mathematics*, vol. 21, no. 2, pp. 139-149, 2005.

Bhaskar, V. and L. L. Joiner. "Dataflow modeling in distributed diagnostic processing systems: a closed queuing network model approach with single servers," *International Journal on Pure and Applied Mathematics*, vol. 19, no. 2, pp.137-156, 2005.

**Conference Papers**

Zhang, P. and L. Joiner. "Linear maximum likelihood decoding of MIMO-OFDM systems in non-quasi-static channels," *Proceedings of the Huntsville Simulation Conference*, Fall 2005.



**Dr. C. D. Johnson**  
**Distinguished Professor**

**Conference Papers**

C. D. Johnson, "Fundamental Concepts in the Science of (Dynamic System) Modeling; The Concept and Consequences of "Modeling-Errors" in the State-Variable Selection Process," *Proc. 2005 Huntsville Simulation Conference*, October 2005, Available from the Society for Modeling and Simulation International; P. O. Box 17900 San Diego, CA.

C. D. Johnson, "A General Theory of Set-Point Regulation for MIMO Linear Dynamical Systems; The Case of State Set-Point Regulation," *Proc. 38<sup>th</sup> IEEE Southeastern Symposium on System Theory*, March 2006; pp. 27-32. Peer reviewed by web-based process.

C. D. Johnson, "A General Theory of Set-Point Regulation for MIMO Linear Dynamical Systems; The Case of Output Set-Point Regulation ["Pointing Control"] Part I: Precise Formulation as a Subspace-Stabilization Problem," *Proc. 38<sup>th</sup> IEEE Southeastern Symposium on System Theory*, March 2006; pp. 38-43. Peer reviewed by web-based process.

C. D. Johnson, "A General Theory of Set-Point Regulation for MIMO Linear Dynamical Systems; The Case of Output Set-Point Regulation ["Pointing Control"] Part II: Precise Solution as a Subspace-Stabilization Problem," *Proc. 38<sup>th</sup> IEEE Southeastern Symposium on System Theory*, March 2006; pp.48-55. Peer reviewed by web-based process.



**Dr. Emil Jovanov**  
**Associate Professor**

**Conference Papers**

Steve Warren, Emil Jovanov, "The Need for Rules of Engagement Applied to Wireless Body Area Networks," *IEEE Consumer Communications and Networking Conference CCNC2006*, Las Vegas, Nevada, January 2006.

E. Jovanov, "Wireless Technology and System Integration in Body Area Networks for m-Health Applications," *Proceedings of the 27th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Shanghai, China, September 2005.

E. Jovanov, A. Milenkovic, C. Otto , P. de Groen , B. Johnson, S. Warren, G. Taibi, "A WBAN System for Ambulatory Monitoring of Physical Activity and Health Status: Applications and Challenges," *Proceedings of the 27th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Shanghai, China, September 2005.

S. Warren, J. Lebak, J. Yao , J. Creekmore , A. Milenkovic , E. Jovanov, "Interoperability and Security in Wireless Body Area Network Infrastructures," *Proceedings of the 27th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Shanghai, China, September 2005.

E. Jovanov, "On Spectral Analysis of Heart Rate Variability during Very Slow Yogic Breathing," *Proceedings of the 27th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Shanghai, China, September 2005.



**Dr. Alex Milenkovic**  
**Assistant Professor**

**Journal Articles**

Chris Otto, Aleksandar Milenkovic, Corey Sanders, Emil Jovanov, "System Architecture of a Wireless Body Area Sensor Network for Ubiquitous Health Monitoring," *Journal of Mobile Multimedia*, Vol. 1, No. 4, 2006, pp. 307-326.

C. Otto, A. Milenkovic, C. Sanders, E. Jovanov, "System Architecture of a Wireless Body Area Sensor Network for Ubiquitous Health Monitoring," *Journal of Mobile Multimedia*, Vol. 1, No. 4, 2006, pp. 307-326.

A. Milenkovic, C. Otto, E. Jovanov, "Wireless Sensor Networks for Personal Health Monitoring: Issues and an Implementation," *Computer Communications* (Special issue: Wireless Sensor Networks: Performance, Reliability, Security, and Beyond), Elsevier, 2006.

A. Milenkovic, M. Milenkovic, E. Jovanov, "An Efficient Runtime Instruction Block Verification for Secure Embedded Systems," *Journal on Embedded Computing*, Vol. 1, No. 4, IOS Press, Amsterdam, The Netherlands, 2005.

**Conference Paper**

Milena Milenkovic, Aleksandar Milenkovic, Emil Jovanov, "Hardware Support for Code Integrity in Embedded Processors," *International Conference on Compilers, Architectures and Synthesis of Embedded Systems (CASES'05)*, San Francisco, CA, Sept. 24 – Sept. 27, 2005, pp. 55-

**Journal Articles**

S.-M. Yoo, D. Kotturi, W. D. Pan, and J. Blizzard, "An AES Crypto Chip Using A High-Speed Parallel Pipelined Architecture," *Journal of Microprocessors and Microsystems*, Elsevier, vol. 29, issue 7, September 2005. pp. 317 – 326

T. Davis, S.-M. Yoo, and W. D. Pan, "Dissecting a Network-Based Education System," *Technological Horizons in Education (T.H.E.) Journal*, September 2005

**Conference Papers**

K. Darabkh and W. D. Pan, "Queue-Size Distribution for Fano Decoders," in *Proc. of Huntsville Simulation Conference (HSC'05)*, Huntsville, Alabama, Nov. 2005.

K. Darabkh and W. D. Pan, "Queueing Simulation for Sequential Decoders with Timeout," in *Proc. of Huntsville Simulation Conference (HSC'05)*, Huntsville, Alabama, Nov. 2005.

P. Paritala and W. D. Pan, "Higher Order Statistical Analysis of Steganographic Images using Wavelet Transforms," in *Proc. of Huntsville Simulation Conference (HSC'05)*, Huntsville, Alabama, Nov. 2005.

**Dr. David Pan**  
**Assistant Professor**



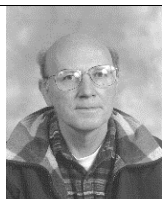
A. Watkins and W. D. Pan, "Simulation of Hidden Message Length Estimation of LSB Steganography," in *Proc. of Huntsville Simulation Conference (HSC'05)*, Huntsville, Alabama, Nov. 2005.

R. Al Na'mneh and W. D. Pan, "Hybrid MPI / Pthread Implementation of 1-D FFT on SMP," in *Proc. of IEEE Southeastern Symposium on System Theory*, Cookeville, TN, March 2006.

R. Al Na'mneh and W. D. Pan, "Two-Step 1-D Fast Fourier Transform without Inter-Processor Communications," in *Proc. of IEEE Southeastern Symposium on System Theory*, Cookeville, Tennessee, March 2006.

K. Darabkh and W. D. Pan, "Stationary Queue-Size Distribution for Variable Complexity Sequential Decoders with Large Timeouts," in *Proc. of 44<sup>th</sup> ACM Southeast Conference*, Melbourne, Florida, March 2006.

K. Darabkh and W. D. Pan, "Queueing Simulation for Fano Decoders with Finite Buffer Capacity," in *9th Communications and Networking Simulation Symposium (CNS'06)*, Huntsville, Alabama, April 2006.



**Dr. Alex Poularikas**  
**Professor**

**New Book**

*Adaptive Filtering with MATLAB*, by Alexander Poularikas and Zayed Ramadan, CRC Press, Taylor and Francis Group, USA-UK, Spring 2006.



**Dr. Dahsen Shen**  
**Professor**

**Journal Articles**

“Study of HfSiO film prepared by electron beam evaporation for high-k gate dielectric applications,” X.H. Cheng, Z.R. Song, J. Jiang, Y.H. Yu, W.W. Yang, D.S. Shen, *Applied Surface Science*, p. 1876-1882, 2005.

“InGaN/GaN MQD p-n junction photodiodes,” Shang-Chao Hung, Yan-Kuin Su, Shoou-Jinn Chang, Liang-Wen Ji, Dashen Shen and C.H. Huang, *Physica E: Low-dimensional Systems and Nanostructures*, Vol. 30, p. 13-16, 2005.



**Dr. Nagendra Singh**  
**Professor**

**Conference Papers**

Singh, N., C. Deverapalli, and G. Khazanov, “Electrodynamics in a very thin current sheet leading to magnetic reconnection,” *ILWS Workshop*, Goa, India, February 19-24, 2006.

Singh, N., “Mapping of poynnting flux and widths of inertial Alfvén wave structures in the auroral plasma,” *ILWS Workshop*, Goa, India, February 19-24, 2006.



**Dr. Yuri Shtessel**  
**Professor**

**Journal Articles**

C. Tournes, Y. Shtessel, I. Shkolnikov, “Autopilot for Missiles Steered by Aerodynamic Lift and Divert Thrusters Using Nonlinear Dynamic Sliding Manifolds,” *AIAA Journal on Guidance, Control, and Dynamics*, Vol. 29, No. 3, (May-June), 2006.

A. Poznyak, Y. Shtessel, L. Fridman, J. Davila, and J. Escobar, “Identification of Dynamic Systems Parameters via Sliding Mode Technique,” *Advances in variable structure and sliding mode control. Lecture Notes in Control and Information Sciences*, E. Fossas, C. Edwards, and L. Fridman (eds.), Springer-Verlag, Berlin, June 2006, pp. 313-351.

L. Fridman, A. Poznyak, Y. Shtessel, and F. Bejarano, “Sliding Mode Multimodel Control,” *Advances in variable structure and sliding mode control. Lecture Notes in Control and Information Sciences*, E. Fossas, C. Edwards, and L. Fridman (eds.), Springer-Verlag, Berlin, June 2006, pp. 247-271.

A. Zinober, Y. Shtessel, E. Fossas, J. Olm, and B. Patterson, “Nonminimum Phase Output Tracking Control Strategies for DC-to-DC Power Converters,” *Advances in variable structure and sliding mode control. Lecture Notes in Control and Information Sciences*, E. Fossas, C. Edwards, and L. Fridman (eds.), Springer-Verlag, Berlin, June 2006, pp. 447-482.

**Conference Papers**

Parisa Kaveh, Ashkan Ashrafi and Yuri Shtessel, “Integral and Second Order Sliding Mode Control of Harmonic Oscillator,” *Proceedings of the Conference on Decision and Control*, December 2005.

Joe Patterson and Yuri B. Shtessel, “Sliding mode tracking control of output voltage in multiple modular boost power converters using the method of stable system center,” *Proceedings of the Conference on Decision and Control*, December 2005, pp.1246-1251.

Olivera Iskrenovic-Momcilovic, Cedimir Milosavljevic, and Yuri Shtessel, “Discrete-Time Variable Structure Control for Causal Nonminimum Phase System Using Stable System Center,” *Proceedings of 9<sup>th</sup> International Workshop on Variable Structure Systems*, Italy, Alghero, June 2006.

Edward Kosiba, Gang Liu, Yuri Shtessel, and Alan Zinober, “Output Tracking via Sliding Modes in Causal Systems with Time Delay Modeled by Higher Order Padé Approximations,” *Proceedings of 9<sup>th</sup> International Workshop on Variable Structure Systems*, Italy, Alghero, June 2006.

Ilya A. Shkolnikov, Yuri B. Shtessel, and Reza Adhami, “Digital Sliding Modes and Quasi-Exact Tracking Discrete-Valued Signals,” *Proceedings of 9<sup>th</sup> International Workshop on Variable Structure Systems*, Italy, Alghero, June 2006.

P. Kaveh, and Y. Shtessel, “Higher Order Sliding Mode Control for Blood Glucose Regulation,” *Proceedings of 9<sup>th</sup> International Workshop on Variable Structure Systems*, Italy, Alghero, June 2006.

**Journal Articles**

H. Choo, Y. J. Lee, and S.M. Yoo, “DIG: Degree of Inter-Reference Gap for a Dynamic Buffer Cache Management,” *Information Sciences*, Vol. 176, No. 8, pp. 1032-1044, April 2006.

**Conference Papers**

M. Al-Shurman and S.-M. Yoo, “Key Pre-Distribution Using MDS Codes in Mobile Ad Hoc Networks,” *Int’l Conf. on Information Technology: Next Generations (ITNG 2006)*, Las Vegas, Nevada, April 2006.



**Dr. Sam Yoo**  
**Associate Professor**

Y. Kanamori, S.M. Yoo, D.A. Gregory, and F.T. Sheldon, “On Quantum Authentication Protocols,” *IEEE GlobeCom 2005*, St. Louis, MO, November 2005.



**Tim Torrie**  
**ECE Lab Manager**

### ***UWB Laboratory Installed***

The department has added a new research laboratory called the Ultrawide Band Communications Laboratory. You will find it located in EB206. Pictured below, the radio is being configured for a distance measuring demonstration.

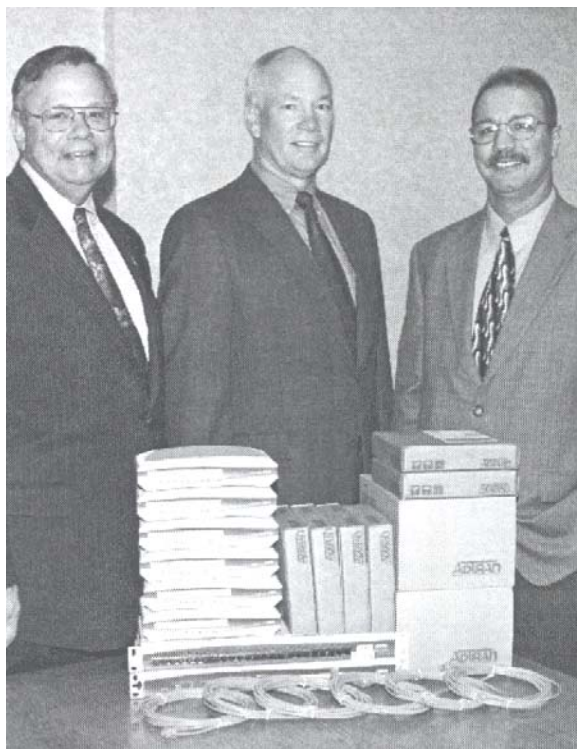


Ultrawide Band Radio, PC and Spectrum Analyzer

Ultra Wide Band, UWB, is the leading technology for wireless connection of multiple devices for transmission of video, audio and other high-bandwidth data.

Many applications of this new technology have not been discovered yet. One of the UWB applications is seeing through walls. It is believed that it can be used in the future for non-contact biometric applications. Pictured above, the UWB radio is being configured for a distance measuring demonstration.

### ***ADTRAN Communications Lab***



*ADTRAN Corporation donated communications equipment for the ADTRAN Communications Lab in the College of Engineering. The gift will benefit Electrical and Computer Engineering students taking introductory and beginning graduate level courses in computer networks. Pictured from left are: Engineering Dean Jorge Aunon, Rich Schansman, ADTRAN's Vice President of Engineering, and ECE Chair Reza Adhami.*

*(Other lab news on page 7)*



### ***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](mailto:realtime@ece.uah.edu)



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