Seven UAH ECE scholarships were presented to the ECE Department Chair by Mr. and Mrs. Clyde Jones of Huntsville to honor their seven grandchildren who will graduate from UAH. Mr. Clyde Jones has been an adjunct faculty member of the ECE department for over forty years.

The scholarship(s) shall be awarded to one or more full-time undergraduate students who are pursuing or will pursue a degree in Electrical and Computer Engineering (ECE), with preference given to students who:

As entering freshmen have a high school grade point average of at least 3.0 on a 4.0 scale and who have achieved a minimum ACT score of 25, or who have progressed beyond the freshman year and have maintained a grade point average of at least 3.0 on a 4.0 scale.

Scholarship award recipients shall be selected by the University’s Financial Aid Committee (or any successor thereof) based on recommendations from the ECE Department Chair, utilizing the guidelines set forth in this memorandum of Agreement and any then applicable policies of the University.

Each scholarship shall be for one year and shall be thereafter automatically renewable for up to a maximum of four additional years, provided that the recipient continues to make satisfactory progress toward a degree, maintains full-time enrollment (12 credit hours per semester), accumulates 24 credit hours per academic year, and meets all other scholarship selection criteria.

A scholarship award may, in addition to paying the cost of the recipient’s tuition and fees, include an amount for the recipient’s room, board, and other expenses.

An award recipient shall be known as a Clyde S. and Georgine Jones ECE Department Chair Scholarship (I-VII) Scholar.

A recipient who loses his/her scholarship because of academic deficiencies shall be eligible to compete for a scholarship after remedying such deficiencies.

A recipient who withdraws from one or more classes during a semester and who receives a tuition refund shall be obligated within thirty (30) days after receipt thereof to pay the University or the Foundation the amount of the refund, which shall then be redeposited in the Fund.

Good educational practice dictates that electrical, computer, and optical engineering programs seek feedback from experienced practitioners on programs objectives, strategies, and assessment methods. ABET Engineering Criteria, for example, calls for accredited programs to base their programs objectives on “the needs of the program’s various constituencies.”

The department’s goals include providing education excellence to its students and maintaining ABET accreditation of the electrical, computer, and optical engineering programs, and enhancing its research activities. The leadership, wisdom, experience, and teamwork skills of the board members will have a great influence on the attainment of these goals. The department intends to provide a relevant, disciplined, challenging and responsive educational experience to its students. The guidance provided by the board will provide help to achieve these.
The Huntsville, Alabama region relies heavily on its universities to supply the knowledge, the innovative ideas, and the able men and women required by its healthy and growing society. Because it is the leading producer of engineers in one of the most technologically rich areas in our nation, the Electrical and Computer Engineering Department at The University of Alabama in Huntsville (UAH) has always borne a particularly important responsibility for meeting the challenges.

Since its inception nearly 40 years ago, the Electrical and Computer Engineering Programs and more recently the Optical Engineering program have played a crucial role in the economic development of our region:

1) UAH supplies industry with high quality graduates demanded by today’s markets for the global economy of the 21st century.

2) By fueling industry, UAH contributes to the local economy, including retailers, restaurants, construction firms, and other businesses.

3) UAH’s classrooms help supply the creative energy and cutting-edge research that nourish our area’s economy.

To sustain and enhance this success, and to renew the great strengths of the department’s undergraduate teaching programs, a fundraising drive is being initiated to secure several million dollars to endow the Electrical, Computer, and Optical Engineering Excellence Fund. The success of this drive, which is the largest in the department’s history, depends on the voluntary efforts and enthusiastic support of many alumni, friends, and businesses. Because of all those who share our department’s commitment to providing education of the highest quality, we are confident that this drive will achieve its goal.

I invite you to join me in supporting this drive today, and thank you for making a positive difference in the education of our students and the enrichment of our society.

With appreciation and warm regards,

Reza Adhami, Chair
Electrical, Computer and Optical Engineering Department

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**THE DRIVE**

The Electrical, Computer, and Optical Engineering (ECO) Excellence Fund begins at a time when the aging workforce of Huntsville area government, government contractors and the vibrant commercial sector have forced the community to look at its ability to sustain the local economy and to continue to attract new and developing business. Excellence in technical education is more critical than ever before to develop an equipped workforce and meet the needs of employers and their missions. The ECO Engineering Excellence Fund will enhance the quality of education in the Electrical, Computer, and Optical Engineering disciplines in the following areas:

**Scholarships**

The ability to attract the best students often comes down to scholarship offerings. For UAH to have the quantity and level of scholarships available to compete with larger universities, the community must have a role.

UAH seeks to enhance the scholarship offerings, and donors will have options of scholarships in the electrical, computer, and optical engineering disciplines.

**Fellowships, Distinguished Professorships, Visiting Scholars, Endowed Positions**

A university with exceptional students can only reach its full potential with exceptional faculty and researchers. Donors to the ECO Engineering Excellence Fund have the option of funding opportunities that help to build the department through fellowships, distinguished professorships, eminent or visiting scholar positions, and endowed positions (professorships and department chairs). These positions will bring prestige to the ECE Department and to the University, resulting in the attraction of top students.

**Laboratory Equipment**

To prepare students for successful careers in industry, high-quality training with modern engineering tools must be provided. Due to rapidly changing technology, the ECE Department must continuously update computer classrooms and teaching laboratories. For students and faculty alike, up-to-date facilities are essential to maximize potential and optimize productivity. Therefore, to maintain an environment conducive to learning and development, the ECE Department would like to replenish facilities with state-of-the-art equipment.

**Co-op Student Recruitment Funds**

The Co-op student – Employer relationship results in the hiring of a good, knowledgeable employee in approximately 80% of cases. Attracting the right students into the program is critical, and additional funds will assist in increasing the number and quality of Co-op students available to partner corporations.

**Discretionary Funds**

Often, departmental chairs are presented with needs within their departments that are vital to the growth and quality of the educational experience, yet are unfunded. Undesignated discretionary and excellence funds allow the chair, at their discretion, to develop students and faculty. To allow this enrichment to occur, UAH hopes to expand the Chair’s discretionary fund.
Industrial Advisory Board

Current Advisory Board Members Are:

1. Dr. Jon Bendickson, Senior Engineer, Dynetics, Inc.
2. Dr. Bob Berinato, Senior Engineer, Dynetics, Inc.
3. Mr. William Bishop, Sr. Systems Project Manager Systems Studies & Simulation, Inc.
4. Dr. Mervin C. Budge, Jr., Chief Scientist, Dynetics, Inc.
5. Dr. William Craig, Director, Software Engineering Directorate
6. Mr. Paul G. Cox, CEO, PERL Research
7. Mr. Daniel M. Joffe, Senior Staff Scientist/ Mixed Signal Design Manager (Term Ended), ADTRAN
8. Dr. Bob McMillan, Senior Research Scientist SMDC-RD-TC-MS
9. Dr. Marshall Molen, DTI-Ergon Distinguished Professor Mississippi State University
10. Dr. Jerry Moore, VP Emeritus, ADTRAN
12. Dr. Terry D. Rolin, Electronics Engineer, NASA-MSFC
13. Dr. Brian J. Smith, Research Electronics Engineer, US Army
14. Dr. Glenn Weathers, Chief Technical Officer Applied Data Trends, Inc.
15. Mr. Phil Wright, Engineering Manager (Term Ended), ADTRAN
16. Dr. George O’Reilly, Phase IV Systems
17. Ms. Sheila Burton, President of the UAH Society of Women Engineers (NSBE)
18. Mr. Gregory Reed, President of the UAH Institute of Electrical and Electronics Engineers (IEEE)
19. Ms. Sarah Hard, President of the UAH Society of Women Engineers (SWE)
20. Dr. Dan Fleedwood, Chair ECE Department at Vanderbilt

Conference Best Paper Award

Dr. Earl Wells (left) with PhD student Zexin Pan.

Zexin Pan won a “Best Paper Award” at the International Symposium on Performance Evaluation of Computer and Telecommunications Systems held July 24-28, 2005 in Philadelphia, PA, for his first authored paper (Dr. Wells is the second author) which is entitled “Microarchitecture Support for the Dynamic Scheduling of Task Systems with Data and Control Dependencies on Reconfigurable Architectures.”

There were a total of 169 refereed papers accepted at this conference and Mr. Pan’s award was one of three “Best Paper” awards made at the conference.

2005 Engineering Summer Camp

High school students learn about electronic circuits and sensors by putting together a robot kit under the supervision of Dr. Charles Corsetti, ECE Lecturer and Assistant Chair, during the ECE department's section of the UAH College of Engineering's 2005 Engineering Summer Camp.
**Going Strong:**
**Charger IEEE Action Report**

It's been an exciting year for Charger IEEE so far this year, with much more yet to come. Charger IEEE, the UAH student branch of the Huntsville IEEE chapter, is an SGA-chartered club with the goal of helping students of all majors learn about electrical and computer engineering, electronics, and technology.

Charger IEEE has been very active in the first half of the fall semester in attracting and teaching new members. In addition to a successful "Movie Night" in early October, the club has been attempting to teach all its members about electronics, mainly through robotics.

The most successful of these approaches has been the BumperBots: small, inexpensive, and very simple line-following robots designed by the club and built by new members as a way of learning basic electronics hardware, mechanical construction, and soldering techniques. The follow-on to the BumperBot is the ATMEL Trainer, a board housing an Atmel ATMega16 microcontroller with a breadboard, LED array, potentiometer, and other devices with the goal of helping new members learn about embedded programming. The BumperBot and ATMEL Trainer are also designed to interface together; the BumperBot can be driven by the ATMEL Trainer, and the ATMEL Trainer can read the BumperBot's sensors. Charger IEEE also has other "Charger Trainer" kits planned for use by members and the department's students, such as a digital logic board and sensor board.

Charger IEEE also has an exciting set of events and projects lined up for the future. In addition to plans for another talk on the DARPA challenge, the club is also planning a tour of Soldering Technology International of Madison, a variety of guest speakers, and more. Of course, robotics competitions are also a core activity for Charger IEEE; the organization is at present working towards competing in two different competitions.

Two teams consisting mostly of our newer members are building robots for the Trinity Firefighting Competition next May. These robots will have to autonomously navigate a maze that models a house in order to find and extinguish a lit candle in a set period of time.

A group of upper class students is working on an entry for the IEEE Southeastern Conference Hardware Competition to be held next April. The robot for this competition must navigate a given course autonomously, pick up twelve wooden blocks, read the barcode sticker on them, and sort them into three separate cardboard boxes on the opposite side of the course. Both of these competition projects have preliminary working hardware and are confident of having working robots by the beginning of the Spring semester. The organization also has quite a few additional projects in the planning phase, including contributions to the Charger Motorsports' racecar and the new High Student Space Hardware Club's projects.

This year looks to be one of the best for Charger IEEE, and anyone with a desire to learn about electronics and robotics is invited to participate. General body meetings are held Thursdays at 7:00 PM in the IEEE Project Lab, Room 141 in the Engineering Building and are open to everyone. For more information, please contact the club at ieee@uah.edu, or visit their website at http://ieee.uah.edu.
Talking Voltmeter:

Speech Synthesized Digital Device Project

The Speech Synthesized Digital Device project involved designing a speech synthesizer for the Metex 3850D Multimeter. The speech synthesizer was implemented by interfacing the multimeter to the Parallax’s SX28AC/DP Microcontroller and Magnevation’s SpeakJet voice synthesizer. The SX28AC/DP Microcontroller can receive the information from the multimeter and translate this information into the input language of the voice synthesizer. The primary goal of the project was to produce a device that would allow a visually impaired individual to control and use the multimeter.

The Metex M-3850D is a high-quality powerful multimeter that has many different operations and programmable capabilities. The meter can be connected via RS-232C serial cable to any computer or microcontroller to enhance its capabilities. The output of the multimeter was sent to the SX28AC/DP Microcontroller, which can be programmed to generate the necessary serial codes to operate the SpeakJet voice synthesizer.

The serial codes are four bits and are received at 9600 bps through a standard serial transmission. The SpeakJet chip is an all-in-one voice chip and sound synthesizer. This synthesizer is utilized to create unlimited vocabulary and sounds. The SpeakJet is preconfigured with 72 speech elements, 43 sound effects, and 12 DTMF tones. In order to expand the SpeakJet’s capabilities, it can be connected by a RS-232 serial connection to a microcontroller that allows implementation of a voice output of any device with a serial connection. The final output from the SpeakJet can be sent to an amplifier and a speaker so that the user can hear the result.

The Speech Synthesized Digital Device project team consisted of the following ECE students: John Whitfield, Crystal Beard, Jonathan Stephens and Elizabeth Taylor. The design effort was started as an EE 494 project in the Spring 2005 semester for EE seniors John, Crystal and Jonathan; Elizabeth worked with the seniors as an intern from Northwest Shoals Community College.

EE 494, EE Design Projects, is the capstone design course required of all electrical engineering seniors. John Whitfield completed the programming effort for the project during the Summer 2005 semester as an EE 412, Senior Design Project in Electrical Engineering, elective course. The design project allowed the team both to gain valuable experience and knowledge about programming and electronics, and to develop important work-related skills. Messrs. John Jacomino and Ed Crackel, engineers with Benchmark Electronics, as well as the UAH ECE Department, sponsored the project. Dr. Charles Corsetti of the ECE Department served as the faculty supervisor for the project. The students dedicated their project to Mr. John Crackel, Ed Crackel’s brother.

Totally blind since the age 13, John Crackel developed a fascination with radios and radio collecting. According to his brother Ed, John uses the radio as his primary communication and entertainment medium. When his radio failed, John was motivated to repair what he had. The Speech Synthesized Digital Device will make voltage and continuity functions of electrical circuits easier and will assist John in his radio repair efforts, according to his brother, Ed.

For more information on EE Senior Design projects contact:
Dr. Charles Corsetti <corsetti@ece.uah.edu>
Dr. John Stensby
20-Year Service Award Recipient

Dr. John Stensby, Professor, received a UAH 20-year Service Award at the Spring 2005 awards luncheon.

Dr. Stensby's research in phase coherent systems has produced fundamental contributions on the problem of false lock in phase locked loops (PLLs). He has developed a new lock detector, which significantly out performs the classical phase quadrature PLL lock detector (which is a first-order approximation of the new detector).

Dr. Stensby is also active in the area of satellite communication systems. He has constructed a ground station capable of effecting computer file transfer with existing low earth orbit store-and-forward packet radio satellites.

Dr. Jeff Kulick
15-Year Service Award Recipient

Dr. Jeff Kulick, Professor, received a UAH 15-year Service Award at the Spring 2005 awards luncheon.

Professor Kulick's research involves computer architecture and design as well as digital image processing and visualization. He has served on the faculty of Queen’s University in Kingston, Ontario, Canada, and as a Visiting Professor at the Media Laboratory, MIT, Cambridge, Massachusetts.

Professor Kulick directs the ICVision Project, devoted to the development of a true 3-dimensional, full color, holographic display system based on integration of liquid crystal displays with VLSI chips.

Jackie Siniard, Senior Staff Assistant, received a UAH 15-year Service Award at the Spring 2005 awards luncheon.

Jackie is responsible for the department’s graduate students and the AMRDEC program students; offer letters for GTA's/GRA’s; assisting the chair with recruiting faculty and graduate students; appointments for the chairman; email inquiries re grad studies; general office duties, and assisting the chair with faculty nominations.

Jackie worked in Graduate Studies before joining the ECE Department in Fall 1998.

Spring 2006 Computer Engineering Graduate Courses

CPE 521 Microcomputers
3:55-5:15 PM, Monday and Wednesday
The goal of this course is to teach students how to design microcomputer systems and how to utilize a microprocessor as a basic system component or single chip microcomputer. The course begins with an overview of a typical microcomputer architecture and examines the hardware features of the microprocessor system. Basic microcomputer design and the interface between the microprocessor and external devices are explored. This course examines software aspects of microcomputers using assembly language and C programming. At the end of course single chip microcomputers are introduced for embedded and power applications. The prerequisites for this course are EE 202, EE 315 and CPE 321 or equivalent. For more information contact Dr. Milenkovic at 824-6830 (milenka@ece.uah.edu).

CPE 522 Advanced Logic Design
9:35-10:55 AM, Tuesday and Thursday
To be competitive, today’s digital designers must utilize a wide variety of tools and rapid prototyping techniques. This course explores a number of issues that are pertinent in modern design environments including advanced concepts in Boolean algebra, use of hardware description languages as a practical means to implement hybrid sequential and combinational designs, digital logic simulation, rapid prototyping techniques, and design for testability concepts. Assignments focus upon the actual design and implementation of sizable digital design problems using a representative set of Computer Aided Design (CAD) tools. The prerequisite is an introductory undergraduate course in logic design (e.g. EE 202). For more information contact Dr. Wells at 824-6047 (wells@ece.uah.edu).

CPE 526 VLSI Design Using Hardware Description Languages, Modeling, and Synthesis
2:20-3:40 PM, Tuesday and Thursday
This course deals with modern VLSI design techniques and tools such as VHDL modeling languages, placement and routing tools, synthesis tools, and simulators. Students will design, simulate, and layout using both programmable logic families and ASIC libraries. The tools used are commercially available tool suites from the design automation leaders, Mentor Graphics and Synopsys. A major component of the class is an instructor approved team project of the students’ choosing. The prerequisites for this course are an electronics class (e.g. EE 315) and a basic logic design class (e.g. EE 202). For more information, contact Dr. Gaede at 824-6573 (gaede@ece.uah.edu).

CPE 536 Internals of a Modern Operating System
11:10 - 12:30 PM, Tuesday, Thursday
This course presents an in-depth study of a modern operating system through the detailed review of actual source code. For this term, we will study Linux with the 2.6 kernel. Emphasis will be on the internal structures and policies including process management, memory management, and I/O systems. Details of performance tuning and debugging both applications and operating system internals will be covered. Prerequisite: CPE 336 or a first course in operating systems. For more information please contact Dr. Kulick at 824-6049 (kulick@ece.uah.edu).

CPE 538 Real Time & Embedded Systems
3:55-5:15 PM, Tuesday and Thursday
This course is concerned with the development of correct and precisely timed real time and embedded systems. A continuum of design methodologies are studied ranging from pure software running on a standard processor and operating system, to hard and soft core processors and gate level designs embedded within an FPGA. Designs are implemented with a goal of meeting precise timing criteria using a variety of design and synthesis methodologies including Mathlab and SystemVerilog. The prerequisite for this course is CPE 522 or CPE 526. For more information, contact Dr. Kulick at 824-6049 (kulick@ece.uah.edu).

CPE 548 Introduction to Computer Networks
2:20-3:40 PM, Monday and Wednesday
Introduction to basic computer network concepts, underlying technologies, including local area networks, Ethernet, Internet, TCP/IP and application layer protocols, socket programming and network tools. For more information, contact Dr. Pan at 824-6642 (dpwan@ece.uah.edu).

CPE 549 Introduction to Information Assurance Engineering
11:10AM-12:30 PM, Monday and Wednesday
Information Assurance Engineering focuses on tools, processes, and methods needed to design, implement, and test systems and to adapt existing systems to survive in a hostile environment. This course will cover topics ranging from cryptography and computer security through hardware and software implementation to knowledge of audit methods, security management and public law. The prerequisite for this course is CPE 548 (Introduction to Computer Networks) or equivalent. For more information on this course contact Dr. Adhami at 824-6316 (adhami@ece.uah.edu).
CPE 625 CMOS Analog Circuit Design
3:55-5:15 PM, Tuesday and Thursday
This course focuses upon analog circuit design in CMOS technology. Topics include CMOS processing technology, MOS transistor modeling, basic current mirrors and single-stage amplifiers, noise analysis and modeling, basic OPAMP design and compensation, advanced current mirrors and OPAMPS, bandgap references, oscillators and CMOS technology characterization for radio-frequency (RF) design. The prerequisite for this course is EE 416 or equivalent (second course in Electronics). For more information contact Dr. Ho at 824-6168 (ho@ece.uah.edu).

CPE 631 Advanced Computer Systems Architecture
2:20-3:40 PM, Monday and Wednesday
This course surveys the architecture and organization of modern computing systems including: CPU design, instruction sets, memory hierarchy, pipelined machines, and multiprocessors. The emphasis is on the major component subsystems of high performance computers: pipelining, instruction level parallelism, memory hierarchies, input/output, and network-oriented interconnections. The course focuses on the techniques of quantitative analysis and evaluation of modern computing systems, such as the selection of appropriate benchmarks to reveal and compare the performance of alternative design choices in system design. The prerequisite for this course is CPE 531 or equivalent. For more information contact Dr. Milenkovic at 824-6830 (milenka@ece.uah.edu).

CPE 641 Data and Digital Communications
3:55-5:15 PM, Tuesday and Thursday
This course introduces students to the basic concepts of digital and data communications such as baseband and bandpass data transmission; modulation techniques, error analysis, maximum likelihood signal detection, carrier phase, timing recovery and channel models for communication systems. The prerequisite for this course is EE 500-420 or equivalent. For more information contact Dr. Joiner at 824-6126 (ljoiner@ece.uah.edu).

CPE 647 Ubiquitous Computing
5:30-6:50 PM, Monday and Wednesday
The new anytime, anywhere, computing paradigm, also known as ubiquitous computing, significantly changes the way we work and live. This course is project based, and explores issues of mobile, wireless, and distributed computing in the Internet environment, advanced human-computer interfaces, and power efficient computing. The prerequisite for this course is the approval of the course instructor. For more information and to gain approval contact Dr. Jovanov at 824-5094 (jovanov@ece.uah.edu).

CPE 648 Advanced Computer Networks
7:05-8:25 PM, Monday and Wednesday
Introduction to the advanced principles and concepts of computer networks. Topics covered include network protocols and the TCP/IP suite, high-speed networks, performance modeling and estimation, congestion and traffic management, compression, quality of service in IP networks, and network security issues. The prerequisite for this course is Introduction to Computer Networks (CPE 548 or equivalent). For more information, contact Dr. Pan at 824-6642 (dwpan@ece.uah.edu).

CPE 649 Advanced Information Assurance Engineering
5:30 AM-6:50 PM, Tuesday and Thursday
This course provides an introduction to topics ranging from how to attack computer systems and networks to how to protect and recover from such attacks. It explores the basic processes that are utilized by computer attackers in order to develop a complete understanding and appreciation of the threat to information assurance. Course discusses the process of detecting, preventing, and recovering from information assurance attacks. Intrusion detection and prevention systems, auditing, security vulnerability assessments, and the incident response process are covered in some detail. The prerequisite for this course is CPE 549 (Introduction to Information Assurance). For more information on this course contact Dr. Adhami at 824-6316 (adhami@ece.uah.edu).

CPE 748 Mobile and Wireless Networks
5:30-6:50 PM, Tuesday and Thursday
This course covers high-level issues in mobile and wireless networks. The main topics are mobile IP, mobile ad hoc networks (MANETS), wireless sensor networks, wireless LAN, Bluetooth, cellular networks, satellite systems, and security issues in mobiles and wireless networks. Students are required to write a research paper as a term project. This course is a highly research-oriented class. Students will make presentations on research papers and his/her own term paper. The prerequisite for this course is an advanced computer network course (CPE 648, CS 670, or equivalent). For more information contact Dr. Yoo at 824-6858 (yoo@ece.uah.edu).

Introducing
Dr. Junpeng Guo
Associate Professor

Dr. Junpeng Guo joined the ECE Department in August 2005 as an Associate Professor.

Dr. Guo received his Ph.D. degree in Electrical Engineering from the University of Illinois at Urbana-Champaign in 1998. Before joining the University of Alabama in Huntsville, he spent most his career at the Sandia National Laboratories in Albuquerque, New Mexico and the Rockwell International Science Center in Thousand Oaks, California. He also held research faculty position in the Fitzpatrick Center for Photonics at the Duke University, North Carolina.

Dr. Guo has made contributions in many areas of photonics. His early work was on the complex spatial and temporal optical field characterizations, which involved micro-scale photonic device fabrications, holography, and femtosecond optical measurements.

His work at Rockwell Science Center was mainly in the area of RF/microwave photonics, which included adaptive RF/microwave signal processing and high-bandwidth (>10GHz) signal transmission using coherent light.

At Sandia National Laboratories, his research was focused on nano/micro-structure photonic devices (nano-structure artificial materials, micro-resonators, and photonic crystals) for biosensor and imaging applications.

His current research at UAH is focused on nanophotonic devices and systems for biochemical sensor and biomedical applications.

In his spare time, he likes hiking and playing tennis with his family.

The Photonics Lab, located in the Optics building, is primarily for instruction. Students in the OPE and OPT programs conduct a number of experiments that fulfill course requirements for their degrees. Some of the experiments conducted: optoelectronic device characterization, optical fiber communication network, fiber sensors, and liquid crystals.
**Introducing…**

**Ron Bowman**  
**Lecturer**

Ron Bowman joined the ECE faculty as a Lecturer in January 2005.

Ron received the MSE degree in Electrical Engineering from Clemson University in 1993 and the BSE degree in Electrical Engineering from the Rose-Hulman Institute of Technology in Terre Haute, Indiana, in 1986.

Ron worked as a Staff Engineer for Techno-Sciences in Pendleton, South Carolina, from 1997-1999, involving multicast protocol development for frequency-hop based multiple-hop wireless networks.

Ron was a member of the UAH ECE part time faculty from Fall 2001 to Summer 2004.

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**Dennis Hite**  
**Lecturer & IT Specialist**

Dennis Hite joined the ECE Department in April 1999 as Laboratory Manager and accepted the position of Lecturer/Information Technology Specialist in August 2005.

In his new position he serves as Lecturer and manages the Cyber Charger Lab and Video Over IP facilities in the Department.

Dennis received his M.S.E. in Electrical Engineering from University of Alabama in Huntsville in 2005, and B.S. degree in Physics from Purdue University in 1998.

He is currently pursuing his Ph.D. (Advisor: Dr. Tim Boykin) in Electrical Engineering at UAH.

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

Tim Torrie joined the ECE Department on October 17, 2005 as Lab Manager.

Prior to joining the ECE Staff Tim worked for Huntsville City Schools where he served as the computer specialist for the Fletcher E. Seldon Center, Huntsville’s alternative school. Prior to that position, Tim worked at Intergraph as a senior software test engineer and NASA’s Marshall Space Flight Center as a senior computer electronics technician.

Tim also worked for SECOTEC, assisting with data acquisition during the NAVAL Lethality Testing at White Sands.

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**Information Assurance Engineering Program**

The program consists of 36 semester hours approved by a faculty advisor and may include courses from the following list:

- Introduction to Computer Networks
- Advanced Computer Networks
- Introduction to Information Assurance Engineering
- Wireless Computer Network Security
- Advance Information Assurance Engineering
- Real Time Operating Systems
- Introduction to Data Communication Networks
- Engineering mathematics courses
- Management courses
- Engineering Management
- Engineering Project Management
- Financial Methods for Engineering
- Electrical Engineering Capstone courses

**Background Courses**

- Programming in a high level language
- CPE 112
- Data structure
- CPE 212
- Algorithm Design/Analysis
- CS 317
- Operating Systems
- CPE 336
- Computer Architecture
- CPE 431

**Program of Study**

1. Major  
12 hours

- CPE 548 Computer Networks 3 Hrs.
- CPE 549 Intro to Info. Assurance Engineering 3 Hrs.
- CPE 645 Computer Network Security 3 Hrs.

2. Minor  
6 Hours (Engineering)

3. Minor II  
6 Hours (Mathematics or Engineering Math)

4. Others  
12 Hours including:

- CM 601 Communication for Engineers 3 Hrs.
- EE 691 Graduate Seminar I 3 Hrs.
- EE 692 Graduate Seminar II 3 Hrs.
- MIS 670 Business Contingency Planning 3 Hrs.
- Plus two more courses* 6 Hrs.

*These two courses may be taken as selected topics in information assurance engineering as EE610 and EE710 providing students with the knowledge required to become certified in an information assurance program.

**Note:** All programs of study must be approved by the program committee.

**Admission Requirements**

For unconditional admission to the MSE Concentrating in Information Assurance Engineering, the requirements are:

- A Bachelor’s degree from an ABET or CSAB accredited program with a minimum of 3.0 average on a 4.0 scale, and
- Minimum GRE score of 1500, or 5 or more years experience, or passed FE Exam
- For international students, a TOEFL score of 550.

Conditional admission may be granted to individuals who fail to meet the requirements for unconditional admission.
Journal Papers


Conference Papers

J. Guo, R. Adato, A. Portnoy, and D. J. Brady, “Sub-pixel response of imaging sensors and point spread function characterization,” Optics in the Southeast, Oct. 5-7, 2005, Atlanta, Georgia, USA.


A. Portnoy, J. Guo, and D. J. Brady, “Super-resolved point source tracking using a birefringent material and a diffraction limited optical system,” 8th Joint Conference on Information Sciences, July 21-26, 2005, Salt Lake, Utah, USA.


Journal Articles


Conference Papers


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

**Journal Articles**


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

**Journal Articles**


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

**Journal Articles**


**Book Chapter**


**Conference Presentations**


Journal Papers


Conference Papers


Conference Papers


NSF Hands-On Optics Program at UAH

Optical Resource Volunteers and Teachers at the conclusion of Module 1 Training in the Material Science Building at UAH.

Mr. David Pollock, ECE Associate Research Professor, initiated UAH participation in the Hands-On Optics (HOO) program to create and sustain a unique, national, informal science education program to excite students about science by actively engaging them in optics activities. This collaborative program funded by the National Science Foundation is actively supported by National Optical Astronomy Observatory, the Optical Society of America, SPIE and MESA.

The first of a continued and expanding out-reach to the Huntsville area educators training them in the field of optics took place on the campus of The University of Alabama in Huntsville on Friday, August 5. Sponsorship of the UAH activities is provided by the Electrical Computer Engineering Department and the College of Science of the University, and active support is provided by the dedicated work of the Graduate Student volunteers, Faculty members, Staff of the Center for Applied Optics and members of the Huntsville Electro-Optical Society, HEOS.

A successful middle school teacher training session reached ten teachers representing the Academy for Science and Foreign Language, Discovery Middle School, Chapman Middle School and Sci-Quest (home schooling). Graduate students have mentored weekly classroom presentations to the ASFL students by the trained teachers since the beginning of the fall semester.

UAH as a partner adds value, resources, and expertise not only to promote stability and sustainability, but also to ensure the most enriching optics education experiences for the students, parents, teachers and communities.
Here is an insight into the plans of some of the ECE Department’s Fall 2005 GTAs. In the future we will list others, as they are submitted for publication. In addition to being graduate students pursuing MS and PhD degrees, GTAs instruct laboratories, assist other lab instructors, and assist the faculty with their classes.

**Gladstone Michael Adderley II** plans to complete his MSE degree in CPE in May 2007. Research title TBD. (Advisor: Dr. R. Gaede)

**Rami Al Namneh** expects to complete the Ph.D. in Computer Engineering in Spring 2006. His research is in signal/parallel processing with the dissertation title “Performance Analysis of 1-D FFT on Parallel Computers.” (Advisor: Dr. David Pan)

**Ashkan Ashrafi**, Ph.D. Candidate for Spring 2006. Dissertation Title: "A Quasi-Linear Interpolation Method to Develop a Direct Digital Frequency Synthesizer with VLSI Implementation." (Advisor: Dr. Reza Adhami)

**Jing Cai** is researching distributed source coding and expects to complete Ph.D. degree in December 2007. (Advisor: Dr. David Pan)

**Johnathan Carlson** plans to complete his Master of Science degree in Electrical Engineering in May 2006. The title of his research is “SmartSkin Materials: Design and Fabrication.” (Advisor: Dr. David Coci)

**Sussan Einakian** is completing the Master of Science in Engineering degree in Computer Engineering in Fall 2005, in the non-thesis option. She will enter the Ph.D. program in Spring 2006. (Dr. Earl Wells, Advisor)

**Raghuram S. Godavarthi** (not in photo) plans to complete the Master of Science in Software Engineering degree in Summer 2006. (Advisor: Dr. C. D. Johnson)

**Sivarajini Govindan** plans to complete the MSE degree in Electrical Engineering in Fall 2006. (Advisor: Dr. Dahsen Shen)

**Yoshito Kanamori** is a Ph.D. candidate expecting to graduate in Summer 2006. His research interests include quantum cryptography, computer network and security. His dissertation title is “Quantum encryption and authentication protocols.” (Advisor: Dr. Seong-Moo Yoo)

**Parisa Kaveh** is a Ph.D. student working on her dissertation: “Diabetes Management Using Sliding Mode Control.” (Advisor: Dr. Yuri B. Shtessel)

**Farshad Kheiri** is taking the PhD Preliminary Exam in January 2006 and expects to complete the Ph.D. in 2009. He is working on digital signal processing, especially image processing techniques and VLSI techniques for DSP approaches. (Advisor: Dr. Reza Adhami)