

The Rose Current

Rose-Hulman Ranked #1 for Fourth Year in a Row in U.S. News & World Report
America's Best Colleges



126 Years



Rose-Hulman
INSTITUTE OF TECHNOLOGY

Summer 2003
Issue III

Electrical & Computer
Engineering Department

Annual Newsletter

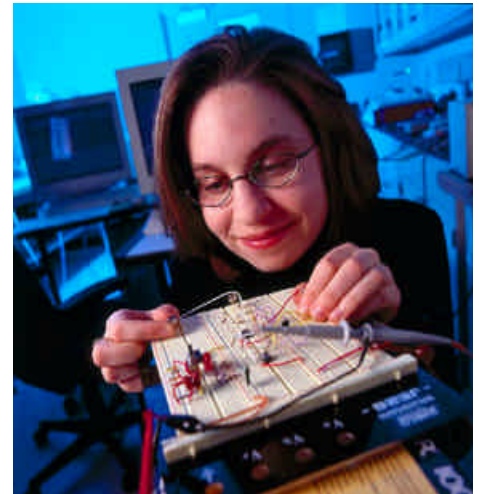
Inside This Issue

1. All-USA College Academic Team
2. Vision For the Future
4. ECE Speaker Series
5. Young Alumni News
6. Student Awards
7. Student News
9. ECE Faculty News
11. Blast From the Past



ECE STUDENT NAMED TO PRESTIGIOUS ALL-USA COLLEGE ACADEMIC TEAM

Scholar. Entrepreneur. Student leader. All of those qualities, and many more, helped Rose-Hulman Institute of Technology senior electrical engineering major Rachel Lukens be selected to the second team of the 2003 All-USA College Academic Team. This year's choices were published in the Feb. 13 edition of USA Today. Approximately 500 college students from U.S. four-year colleges and universities were nominated for this prestigious honor.



Rachel Lukens

Lukens was the only Indiana resident to make either the first (20 students) or second team (another 20 students) this year. Lukens, a 1999 graduate of Terre Haute South High School, received high marks for her academic credentials (3.8 grade point average) and involvement in a wide range of educational and community activities.

While working at Rose-Hulman's technology-based product development center, Rose-Hulman Ventures, Lukens played a significant role in the development of a new breast cancer biopsy Automated Tissue Excision and Collection (ATEC) device for Suros Surgical Systems of Indianapolis. ATEC, which makes biopsy much faster and less painful, earned FDA approval in March 2002, and is currently being used by physicians in 14 cities including Indianapolis, Atlanta and Miami.

On campus, Lukens is editor-in-chief of Rose-Hulman's award-winning weekly student newspaper, The Thorn, managing a staff of 15 non-journalism students; served as president of the Spanish Club, planning and promoting club activities; and been an active member and officer of the Delta Delta Delta sorority, serving as vice president of finance for the 61-member organization this year. She has also volunteered for an on-campus Habitat for Humanity house construction project, and been a member of the Tau Beta Pi national engineering honor society, Society of Women Engineers, Institute of Electronic and Electrical Engineers and Pi Mu Epsilon mathematics society.

Lukens plans to work for Xetron Corp., a Cincinnati, Ohio-based company that specializes in custom communication systems. She will perform digital hardware design.

Vision For the Future

WHERE ECE NEEDS TO BE IN THREE YEARS

Wireless It Is: Wireless technology is rapidly becoming ubiquitous. It touches each of us almost every day. Global wireless networks are linking a wide variety of devices and applications, including cellular telephones, global positioning systems (GPS), personal digital assistants (PDA), notebook computers, and medical devices. In this “untethered” world, for the first time, we are able to communicate over distances large and small while on the move.

Moreover, this change has occurred quickly. Rose-Hulman, only ten years ago, was one of the first schools in the country to fully wire its campus and require all of its entering students to purchase a computer. We still require the computer, but this year, for the first time, the freshmen were asked to purchase a laptop computer with wireless capabilities. Nodes have been installed throughout campus for their use. Technology changes quickly and Rose-Hulman has always been adept at staying abreast of new developments that can enhance the educational experience for its students.

Rose-Hulman’s experience with laptop computers is but a small example of changes occurring everywhere. The wireless industry is growing rapidly throughout the world. A few industry statistics make the point:

- Wireless equipment sales, subscription fees, and airtime minutes in North America are expected to grow from \$500 million in 2002 to \$3 billion in 2006.
- There are more than 120 million Code Division Multiple Access (CDMA) subscribers worldwide at the end of the first quarter of 2002, with nearly 53 million users in North America.
- Residential subscribers to wireless broadband in the United States will grow from approximately 338,000 at the end of 2001 to 3.1 million at the end of 2006.
- The wireless local area network (LAN) is estimated to grow by 168% over the next five years
- Wireless and mobile transactions now account for nearly 20% of business-to-business transactions
- 86% of the professionals surveyed in the fields of mobile computing, wireless electronic devices, and battery technology felt that wireless would overtake and oversell landline services within the decade.
- An international boom in Internet use and the increasing popularity of cell phones in countries without a wireline infrastructure is expected to greatly increase demand for wireless wide area network (WAN) equipment. This segment of the market generated \$4.6 billion in 2000; it is projected to increase to \$15.6 billion by 2007.

This technology is likely to provide enormous opportunities to young men and women who have the background, training and expertise to engineer the next generation of breakthroughs in the untethered world of wireless communication.

An Opportunity For Rose-Hulman: The rapid proliferation of wireless devices has created many new engineering challenges. It is an exciting and fascinating time to be part of this industry as it grows, adjusts, and creates. These challenges can and will be met, provided there are enough wireless engineers to keep pace. Unfortunately, the rapid emergence of wireless technology has outpaced the academic infrastructure needed to support it. The Cellular Telephone Industry Association recently conducted a study on the availability of wireless curricula and found a severe shortage of schools offering any wireless education.

So, today we find ourselves in a world that has an unprecedented demand for students with knowledge and expertise in wireless engineering. In spite of this demand, the academic world has been slow to react. Today, there is not one school with an Accreditation Board of Engineering Technology (ABET) accredited wireless engineering program.

Rose-Hulman views the current state of affairs as an exciting opportunity, if we act quickly. We propose to assume a leadership role for the school and the state of Indiana in the area of wireless education. The timing is right and we have put together a partnership that can get the job done.

The Goal, To Lead In Wireless Engineering Education: Rose-Hulman has a nationally recognized reputation for excellence in engineering education based on hard work, dedication, and a clear “Vision to be the Best.” Our view of engineering is *hands-on* and *minds-on* learning through a rigorous and challenging academic environment. Our faculty is devoted to helping students discover, understand, and apply the concepts of engineering to design state-of-the-art systems through real-world projects.

We are prepared to put together a strategic partnership that can extend this educational philosophy to the area of wireless engineering. Our goal is nothing short of making Rose-Hulman the national center for undergraduate education in the area of wireless systems.

The Partnership: The partnership that Rose-Hulman proposes to lead will undertake to develop a national curricula model in wireless engineering within 3 years. Assessment and cycles of refinement will continue beyond this period.

We have every reason to believe that this model can become the national standard and that other schools will adopt. Rose-Hulman will most certainly reap the benefits that can come from playing a central role in this process. We will be rightly perceived as being world leaders in wireless engineering and its ancillary technologies.

Our proposed partners are as follows:

- The Electrical and Computer Engineering (ECE) Department at Rose-Hulman Institute of Technology
- The Global Wireless Engineering Consortium (GWEC)
- The Academy of Academic Media (AAM) at Rensselaer Polytechnic Institute
- The Accreditation Board for Engineering and Technology (ABET)

Background On Each Partner: We propose to collaborate with the Global Wireless Engineering Consortium (GWEC) to shape a wireless curriculum into a nationally recognized model for wireless engineering. GWEC, initiated by industry leaders in 1998, is an industry/academic partnership focused on expanding wireless technology curriculum in academic institutions worldwide. At its heart, this initiative is designed to address the workforce shortage that will soon reach crisis proportions. GWEC has helped establish a number of successful wireless programs in both two-year and four-year academic institutions.

Its members reads like a “Who’s Who” in the wireless industry, and include AT&T Wireless Services, Award Solutions Inc., Cingular Wireless, EDS PLM Solutions, Emona Instruments, Ericsson, Flextronics Network Services, Motorola, Movilnet, Nokia, Sprint PCS, Telcordia Technologies, and Verizon Wireless. There are also sixty-five colleges and universities worldwide (including Rose-Hulman) participating as GWEC education partners.

Engaging interactive electronic media will be developed as a way to share and disseminate the curricula for wireless engineering to the sixty-five education partners. The development of this electronic media will revolutionize the ways in which knowledge is garnered and technology is utilized at all levels.

Rensselaer Polytechnic Institute (RPI) has been a pioneer in the development of electronic media. Therefore, we propose to collaborate with the Academy of Electronic Media (AEM) at RPI, which specializes in the creation of interactive multimedia, the development of new pedagogy for how they should be most effectively utilized, and the discovery of new technology to aid in the development, deployment, and dissemination of these materials.

Since accredited wireless engineering programs do not currently exist, any program that is created must be reviewed by the **Accreditation Board for Engineering and Technology (ABET)** under its “Nontraditional Program Criteria.” However, once fifteen wireless programs are in place, then they can be reviewed under ABET’s “Program-Specific Criteria.” This would be one of the goals of the partnership. In order to increase the likelihood of ABET accreditation under program specific criteria; we will develop a curriculum model. This will greatly facilitate the establishment of wireless programs and degrees nationwide.

The collaboration and experience gained by the partnering institutions would not end with this project. The development of electronic course materials, simulation modules, electronic tutorials, and laboratory materials will continue to grow, as the supporting infrastructure becomes more transparent and beneficial to the users.

Specific Objectives: This proposal is specifically aimed at the establishment of a national curriculum resource for wireless engineering. We are seeking the support for the following items:

1. The creation of wireless laboratories and course infrastructure where Rose-Hulman students can learn the basics of electromagnetism, signal processing, radio frequency circuit design, and culminating in communication systems design. This includes the development of interactive modules, simulations, and simulated laboratory tools in partnership with AAM. The current GWEC modules will provide the fundamental basis for all curriculum development.
2. The refinement and dissemination of the course material that is developed so that other GWEC member schools can use them. This is in direct support of the GWEC culture of promoting collaboration amongst educational institutions. Ultimately, the partners will strive to use the materials in a combination of high school, undergraduate, and graduate programs.
3. The team will also formulate strategies to demonstrate the effectiveness of the materials in academic, industrial, and commercial environments and allow multiple levels of users to garner scientific and technological insight.
4. The creation of wireless curricula for four-year and two-year programs that can be used as templates for degrees, programs, and minors in wireless engineering.
5. The dissemination of curricular templates for degree programs for wireless engineering at four-year colleges and universities, and, also, for two-year programs.
6. The establishment of Indiana and Rose-Hulman as the focal point for the annual GWEC Faculty Workshop. This Workshop will provide a forum and environment for faculty members and industry representatives to learn about curriculum updates and to discuss the state of the wireless industry. It would draw heavily upon the counsel of industry to ensure the relevancy and currency of curriculum developments. Rose-Hulman and GWEC will jointly host this annual conference, which would attract business and educational leaders to the state of Indiana.

Summary: This undertaking has three primary outcomes that occur in sequence. First, is the creation of cornerstone laboratories and course infrastructure at Rose-Hulman. The next step in the critical path is the partnership of Rose-Hulman, GWEC, and RPI to disseminate and refine these materials so that other GWEC schools can use them. The final step will be the creation of a wireless curriculum model for four-year and two-year programs that can be used as the template for degrees, programs, and minors for wireless engineering.

ECE Speaker Series

The Electrical and Computer Engineering (ECE) Department at Rose-Hulman Institute of Technology wishes to increase the diverse education of our students. Therefore, ECE desires to have notable figures in engineering, mathematics, and science present guest lecture to our students. These lecturers were chosen because of their technical areas and ability to be positive role models for our students. Below is a list of this year's speakers.

Date	Program
Sept. 26, 2002	David Fulton, of Delco Remy, Innovations in Vehicle Starting & Charging Systems
Oct. 10, 2002	Sara Dougherty, of Guidant Corporation
Oct. 30, 2002	Jack M. Gill, PhD, Where the Venture Capital Industry is Going
Nov. 7, 2002	Naval Surface Warfare Center, Crane Indiana
Dec. 12, 2002	David McKissock, of John Glenn NASA Research Center
Jan. 30, 2003	Reza Raeisi, of Mpowernet on Overview of a Computer Architecture Course
Jan. 30, 2003	John Treichler, of Applied Signal Technology
Feb. 3, 2003	Ibrahim Burak Ozer, of Princeton University on Smart Cameras as Embedded Systems
Feb. 7, 2003	Texas Instruments, Various talks 1st through 9th hour on various topics.
March 11, 2003	J. Brandon Laflen, of Purdue University
March 21, 2003	DeWitt Summers, of Florida State University on Calculating the Secrets of Life
March 21, 2003	Aparna Higgins, of University of Dayton on Demonic Graphs and Undergraduate Research
March 22, 2003	DeWitt Summers, of Florida State University on DNA Topology
April 7, 2003	Carlotta A. Johnson, on Enhancing a Human-Robot Interface Using a Sensory Egosphere
April 11, 2003	Tom Hiatt, of Centerfield Capital Partners on Venture Capital
May 2, 2003	Jeff Trang, Distinguished Alumnus, on his experiences as a test pilot
May 8, 2003	James A. Coles, of Bose, McKinney, & Evans on Intellectual Property: Alternate Perspectives

Young Alumni News

- **1Lt Bill Packham, USAF (EE 2001)**

"I'm currently residing in Albuquerque, NM as an officer in the USAF. I've been here for two years, and just got promoted to 1Lt. I'm working on the Airborne Laser Program and using my EE degree very often to troubleshoot problems at the R&D level of the Airborne Laser systems. Also, I am half way through my Masters Degree in Business Finance at the University of New Mexico."

- **Michelle Perez (EE 2001)**

"I am working as a software Engineer for Motorola for the iDEN group that makes NEXTEL. I've been recently awarded a BRAVO award for Outstanding work as Test Architect on our latest feature. On a personal note, I just moved into a new Townhouse in Hoffman Estates at the beginning of this month."

- **Onnie Putteet (EE 2001)**

"I am working at ITT Industries Aerospace/Communications Division (ITT A/CD) and living in the HUGE metropolis of Ft. Wayne, IN. I Just bought a house in January, and I'm going to Spain in August to visit David Swedelius (RHIT alum) whose working over there. He was an ME, but we won't hold that against him."

- **Elizabeth Kappler (EE 2002)**

Paul Kappler (EE 2001) married Elizabeth Huttshell (EE 2002) on May 27, 2002 in the White Chapel. (Yes, that was 2 days after Elizabeth's graduation!) They currently live in Beaverton, OR, where Paul works for Network Elements and Elizabeth works for Intel Corporation. They enjoy exploring the Pacific coast and the Cascade mountains in their free time and have recently begun the process of building a house.

- **Kelly Sullivan (EE 2002)**

"I am currently employed as an Electrical Engineer at Affiliated Engineers, Inc. (AEI) in Madison, WI. I spend the majority of my time designing lighting, power, fire protection and security systems for large scale laboratory and industrial buildings. In addition to office work I occasionally work in the field doing site surveys and verifying that designs are being followed."

- **Mishima Alam (EE 2003)**

"I will be living in Dayton, OH, and working for the National Air Intelligence Center at Wright-Patterson Air Force Base. I will be working with both engineers and political scientists in order to evaluate military air threats from Asian countries."

- **2Lt Chris Dupin, USAF (EE 2003)**

"I'm moving to Pensacola NAS at the end of June, and I'll be starting Undergraduate Navigator Training on 30 July. Hopefully, a year from now, I'll be living large in F-15E Strike Eagles."

- **Chad Ellis (EE 2003)**

"I am currently living in Mahomet, IL, working for AmerGen Nuclear in Clinton Illinois. I am in the electrical systems division of engineering at the plant. I will be getting married on June 12th (2004)."

- **Cassandra Mateo (EE 2003)**

"I accepted a position at Xetron in Cincinnati, OH and will begin work shortly. I'm looking forward to my new apartment in Fairfield, and starting to work with the University of Cincinnati Tri-Delta chapter."

- **2Lt Mike Nickelson, USAF (EE 2003)**

"I'm going to be living Woburn, Ma., and I'll be starting at Hanscom AFB as an Electrical Developmental Engineer on June 30, 2003."

- **Jerina Pillert (CPE 2003)**

"Right now I am working as a graduate student at the Biofluids Lab in the biomedical engineering department at Tulane University (New Orleans, LA). This fall I start classes. I currently live in the uptown area in New Orleans."

- **Mike Till (EE 2003) and Sarah White (CPE 2003)**

Mike Till (EE 2003) and Sarah White (CPE 2003) were engaged on January 3rd, 2003. They plan to be married in Indianapolis, Indiana on May 1st, 2004. Mike and Sarah currently live in the D.C. - Baltimore metropolitan area. Mike has taken full-time employment with the Department of State and Sarah works for Northrop Grumman Electronic Systems in Baltimore, Maryland.

Student Awards

THE ELECTRICAL & COMPUTER ENGINEERING OUTSTANDING SENIOR AWARD

The Electrical and Computer Engineering Outstanding Senior Award is presented annually by the department faculty to the student considered most outstanding on the basis of maturity and sense of judgment, responsibility, attitude, professionalism, curiosity, initiative, extracurricular activities and academic standing. This year's award goes to Electrical Engineering majors BENJAMIN HUCKABA and CHAD A. ELLIS and Computer Engineering major CASSANDRA L. MATEO.



Chad A. Ellis, Cassandra L. Mateo, Fred Berry, and Benjamin A. Huckaba

THE CLARENCE C. KNIPMEYER AWARD

Professor Clarence Knipmeyer taught at Rose-Hulman for 44 years. Professor Knipmeyer was head of the Electrical Engineering Department and his career did much to shape the ECE Department. This award is given to the electrical engineering or computer engineering major that at the conclusion of their junior year has the highest grade point average. This year's award goes to Electrical Engineering major, CHAD A. ELLIS and Computer Engineering major, CASSANDRA L. MATEO.



Chad A. Ellis, Fred Berry, and Cassandra L. Mateo

THE IEEE OUTSTANDING STUDENT AWARD

The faculty of the Electrical and Computer Engineering Department present annually an award to the student member of Rose-Hulman's Student Branch of IEEE (Institute of Electrical and Electronics Engineers) that has demonstrated outstanding leadership and service to the Electrical and Computer Engineering Department and the IEEE Student Branch. This year's recipient of The Institute of Electrical and Electronics Engineers Outstanding Student Award is ANNA L. YOKEL. Anna is a double degree in Electrical and Mechanical Engineering.



Anna L. Yokel and Fred Berry

ETA KAPPA NU SOPHOMORE OF THE YEAR AWARD

The members of Eta Kappa Nu and the faculty of the Electrical and Computer Engineering Department select this award. Presented annually to the sophomores with grade performance, attitude, potential for professional development and participating in campus life distinguished them as exceptional. This year's winners are Electrical Engineering majors MARTIN R. KUCHLE and THOMAS S. NG and Computer Engineering major JESSICA L. GROSS.



Thomas S. Ng, Martin R. Kuchle, Jessica L. Gross, and Fred Berry

Student News

BAR CODE SCANNER: Shawn Dobbs craves being able to prepare his own meals, select his favorite compact disc from the music store or purchase grocery store items on his own, despite being blind. A portable bar code scanning device, developed by a team of four Rose-Hulman Institute of Technology electrical engineering and computer engineering seniors, may open frontiers of independent living for blind and visually impaired persons. “I would rather use this type of device than to borrow someone else’s eyes,” said Dobbs, who currently needs to be guided by a personal assistant when shopping.



(front left) Doug Pickering, Ryan Horner, Dan Walter, and Anna Yokel

The handheld device adapts technology found in an advanced Personal Digital Assistant (PDA) with an infrared scanner that converts a product’s bar code into a verbal command to alert the user about the type of product selected. A prototype of the device was demonstrated on Feb. 19 to the news media, Rose-Hulman faculty and administrators of the Indiana School for the Blind, which originally approached Rose-Hulman to see if students could produce devices to help its students.



A total of 15 common grocery items, including cereal boxes, crackers and canned vegetables, were identifiable by the prototype, which was developed in 19 weeks as part of the students’ Capstone senior design project. Other members of the team were Doug Pickering, an electrical engineering major from Pittsburgh, Kan.; Ryan Horner, an electrical engineering major from Portage, Ind., and Dan Walter, a computer engineering major from Crown Point, Ind. The device’s applications for blind and visually impaired persons are endless, according to James Durst, interim superintendent of the Indiana School for the Blind.

“The device allows an individual, when properly trained, independent shopping in any store, since a majority of products have bar codes,” Durst said. “This product can relieve the frustration most blind persons have about getting out and experiencing those things that others take for granted. This could be a big step forward and far exceeds our expectations.”

“It was an ambitious project. Originally, I thought we had bit off more than we could chew,” conceded Pickering, the team leader of the project. “We took on this product because we wanted to help people. That mission just made us more determined to work harder.”

“This project really sums up my four years at Rose-Hulman,” Pickering stated. “You’re drawing on multiple disciplines and knowledge garnered from various classes. You fill in areas that you don’t know about . . . We had to rely on each other to get the project done on time. Each member of the team was essential to the overall success of the project.”

LAUNDRY ALERTER: A four-person team has developed a prototype for a low-cost system that attaches to washers and dryers. A college student or apartment resident enters a seven-digit telephone number when starting the laundry cycle. A voice command through the telephone network provides notification that the laundry cycle has been completed — allowing the student to study while the clothes are being washed. The prototype was installed this spring in two washers of Rose-Hulman’s Baur-Sames-Bogart residence hall, with positive student feedback.

The project has received funding from Rose-Hulman's student-operated Engenius Solutions program in hopes of developing the project into a commercial product. (IBM and USA Technologies have web-enabled washing machines and dryers through a similar 'E-Suds' system. However, the Laundry Alerter System is cheaper, has less hardware and computer software, and is easier to install, requiring less than 15 minutes.) Joining Odle on the Laundry Alerter System development team were electrical engineering majors David Atkinson of Fair Oaks, Ind.; Chad Ellis of Chrisman, Ill.; and Michael Nickelson of North Kingstown, R.I.



(from left) Michael Nickelson, David Atkinson, Chad Ellis, and David Odle



Elizabeth Shook (left) and Sarah White

DIGISTICKY: The posted notes on reports and other documents goes high tech with this product that allows for messages to be scribbled on a small LCD screen that can be placed anywhere on a report or product. DigiSticky can handle up to 10 messages of 2,860 characters each and has a real-time clock to trigger a reminder alarm for very important messages. This project received development funding from the Lemelson Foundation. Members of the project team were electrical engineering majors Bryan Hunt of Escondido, Calif., and Elizabeth Shook of Madison, Ala., and computer engineering majors Sarah Walton of Flat Rock, Ind., and Sarah White of Sarasota, Fla.

NOVEL ELECTROSTATIC SPEAKER: Hoping to revolutionize the audiophile market, electrostatic speakers were developed that implement a novel diaphragm material and eliminated an external power supply. The project utilizes an internal battery power supply, which eliminates the need for the speaker to be plugged into a wall outlet. The speaker also employs Duralar, a material never used in this application. The properties of Duralar enable the speaker to have very efficient sound reproduction, at a low cost. Members of the team were electrical engineering majors Jacob Bernet of West Lafayette, Ind.; Ryan Brown of Georgetown, Ind.; Johnny Hung of Bloomington, Ind.; Lucas Johnson of Muncie, Ind.; and Adam Tieman of Boonville, Ind.



(front) Ryan Brown, Lucas Johnson and Johnny Hung (back) Adam Tieman and Jacob Bernet.



Ben Huckaba, LaMarr Taylor and Matthew Weyer

AUTOMATIC SPORTS TIME STOPPING WHISTLE: Time keeping in sports comes under scrutiny from fans, coaches and players. Seconds can be "lost" from the game's time clock due to slow reaction times of human scorekeepers. The team has developed a novel prototype of a device that stops the clock at the sound of a referee's whistle. Product testing at several Rose-Hulman basketball games reveals that as much as 10 seconds can be saved in the course of a game, when compared to current human timekeeping systems. The Lemelson Foundation has funded development of the prototype. Team members were electrical engineering majors David Duffy of Allegan, Mich., Ben Huckaba of Mattoon, Ill., LaMarr Taylor of Gary, Ind., and Matthew Weyer of Ferdinand, Ind.

OTHER PROJECTS: A total of 22 projects were completed for a wide range of industry-sponsored clients. Product testing was developed for the Guide Corporation; the Naval Surface Warfare Center at Crane, Ind.; and Cummins Inc. A nickel-plated stamper thickness checker was developed for Digital Audio Disc Corporation of Terre Haute. Other project clients included Raytheon, Applied Extrusion Technologies, ITT Industries, Myrio Corporation, the Indiana School for the Blind, Viewpoint Electronics and Rose-Hulman Ventures.

Bette LaPlante, president of Doughmakers LTC of Terre Haute, was the keynote speaker at this year's symposium. Rose-Hulman Professors Frederick Brockhurst, William Eccles and David Voltmer were faculty mentors for this year's senior design projects.

ECE Faculty News

NATIONAL SCIENCE FOUNDATION FUNDS STUDIO LAB: ECE professors Ed Wheeler and Cliff Grigg have developed a studio format that will allow a blending of lecture, demonstration, and student experiential work. Rose-Hulman has experience with the delivery of classes in the studio format in our studio physics classrooms. To ensure that Rose-Hulman employed the best practices in ECE courses, one ECE professor traveled to Rensselaer Polytechnic Institute where pioneering work in the use of the studio format in science, mathematics and engineering education has been conducted.



ECE Studio Laboratory, Located in B105

ROSE-HULMAN AWARDED HEWLETT-PACKARD TECHNOLOGY GRANT: Rose-Hulman Institute of Technology students and faculty will be able to utilize cutting edge tablet and pocket personal computers in classroom projects through an advanced mobile technology grant awarded by the Hewlett-Packard Company that hopes to accelerate creation of "the campus of the future." Administrators involved in the mobile technology program are Gloria Rogers and Louis Turcotte. Faculty involved will be Claude Anderson, Mark Ardis and David Mutchler of the computer science and software engineering department; Victor Rivas and Julia Williams of the humanities and social sciences department; Mark Yoder of the electrical and computer engineering department; Alfred Carlson of the chemical engineering department; and Sudipa Kirtley of the physics and optical engineering department. Staff members involved will be Steve Jones, chief systems architect in the computer center's information technology department; and Gwen Lee-Thomas, director of assessment.



Mark Yoder, Professor of ECE, Demonstrating the tablet personal computer.

BOOKS

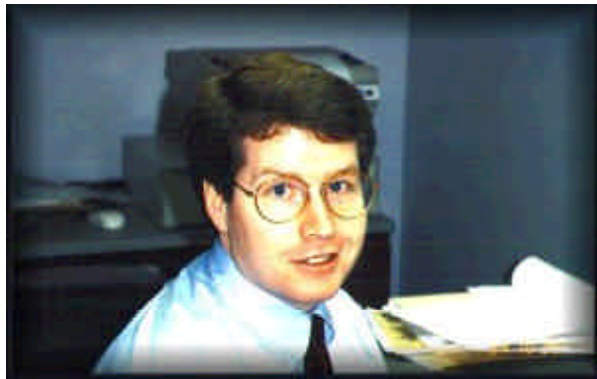
- **Bruce A. Ferguson**, writing, Fiber Optic Systems, for Prentice Hall
- **Ed Wheeler** and Cliff Grigg, Electrical Engineering for all Engineers, under contract with *Wiley Interscience* (estimated publication date 2004)
- Geoffrey C. Orsak, Ravi Athale, Scott Douglas, David C. Munson, Jr, John R. Treichler, Sally L. Wood, **Mark A. Yoder**, Multimedia and Information Engineering, to be published by Prentice-Hall, Summer 2003.
- Jim McClellan, Ron Schafer and **Mark A. Yoder**, Signal Processing First, Prentice-Hall, March 2003.
- **Marc Hemiter**, Submitted manuscript, Schematic Capture with Electronics Workbench Multisim, to Prentice Hall on 15 October 2002.
- **Marc Hemiter**, Published textbook, Schematic Capture with Electronics Workbench Multisim, Prentice Hall, 5/3/2003, ISBN #0-13-049614-6.
- **Marc Hemiter**, Started new manuscript, Cool Circuits.

RECENT PAPERS

- **Dan Moore** co-authored paper for 2003 Summer ASEE conference with Engenius Solutions members titled: *Getting Engineers to Think and Act like Entrepreneurs*
- **Dan Moore**, Tom Mason, **Fred Berry**, Presented paper at NCIIA conference titled: *Continuous Improvement In Entrepreneurship & Engineering Design*
- Marcus Schweiker, **Dan Moore**, **David Voltmer**, “The Design of an Enhanced Curricular Evaluation+Portfolio (ECE+P) Software System,” FIE, November, 2002, Boston, MA.
- **Dan Moore** and **David Voltmer**, “Time for a Renaissance in Engineering Education,” workshop, Share the Future IV: A Working Conference, March 18, Phoenix, AZ
- **Dan Moore** and **David Voltmer**, “The Design and Use of an Electronic Assessment, Evaluation, and Grading Support System,” Best Assessment Processes V, April 25, 2003, RHIT.
- **Patricia Carlson**, **Fred Berry**, **David Voltmer**, “Using calibrated Peer Review to Mediate Writing and to Assess Instructional Outcomes,” ASEE Annual Conference, June 2003, Nashville, TN.
- **David Voltmer**, “Undergraduate Electromagnetics for the Future: Discrete, Numeric, and Analytic,” presented at IEEE AP-S International Symposium on Antennas and Columbus, OH, June 25, 2003.
- **Mark A. Yoder** and **Edward R. Doering**, “Making Music with DSP”, *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing 2002*, Orlando Florida, May 13-17,2002.
- **Tina A Hudson** and **Edward R. Doering**, “Custom Chips Developed to Reinforce Learning Integrated Circuit Design,” *Proceedings of 2003 International Conference on Microelectronics Systems Education*, June 1-2, Anaheim, California.
- **Ed Wheeler** coauthor, “A study of far-from-equilibrium doping in ZnSe,” 2002 U.S. Workshop on the Physics and Chemistry of II-VI Materials, San Diego, CA
- **Ed Wheeler** coauthor, “Improving the Effectiveness of the Electrical Engineering Service Course,” 2003 *ASEE Annual Conference & Exposition* in Nashville.
- **Ed Wheeler** coauthor, “An Electrical Engineering Service Course that Serves,” submitted to the *Journal of Engineering Education*.
- M. Jaeger, S. Palit, S. Granieri, **B.A. Black**, A. Siahmakoun, “A ternary programmable dispersion matrix for receive/transmit optical beamforming,” accepted for publication in *SPIE Photonics North 2003*, Montreal, Canada, May 2003.
- **Hudson, T.A.**, Bragg, J.A., Hasler, P. and DeWeerth, S.P. “An Analog VLSI Model of Muscular Contraction,” *IEEE Transactions on Circuits and Systems II*, accepted for publication.
- **Wayne T. Padgett**, “An Undergraduate Fixed Point DSP Course,” *Proceedings of Signal Processing Education Workshop*, Pine Mountain, GA, October 2002.
- **M. Simoni**, G. Cymbalyuk, M. Sorensen, R. Calabrese, and S. DeWeerth. Control of bursting properties in a silicon neuron CPG. *J. Neurocomputing*. vol 44-46C pp 645-651. Jul, 2002.
- **M. Simoni**, G. Cymbalyuk, M. Sorensen, R. Calabrese, and S. DeWeerth. A Multi-Conductance Silicon Neuron with Biologically Matched Conductances. *IEEE Transactions on Biomedical Engineering* (Accepted 4/03).

FACULTY CHANGES

The new school year will bring some faculty changes to the ECE Department. After nine years at Rose-Hulman, Dr. Ed Doering will be leaving the Department of Electrical and Computer Engineering and move back home to Minnesota. Dr. Doering will be teaching at Minnesota State University, Mankato. Dr. Fred Brockhurst has announced his retirement after the Fall Quarter, 2003. Dr. Brockhurst has been teaching at Rose since 1985. Although Dr. Brockhurst will not be teaching classes, he will still keep busy with his private consulting business. Both will be greatly missed by students and colleagues.



Dr. Ed Doering



Dr. Fred Brockhurst

Rose-Hulman will also welcome two new faculty members to the ECE Department this fall. Mihaela Elena Radu, Ph.D. from the Technical University of Cluj, Romania has accepted her position as Visiting Associate Professor of Electrical and Computer Engineering. Also, Dr. Brandon Laflen, formerly of Purdue University, will join the Rose-Hulman ECE Department as an Assistant Professor of Electrical and Computer Engineering. We look forward to having them here this fall as the newest members of the Rose-Hulman Community.

Blast From the Past A.I.E.E.



Pictured are: Pugh, McCullough, Smith, H., Ennis, Hansford, McIndoo, Boring, Eppert, Johnson, Richardson, Carpenter, Mr. Smith, Neal, Sutton, Matthews, Shukai, Scott.

The electrical engineering profession of the world is represented in the American Institute of Electrical Engineers. The A.I.E.E. was founded 1885 and the Rose Chapter was granted its charter in 1911. Today there are over one-hundred and thirty chapters in the leading technical colleges and universities of the country. Films, field trips, and social gatherings are enjoyed by the group as well as meetings and discussions of a technical nature. (Taken from the 1955 Modulus)

The Rose Current Summer 2003

This newsletter is published by the Rose-Hulman ECE Department.

ECE Secretary
Susan.Dayhuff@Rose-Hulman.Edu

ECE Department Head
Frederick.C.Berry@Rose-Hulman.edu

Production Editor
Amanda L. Martin

Phone: (812) 877-8228

Fax: (812) 877-8895

Rose-Hulman Institute of Technology
ECE Department
5500 Wabash Avenue
Terre Haute, IN 47803-3999

NON-PROFIT ORG.
U.S. Postage
PAID
Terre Haute, IN
Permit No. 174

