

NETWORKS

DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING

Percy Pierre: NAE Honors His Distinguished Career

Percy Pierre is a man with a mission. Not only has he used his engineering expertise to advance technology over a distinguished career, but he has also worked tirelessly to get more underrepresented groups involved in engineering and the sciences. Because of these and many other accomplishments, Pierre, vice president and professor emeritus of electrical and computer engineering at Michigan State University, was recently elected to the National Academy of Engineering (NAE). Election to the academy is one of the highest professional distinctions accorded to an engineer.



Percy Pierre talks with engineering graduate student Kayra Hopkins.

Pierre is among 65 new members and 9 foreign associates honored this year for outstanding contributions to engineering research, practice, or education. He is recognized for his service as assistant secretary of the Army for research and development, contributions to engineering education, and leadership in creating the national minority engineering effort.



Dean Satish Udpa congratulates Percy Pierre at a reception at MSU's Cowles House.

"We are very pleased to see Percy Pierre honored for his pioneering work in engineering education, specifically with underrepresented groups," says MSU President Lou Anna K. Simon. "This well-deserved honor brings distinction not only to Dr. Pierre, but to the College of Engineering and Michigan State University."

From the beginning of his career, Pierre wanted to meld his technical know-how with an effort to get more underrepresented groups into the

continued on page 2

ECE Engineering Students Help Tanzanian School Go Online

Engineers work on big projects, and completing those projects is part of their job satisfaction. A team of engineering students and faculty tackled a big project in designing a computer system powered by the sun. They had the satisfaction not only of completing the project, but also of giving students in a primary school in a remote village in Tanzania access to the vast educational resources and information of the Internet. The Tanzanian school lacked not only computers, but the electricity to power them. Books and other educational materials are scarce.

Working with Lenovo Corporation and MSU's Department of Telecommunication, Information Studies, and Media, a team of ECE engineering students and faculty designed and installed a rugged, low-cost computer system that uses energy generated by solar panels. "In 2007, I sought to have Lenovo sponsor an ECE senior capstone design team to work on technology for creating cost-effective solar-powered computers for a developing country," says ECE professor Erik Goodman. "A proposal subsequently submitted jointly with Kurt DeMaagd, assistant professor of

continued on page 3



ECE student Ben Kershner talks with students at the Baraka Primary School in Losirwa, Tanzania.

Photo by Jakub Mazur



from the Chair

TIMOTHY GROTJOHN

Greetings to all alumni, students, and friends of the Department of Electrical and Computer Engineering. This newsletter gives you a little insight into the exciting events happening in our department.

First, I want to add my personal congratulations to Professor Percy Pierre for his election to the National Academy of Engineering. This is one of the highest professional distinctions accorded to an engineer and one that Percy well deserves. I have known Percy for over a decade and he has done much to advance our ECE programs. The ECE department is especially proud of the Sloan Program that he established in the College of Engineering that works to recruit and graduate students from underrepresented groups in our graduate program.

Other faculty members and students also have been honored with awards, and we are justly proud of them. Professors Leo Kempel and Hayder Radha were named IEEE fellows in 2009, increasing the number of current faculty members who are IEEE fellows to 12 of the department's 17 full professors. Professors Jian Ren and Jongeun Choi received 2009 National Science Foundation CAREER Awards, bringing the total number of faculty members receiving the award in the ECE department to 10. During this past academic year, we also welcomed four new faculty members, whose areas of specialization will help to strengthen our department.

The College of Engineering begins preparing students early to be successful in today's global economy. The ECE department is deeply involved in this effort and recently provided undergraduate students with a unique opportunity. With sponsorship from Lenovo, several teams of students worked on a solar-powered computer project. Recently one of the teams, with faculty assistance, traveled to Tanzania and installed the computer in a rural school that had no electrical power, but lots of sunshine. You can read more about that project in this newsletter. We encourage students to get involved with projects that can solve real-world problems, whether here in the U.S. or in other countries.

In closing, I wish all of you a happy summer. Please stay in contact with us. Your collective ideas can help to continue to build and strengthen the ECE department. 🌻

Percy Pierre (continued from page 1)

fields of science and engineering. "My first objective was to be a good technical person both in doing research and in administering research," said Pierre. "I felt if I did that then I could be a role model and inspiration to African Americans, Hispanics, women, and other underrepresented groups."

Pierre is recognized as the first African American to earn a doctorate in electrical engineering. After receiving his PhD from The Johns Hopkins University in 1967, he went on to hold a number of administrative posts in government and higher education. He served as a White House Fellow in the Executive Office of the President from 1969-70; as dean of the College of Engineering at Howard University in Washington, DC, from 1971-77; and as assistant secretary of the Army for research, development and acquisition from 1977-81, where he had direct responsibility for the development of all Army weapons, including the Abrams Tank, the Patriot Air Defense Missile System, and the Apache Attack Helicopter.

In 1981, he was presented with the U.S. Army's Distinguished Service Award, the highest honor presented to a civilian. Pierre also served as president of Prairie View A&M University from 1983-89 and as vice president of research and graduate studies at MSU from 1990-95.

Beginning in the early 1970s, Pierre was a principal architect of the national minority engineering effort. He co-chaired the 1973 National Academy of Engineering (NAE) Symposium, which officially launched the effort. He worked with NAE to implement the recommendations of the Symposium, including serving as chair of the NAE Committee on Minority Engineering. In a parallel effort, he served as the program officer at the Alfred P. Sloan Foundation for minority engineering.

In 1998, he started the Sloan Engineering Program in the College of Engineering at MSU, a program that supports recruitment and retention of minority doctoral students.

He has counseled and helped support more than 30 individual minority students pursuing doctoral degrees. "MSU has long stood for the advancement of all people," said Pierre. "The university has been very supportive of my work. But it didn't start with me; it goes back to President Hannah and others. MSU is a good place to do what I have done."

Satish Udpa, dean of the MSU College of Engineering, applauds Pierre's NAE membership. "For those of us who have known Percy, this award is not surprising," says Udpa. "He has been at the forefront in initiating and launching innovative programs for improving access to higher education for students from underrepresented groups for a long time."

Pierre knows there is a lot left to be done to get underrepresented groups involved in engineering and science. "In the 70s we hoped to reach parity in my lifetime," said Pierre. "We are nowhere near that goal, not for African Americans, not for Hispanics, or other groups." However, he points out that tremendous progress has been made, and he sees a larger challenge. "Our nation needs more technically trained people. The number of engineering PhDs awarded to Americans has gone down steadily over the last 10 years. We need all the talent out there to help us stay abreast of technology in this ever-changing world." 🌻



"MSU is a good place to do what I have done."

— NAE member Percy Pierre

ECE Engineering Students Help Tanzanian School (continued from page 1)

telecommunication, information studies, and media, to Lenovo was funded, allowing us to attack the problem of providing computers for schools in developing countries, where no Internet infrastructure or even electric power grid was available.”

Engineering professors Aloys Mvuma and Dominic Chambega of the University of Dar es Salaam in Tanzania’s capital provided the team with essential information about Tanzanian infrastructure, as well as direction and ongoing support to help ensure that the program would fulfill the needs of the community and be sustainable.

In spring 2008, senior engineering and telecommunication students designed an Internet-enabled, solar-powered computer system. In the fall, a second team of engineering and telecommunication students refined the design and produced a workable, four-terminal computer system as part of their senior design course project. Meanwhile, Goodman and DeMaagd were joined by Jennifer Olson, associate professor of telecommunications, information studies, and media, on a trip seeking possible sites in June 2008.

In December 2008, the second team of engineering students—Ben Kershner, Jakub Mazur, Eric Tarkleson, and Josh Wong—traveled to Tanzania with the hardware they had built. Goodman, DeMaagd, and Olson accompanied them on the trip. They met with their African colleagues and acquired computer and solar-power parts in Dar es Salaam before moving on to Losirwa, a remote village located southwest of Mount Kilimanjaro.

There, the team worked from dawn to dusk for a week to assemble, install, and test the system in the Baraka Primary School—the first primary school in Tanzania to have Internet access. “Once word got around that we were in the village, students came from all over to see what we were doing,” says Eric Tarkleson, a member of the student team. While the MSU students worked on the computer system, the Tanzanian students hung out with them, practicing their English, learning about computers, and enticing the team into some football (soccer). “I think I learned more from them than they did from me,” says Ben Kershner, another team member. “They have so little, yet are so eager to engage in everything. It was awe inspiring.”

The new system operates from a list of approved Internet sites including msu.edu, a special version of Wikipedia, and some Swahili resources.

Finally, the team trained community members and turned over responsibility for the system to the village. “We know this is a small installation, but it is a start,” says Goodman. “In future semesters, we hope additional student teams will spread this technology and improve the installations we have already done.”

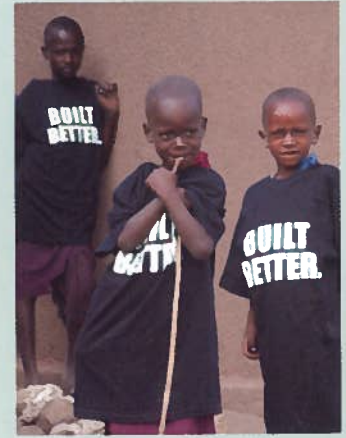
As a result of this project, a new undergraduate specialization in Information and Communication Technology for Development is being developed that will help to institutionalize this program, allowing students to complete two background courses on the economic and cultural issues of development and a course on technology appropriate for developing countries, followed by a field experience installing a system in a region with such needs (initially in Tanzania).

To read more about the project and to view a video, visit <http://report.president.msu.edu/content/providing.php>.

— Lynda White and Jane L. DePriest



Installing an Internet-enabled, solar-powered computer in a remote village in Tanzania was hard work, but also an opportunity to exchange info with the villagers. Above, the team moves the framework for the solar panels to the roof. At left below: ECE student Eric Tarkleson enjoys time with village children. Center below: A solar panel goes up on the roof. Below at right: Local children were quick to don College of Engineering t-shirts.



Photos by Jakub Mazur

Faculty and Staff Networks

Withrow Teaching Excellence Award



Timothy Hogan, associate professor, received the Withrow Teaching Excellence Award at the college's annual awards luncheon in March.

Hogan has been with the department since 1998 and has demonstrated exemplary dedication to undergraduate education while establishing a successful research program. He teaches at the undergraduate and graduate levels, and is willing to help teach courses outside his immediate areas of interest. Hogan's Student Instructional Rating System (SIRS) evaluations are among the best in the department.

Students say: "Dr. Hogan is . . . passionate about his students and the material he is teaching. He genuinely gets excited about the subject of the day and that enthusiasm carries over to his students." He incorporates active learning and hands-on activities into his teaching, and also makes it a point to be accessible to students outside the classroom. "Whether in his office or via e-mail during all hours of the night, Dr. Hogan wants to help his students learn."

Presidents Council Distinguished Professor Award



Erik Goodman was one of three professors selected from Michigan's 15 public universities as the recipient of the third annual Michigan Distinguished Professor of the Year Award. The award program recognizes the outstanding contribution made by faculty from Michigan's public universities to the education of undergraduate students.

The award cites Goodman's efforts to establish MSU as a leader in ecological modeling. He has mentored Rhodes Scholarship and Churchill Scholarship recipients as well as a National Science Foundation graduate fellowship recipient. Goodman is the academic adviser for half of the honor students in the computer engineering major. He also teaches the senior capstone

design course in electrical and computer engineering, where he introduced industrial-sponsored projects. Goodman places emphasis on guiding students into undergraduate research experience, study abroad, and enrollment in graduate classes.

The two other recipients of the award are Eddie Cheng of Oakland University and Steven Wright of the University of Michigan. The Presidents Council hosted an awards luncheon in May in Lansing.

NSF CAREER Awards



Jian Ren



Jongeun Choi

Jian Ren, assistant professor, and Jongeun Choi, assistant professor, each received a National Science Foundation Faculty Early Career Development Award. The CAREER awards, one of NSF's most prestigious and competitive awards for junior researchers, recognize those who exemplify the role of teacher-scholars through outstanding research,

excellent education, and the integration of education and research.

Ren's award is a five-year \$400,000 grant. His research will significantly improve the efficiency, security, and interoperability of communications between versatile wireless devices. His work introduces innovative methodologies in architecture development, system design, and secure and efficient network management.

Ren said that today's "cognitive radio"—an intelligent wireless communication system that is aware of its surrounding environment—can perceive a spectrum hole (or lack of activity on a frequency within a portion of the radio spectrum) and then transmit on the unutilized frequencies.

However, he says, lack of user coordination and network control raises serious issues in efficiency, security, and resource waste in wireless environments. "My research is an effort to develop an ideal human-technology platform for e-commerce, national security, environmental

protection, health monitoring, and many future applications that could benefit from fast and reliable information exchange," Ren says.

The technological advances resulting from this project will be integrated into undergraduate and graduate curricula, as well as into K-12 outreach activities. Thus, Ren's work will have a significant impact on the training of a highly skilled and diverse work force in the area of cybersecurity and wireless networking.

Choi also received a five-year \$400,000 grant. His work is in developing and analyzing distributed learning and cooperative control algorithms so that a network of mobile sensing vehicles, such as robots, can gather data and learn an unknown field of interest in order to perform specific tasks. Choi's research has applications in the environmental sciences.

Due to recent and drastic global climate changes, it is necessary to monitor the changing ecosystems over vast regions on land, in our oceans, and in our lakes, Choi says. "Emerging technologies in robotic sensor networks and field prediction algorithms can offer great potential to deal with such issues," he says. "The main purpose of my work is to develop control algorithms for a network of mobile sensing vehicles to explore and predict an unknown field of interest."

Applications include prediction and tracing of harmful algal blooms in lakes, toxic contaminants in public water systems, and pollutants in the air. "For instance, tracing and predicting harmful algal blooms in a lake could be accomplished using proposed algorithms and a network of autonomous underwater vehicles with fluorescence-based sensors," Choi says.

"These CAREER awards are tangible expressions of validation from Jian's and Jongeun's peers concerning their research goals and plans," says Satish Udpa, dean of MSU's College of Engineering. "I am delighted to see their peers confirm that they are on a very productive research trajectory."

IEEE Fellows

Leo Kempel, associate dean for research, and Hayder Radha, professor, were elected fellows of the Institute of Electrical and Electronics Engineers, Inc. (IEEE), effective Jan. 1, 2009. The



Leo Kempel

grade of fellow is one of the IEEE's most prestigious honors. It recognizes unusual distinction in the profession and an extraordinary record of accomplishments in an IEEE field, bringing significant value to society



Hayder Radha

Kempel received this prestigious honor in recognition of his contributions to conformal antenna design and electromagnetic composite materials. His

research focuses on the general area of applied electromagnetics with particular emphasis on conformal antennas, engineered materials, and

measurement of electromagnetic properties of materials.

Kempel has served as an elected member of the administrative committee for the IEEE Antennas and Propagation Society and the board of directors for the Applied Computational Electromagnetics Society. He was an associate editor for the IEEE *Transactions on Antennas and Propagation* and is an active reviewer for many scholarly publications.

Radha was elected "for contributions to visual coding, communications, and networking" in November 2008. He serves on the editorial boards of IEEE *Transactions on Multimedia* and the journal *Advances in Multimedia*. He is an elected member of the IEEE technical committees on Multimedia Signal Processing and Image and Multidimensional Signal Processing. He served as co-chair of the ATM/LAN Video Coding

Experts Group of the International Telecommunications Union.

Radha, who is also the associate chair for research for the ECE department, holds 27 U.S. patents in the areas of wireless communications and networking and image and video processing. He is a recipient of the Bell Labs Distinguished Member of Technical Staff Award, the MSU College of Engineering Withrow Distinguished Scholar Award, and the Microsoft Research Content and Curriculum Award. He was appointed a Philips Research Fellow in 2000.

ACES Fellow

The Board of Directors of the Applied Computational Electromagnetics Society (ACES) recently elected **Leo Kempel** as an ACES fellow for exceptional achievements in computational electromagnetics and extensive technical involvement including ACES publications. ♻️

New Faculty



Prem Chahal has joined the Department of Electrical and Computer Engineering as an assistant professor. He received his PhD (1999) in electrical engineering from Georgia Institute of Technology, and his MS (1994) and BS (1991), also in electrical engineering, from Iowa State University. From 2006 to 2008 Chahal held a senior research position at Abbott Laboratories, leading research in the area of BioMEMS. Prior to that, Chahal served as a principal engineer at Raytheon, Dallas, leading research in the areas of Terahertz (THz) technologies, microsystems packaging, RF MEMS, and nanoelectronics. In addition, he has held summer internship positions at Motorola and BFGoodrich. Chahal's current research interests include THz technologies, microwave circuits, infrared sensors, microsystems packaging, flex electronics, and RF MEMS and BioMEMS.



Lixin Dong has joined the Department of Electrical and Computer Engineering as an assistant professor. His main research interests include nanorobotics, nanoelec-

tronics, mechatronics, mechanochemistry, and nanobiomedical devices. Prior to joining MSU in December 2008, Dong held a senior research scientist position at Swiss Federal Institute of Technology (ETH) Zurich, where he led the NanoRobotics Group in the Institute of Robotics and Intelligent Systems (IRIS). He became research associate in 1992, lecturer in 1995, and associate professor in 1998 at Xi'an University of Technology; assistant professor at Nagoya University in 2003; and research scientist in 2004 at ETH Zurich. He received the IEEE T-ASE Googol Best New Application Paper Award in 2007, Best Conference Paper Award at the International Conference on Control Science and Engineering (ICCSE2003), and has been a co-winner in the 2008 *Nano Today* Cover Competition. He serves as associate editor of the IEEE *Transactions on Nanotechnology* and the IEEE *Transactions on Automation Science and Engineering*.



from California Institute of Technology. Prior

Wen Li has joined the Department of Electrical and Computer Engineering as assistant professor. She received her PhD (2008) and MS (2004) in electrical engineering

to that, Li studied at Tsinghua University and received an MS degree in microelectronics (2003) and a BS degree in material science and engineering (2001). Her research interests include MEMS/NEMS technologies and systems, micro sensors and actuators, biomimetic devices and systems, microfluidic and lab-on-chip systems, and microsystem integration and packaging technologies.

New Staff



Leah Christie



Laurene E. Rashid

Christie and **Laurene E. Rashid** have joined the ECE department staff. Rashid has worked at MSU for more than six years, having worked in the College of Education, the College of Human Medicine, and the Center for Ethics before coming to the College of Engineering. Rashid does travel and payroll and is a back-up for the graduate secretary. Christie is a research secretary for Ning Xi, ECE professor, and assists with graduate recruitment. ♻️

Alumni Networks

2009 John D. Ryder Alumni Award



Tim Grotjohm presents the award to Seyed Mousavinezhad.

Seyed Hossein Mousavinezhad (MS '73, PhD '77) received the 2009 John D. Ryder Electrical and Computer Engineering Alumni Award at a College of Engineering banquet in May. Established in 2004, this award commemorates the outstanding professional contributions of John D. Ryder, former dean of the College of Engineering and a professor in the department.

Mousavinezhad is highly regarded for his work in advancing engineering education. He earned his BS in electrical engineering from the National Taiwan University, Taipei, Taiwan, in 1972, and his MS ('73) and PhD ('77) degrees from MSU in electrical engineering and electrical engineering (bioelectromagnetics), respectively. He then went

to Ferdowsi University, Mashhad, Iran, where he was an assistant professor from 1977-79. From 1979-80, he was a visiting assistant professor at Southern Illinois University at Carbondale, and from 1980-82, he was assistant professor at Purdue University Calumet, Hammond, Indiana. He then joined the faculty of Western Michigan University as associate professor, became professor in 1990, and served as chair of the Department of Electrical and Computer Engineering (ECE) from 1995-2004. In 2007, he moved on to Idaho State University, where he is currently professor and chair of the Department of Electrical Engineering.

While at Western Michigan University (WMU), he led departmental efforts in the ABET accreditation of the electrical engineering and computer systems engineering programs and was responsible for initiating the first master's program in electrical engineering there in 1987. A new ECE PhD program was offered starting fall 2002.

In 2002, he received the American Society for Engineering Education (ASEE) Distinguished Service Award for "Significant and Sustained Leadership," and in 2007 he received the ASEE ECE Division Meritorious Service Award. He is the

founding general chair of the IEEE's International Electro Information Technology Conferences, which bring together researchers in the ECE field. He has also initiated international collaborations with colleges and universities in Sweden, Malaysia, Hong Kong, and India.

Hossein and his wife, Shu-chen, reside in Pocatello, Idaho. Their daughter, Mehri, and her husband, Christopher, live in Mays Landing, New Jersey; their sons Jamshid Mousavinezhad and Cyrus M. Nezhad live in New York and Washington DC, respectively. In his free time, Hossein enjoys swimming, reading, jogging, and watching classical movies and Westerns. ♻️



Professor Mousavinezhad with his children. From left: Mehri McLaughlin and her husband, Christopher, and Cyrus M. Nezhad and Jamshid Mousavinezhad.

Design Day Spring 2009

Headliners at the spring 2009 Design Day, held May 1 at the MSU Union Building, are graduating seniors as they present their capstone design projects. This provides unique opportunities for students and faculty to collaborate with industrial sponsors through posters, project displays, and presentations. While all who completed projects and made presentations are winners, there are numerous official awards. For spring 2009 the top ECE winners are:

Prism VentureWorks Prizes: These prizes are awarded each semester to the most outstanding teams in the ECE Senior Capstone Design Course, as judged by a panel of engineers from industry. These awards are

sponsored by Prism VentureWorks, a Boston-based venture capital firm, and William Seifert, an ECE alumnus, who is a partner in the firm.

1st Place: Team 6 – Automated Inspection Device for Electronic Fan Clutch Actuators, sponsored by BorgWarner Thermal Systems. Faculty facilitator was Virginia Ayres. Team members were **Jacob Co, Joshua Dubois, Stephen Sutara, and Codie Wilson.**

2nd Place: A tie between Teams 2 and 3.

Team 2, Locally Networked Satellite-Based Computer Labs for Tanzanian Classrooms, sponsored by Lenovo Corporation. Faculty facilitators were Erik Goodman and Kurt DeMaagd with Telecommunication, Information



From left: Team 6 members Stephen Sutara, Codie Wilson, Joshua Debois, and Jacob Co won first place.



From left: Team 2 members Steven Sadler, Kevin Bishop, Daniel Newport, and Brian Holt tied for second place.

Student Networks

2009 Academic Awards

Congratulations to the following students from the Department of Electrical and Computer Engineering who were recognized at a College of Engineering reception in March for academic excellence and service to the community.

Outstanding Graduate Student Award: **Vikram Melapudi**, electrical engineering. Shanker Balasubramaniam is the faculty adviser. Melapudi also received honorable mention in the Fitch Beach Fellowship Awards.

Service Awards: Michael Volz, electrical engineering; Michael Blair and Ben Kershner, computer engineering.

Undergraduate Academic Achievement Awards in Electrical Engineering: Daniel Dault, Thomas Ganley, Chi Peng, and Arslan Qaiser.

Undergraduate Academic Achievement Awards in Computer Engineering: Matthew Borton, Ivan Gallardo, and Christopher Sigler.

Society of Women Engineers Award

Latasha Billings, an electrical engineering freshman, was presented with an Outstanding Diversity Programs Award by Consumers Energy at the Women in Engineering awards banquet in February.

2009 NSF Graduate Research Fellowships



Andrew Baczewski



Donald VanderLaan

Andrew Baczewski and Donald VanderLaan have been selected to receive 2009 National Science Foundation (NSF) Graduate Research Fellowship (GRF) awards. This award is based on abilities and accomplishments as well as potential to contribute to strengthening the vitality of the U.S. science and engineering enterprise.

Baczewski received his BS in electrical engineering from MSU in the spring of 2007. He then began studies in an interdisciplinary PhD in electrical engineering and physics. He hopes to pass all of the qualifying exams and officially be on his way as a PhD candidate by this fall. In June, Baczewski made a presentation at the IEEE Antennas and Propagation Symposium in Charleston, SC, and then spent eight weeks working as an intern at Northrop Grumman in Los Angeles. Baczewski grew up in Grand Rapids, Mich.; his parents, both pharmacists, are David and Monique Baczewski.

VanderLaan received his BS in electrical engineering from MSU this spring. He has served as a researcher with ECE professor Robert McGough in the biomedical ultrasonics and electromagnetics laboratory, and most recently presented at the Society of Thermal Medicine conference in Tucson, Arizona. Donald plans to use his fellowship to pursue a PhD in electrical engineering with McGough, working in the area of thermal medicine. Donald is from Grand Rapids, Mich.; his parents, both doctors, are Ronald and Karen VanderLaan.

Undergraduate Research Fellowship



Andrew Temme, a third-year senior in ECE and an Honors College student, has been awarded an undergraduate research fellowship by the IEEE

Antennas and Propagation Society. Temme's proposal was for research on electromagnetic education. Temme will graduate in May 2010. He plans to attend graduate school to study electroagnetics, particularly radar and remote sensing. He is from Casper, Wyoming; his parents are Kenneth and Miriam Temme. ♻️

Systems, and Media. Team members were **Kevin Bishop, Brian Holt, Daniel Newport, and Steven Sadler.**

Team 3, Home Automation HMI Demo, sponsored by Texas Instruments. Faculty facilitator was Michael Shanblatt. Team members were **Rituraj Behera, Samuel Flynn, Da Ke, Sungsoo Kim, and Eric Myers.**

Professor's Choice Award: This award is given each semester by the faculty member teaching ECE 480, Senior Capstone Design, to the team judged by the instructor to have done the most to achieve the objectives of the course and sponsor, particularly taking into account the varying levels of challenge of the projects. Judging is based on reading of the teams'

final reports, examination of their posters/prototypes, and communication with faculty facilitators. This semester the award went to Team 1, Heat-Reactive Clothing Electric Wheelchair Accessory, sponsored by the Chrysler Foundation and the MSU Resource Center for Persons with Disabilities. The faculty facilitator was Robert McGough. The team members were **Albert Alexander, Steven Shane, Melissa Stroud, and Stephen Zajac.** This team also received the Poster Award, as judged by the high school students attending Design Day. This award recognizes excellence in conveying the team's objectives and accomplishments. ♻️



From left: Team 3 members Rituraj Behera, Da Ke, Eric Myers, and Samuel Flynn tied for second place. Not pictured is team member Sungsoo Kim.



From left: Team 1 members Albert Alexander, Steven Shane, and Stephen Zajac with Professor Erik Goodman won the Professor's Choice Award. Not pictured is team member Melissa Stroud.

KEEPING IN TOUCH

NAME _____

STREET ADDRESS _____

CITY / STATE / ZIP _____ IS THIS A NEW ADDRESS? YES NO

OFFICE TELEPHONE _____ HOME TELEPHONE _____

E-MAIL _____

GRADUATION YEAR _____ DEGREE _____

CURRENT OCCUPATION _____

EMPLOYER _____ LOCATION _____

News of recent accomplishments, awards, or promotions (Use separate sheet if needed):

We want to know what's happening with you! Update us by mail at Attn: Publications, MSU, 3412 Engineering Bldg., East Lansing, MI 48824-1226; by e-mail at editor@egr.msu.edu; or by fax at 517.355.2288.

GIFT INFORMATION

I/we wish to make a gift/pledge in the amount of \$ _____ designated for: _____

My/our total gift will be paid as indicated:

- Check payable to "Michigan State University"
- Credit card charge to: MasterCard Visa Discover AmEx

CARD NUMBER _____ EXP. DATE _____

NAME AS IT APPEARS ON CARD _____

SIGNATURE _____

A pledge of the following duration (maximum 5 years): _____
 Enclosed is my first payment of \$ _____
 Please send pledge reminders: Annually Quarterly Semiannually
 beginning: _____ MONTH _____ YEAR

- This pledge replaces all other outstanding pledges.
- This is a joint gift with my spouse: _____ SPOUSE'S NAME _____

I or my spouse (check one) works for a matching gift company:

EMPLOYER(S) _____

Please return to: Engineering Development, MSU, 3536 Engineering Building, East Lansing, MI 48824-1226, or make your gift online at www.givingtomsu.edu.

FOR OFFICE USE ONLY

APPEAL CODE: 0274N

STAFF RESP:

ALLOCATION:

Department of Electrical
 & Computer Engineering
 Michigan State University
 2120 Engineering Building
 East Lansing, MI 48824

Nonprofit Org.
 U.S. Postage
PAID
 East Lansing, MI
 Permit #21

CHAIRPERSON **Tim Grotjohn**

TEL (517) 355-5066

E-MAIL ECE_Mailbox@egr.msu.edu

WEB www.egr.msu.edu/ece

EDITOR **Jane L. DePriest**

PUBLICATIONS DIRECTOR

Laura Luptowski Seeley

PHOTOGRAPHERS

Jakub Mazur

Patrick T. Power

Harley J. Seeley

Kurt Stepnitz

MSU is an affirmative-action, equal-opportunity employer.

Printed on recycled 100% post-consumer fiber paper using environmentally friendly inks.

Tanzania Project



Residents of a remote Tanzanian village made Professor Erik Goodman an honorary elder of their group and gave him a "runnga" that elders are allowed to carry, but others cannot. More about the Tanzanian project on page 1.

Spring 2009 Design Day



Steven Shane, whose team designed a wheelchair accessory that regulates body temperature, discusses the project with visitors. More Design Day information on pages 6 - 7.