Greetings from ECE, and welcome to the 2013 edition of the ECE Newsletter.

It’s been another great year with many noteworthy accomplishments by ECE students and faculty members.

The feature article in this edition focuses on biomedical research taking place in ECE. This has become an increasingly important and broad area of research for ECE faculty and an area of great importance to the way we live. As always our faculty and students are making valuable contributions.

Two ECE faculty members have recently moved up in their careers. Alan Cheville, former Associate Professor in ECE, has been named department head at Bucknell University. Chuck Bunting, Professor in ECE, has recently been named CEAT Associate Dean for Research by new CEAT Dean Paul Tikalsky. We look forward to their continued contributions.

As always, our students are our pride and joy! In Focus on Students, David Fritz and Lauren Stelzl are profiled in their careers at Sandia National Laboratories and Raytheon, respectively. “Fritz” has the distinction of recently being featured, complete with photo, on technology news site Slashdot for his work on massively parallel computing using Android devices at Sandia.

Cal Vogt, an ECE graduate with an incredible career, is profiled in On the Shoulders of Giants. Cal has distinguished himself not only through his contributions to his profession but also through the commitment he has to impacting the lives of others. We’re very proud to count Cal as an Alum and friend.

Finally, we note the recent passing of Dr. Hans Bilger, Emeritus Professor of ECE. I had the distinct pleasure of knowing Hans both while I was a student in ECE and later as a young ECE faculty member. Hans was an exceptional and dedicated scientist and engineer as well as someone who made a very positive impact on everyone around him. We will miss him.

There’s much more in this issue, but I’ll leave it to you to discover on your own!

As always, I hope you find this edition of the ECE Newsletter enjoyable. It’s great to hear from alumni, old friends, and others and we greatly appreciate your support and kind words.

Wishing you all the best,
Keith A. Teague, PhD, PE Professor and Head
Oklahoma State University’s School of Electrical and Computer Engineering has several faculty members involved in health-related bioengineering research, in projects that develop measures and tools for physicians, potentially improving the well-being of all.

The Oklahoma Center for the Advancement of Science and Technology (OCAST) is sponsoring the school’s research and development through its Oklahoma Health Research Program. Oklahoma universities and colleges, nonprofit research foundations and commercial enterprises in the state qualify for the program.

Dr. Guoliang Fan, the Cal and Marilyn Vogt Professor, received his first OCAST grant 10 years ago and calls the program a way for the university to get involved in bio-related research.

“It’s a great platform,” Fan says. “It’s a fantastic resource that can help researchers in Oklahoma.”

**CHANGING TRANSPLANTS, LIVES**

Dr. Daqing Piao, associate professor in the School of Electrical and Computer Engineering, joined the department about seven years ago and is focusing on biomedical research. One of his current research projects is related to developing a technology to evaluate whether one specific condition of the liver from a donor will make the liver unacceptable for transplantation.

“There are always more patients waiting for a transplant than there are donor organs that are available,” Piao says. “The data I have indicated there are about 6,000 liver transplants being done annually in the United States, and patients on the waiting list can be about 17,000. It’s always a life-or-death situation.

“Because of the extreme shortage of the donor liver, livers of marginal quality, such as with fatty changes, sometimes will be used for transplant,” he notes. “None of the fatty changes of liver is
healthy; however, when there is only a fatty liver available, using it could save lives, but not without serious risk.”

Both the extent of the fatty changes of liver and the type of fatty changes of liver affect the functioning of the liver after transplant. The less fatty changes a donor liver has, the less risk it brings.

Piao says there are two types of fatty changes. One type is that a large single fatty particle is formed in a liver cell, squeezing and deforming the normal material within the liver cell. This type of fatty change significantly risks the functioning of the organ after being transplanted, so it should not be used for transplantation. The other type is that numerous small fatty particles are formed in a liver cell, making space among but not deforming the normal material within the liver cell. This type of fatty change is shown not to adversely affect the functioning of the organ after being transplanted, so the liver is usually acceptable for transplantation.

In order to evaluate the extent and possibly the type of fatty changes, Piao is developing a fiber optic probe that can fit in a small needle.
“The need of an evaluation technology like this one we are developing was actually suggested by a doctor whom I know personally,” Piao says. “Liver transplant surgeons are in need of a fast and reliable method to know about the interior conditions of the donor liver. If a very small fiber can be placed to probe deeply the donor liver and there are some optical signals or images that can show if the tissue has low-extent and low-risk fatty changes, the doctors can make a better decision for the patient.”

Piao says the fatty condition is only one of many things affecting the viability of a donor liver.

“Eventually, we would like to help the surgeons determine if a donor liver cannot be used because it has become too fatty or it has a high-risk type of fatty change,” Piao says. “To do that we will need to have a tool for them to see how much fatty change has occurred in the liver, and possibly which kind of fatty particles, bigger one or smaller ones, is more prevalent in the fatty change.”

OCAST funded the three-year research project, which began in 2011.

“We are right now on the second year, and we have already developed the prototype and continue to optimize the prototype,” Piao says. “We have started developing a rat model of fatty liver to test if our system can at least tell the extent of the fatty changes and then can potentially tell the different types of the fatty changes.”

Piao says he’s confident the project will benefit liver transplant patients if it’s successful.

“We will be hopeful,” Piao says. “The state agency also thinks this may be useful as we predicted, but we need to test it out.”

ASSESSING THE RISK OF FALLING

Guoliang Fan began his research into the need for a clinical gait assessment tool in 2009. “This research is very useful for elderly people because falls are a big problem for them,” Fan says. “Fall risk assessment will allow them to have some kind of early prediction for someone’s tendency to fall.”

Falls are the leading cause of injury in older adults and the leading cause of accidental death in those over age 85. It is estimated that by 2020 the annual cost of injuries from falls is expected to reach $54.9 billion. Fall-related injuries to older adults represent a significant economic burden on the health care system. And the segment of the U.S. population age 65 and over is expected to double in size within the next 25 years. By the year 2030, almost one out of five Americans — an estimated 72 million people — will be 65 years old or older. Falls among the elderly are prevalent, dangerous and costly. Early fall risk detection and the ability to design targeted interventions
are the best remedies for preventing fall injuries. However, fall-risk assessment is not yet used in a clinical setting because of how advanced and expensive it is. Fan says he hopes he can change this.

“My research is how we can translate scientific findings in the research lab to a market where we can use a simple consumer product and do the same job,” Fan says. “It may not be as accurate as they are in the lab, but definitely much more practical and usable. That’s our goal.”

Fan says a Kinect sensor is basically like a camera sitting in front of a person. It can analyze a person’s gestures.

“We bought a treadmill and a few Kinect sensors, and we are experimenting,” Fan says. “We find this system setting very encouraging.”

Although this project ended last year, it led Fan to his next research project: combining sensors to precisely estimate the body segment angle.

“We were fortunate to get a third OCAST grant to further extend our research in this field,” Fan says.

It’s no longer just gait analysis; it’s analyzing the whole body posture in both static and dynamic settings. Fan says the goal is to develop a prototype system by 2015.

Most adults have experienced musculoskeletal pain associated with injury or poor posture. The estimated total annual cost of productive time lost due to back pain, arthritis and other musculoskeletal pain problems was $40 billion to $50 billion annually. Fan’s project focused on analyzing the gait stability in elderly people by using a sensor.

“Hopefully in two years, we will have something very small and portable,” Fan says. “Physical therapists, occupational therapists, chiropractors and many other medical professionals could benefit from this new, cost-effective system to do a comprehensive accurate posture assessment.”

Fan says he’s optimistic about the project and hopes it will be more convenient for physicians and patients.

“We hope to reduce the cost for the patient and allow each doctor to attend more patients,” Fan says. “Also, patients would spend less time there. We hope it’s going to be a win-win solution for both the patients and medical professionals. That’s our long-term goal.”
IMPROVING MEDICAL IMAGERY FOR MORE ACCESSIBLE DIAGNOSIS

Associate professor Damon Chandler leads the Laboratory of Computational Perception and Image Quality at OSU. His research project focuses on developing computer algorithms that model the human visual system and using these models to create improved techniques of image and video compression. Specifically, this project is concentrating on finding new ways of compressing medical imagery.

“The medical-image compression technology developed in this project will improve health care for all citizens of the state,” Chandler says.

The project will reduce storage space requirements, which automatically cuts costs. It will also speed up image transmission and retrieval.

“This will not only reduce turnaround time, but it also will enhance the productivity of the facility in the long run,” Chandler says.

Those living in rural Oklahoma could see the benefits of this project because rural clinics would be able to afford the technology.

“We hope to figure out if a person has a health problem, and we can also understand the human’s daily activity or behavior,” Sheng says. “Then we can correlate the motion data with the physiological data to see if the person has any health issues.”

WEARABLE SENSORS FOR HEALTH MONITORING

Associate professors Weihua Sheng and Qi Cheng are collaborating on an NSF-funded research project that monitors human health through wearable sensors.

This three-year smart health and well-being (SHB) project began last August. Wearable sensors have been designed and implemented to collect the human motion and ECG data.

“By reducing the bandwidth requirements, patients living in rural areas will have increased access to second opinions, and location will no longer be a determining factor in the quality of a diagnosis that a patient receives,” Chandler says.

Clockwise from rear left: PI Dr. Weihua Sheng, Ph.D. students Hoa Nguyen and Jianhao Du, and co-PI Dr. Qi Cheng.
“We want to place motion sensors on the human body to collect information,” Cheng says. “My main research is really about signal processing. We want to detect early signs before you even get sick. We want to predict and prevent serious health problems before things get too bad.

“We want to use those sensors to detect that as soon as possible,” Cheng continues. “If you look at the data for each point, you can’t really tell what’s going on. If you look at the pattern though, you can.”

Sheng says the main problem studied in this project is that the sensors have limited resources, which puts some constraints on the complexity of the signal processing algorithms. He says he hopes this will change as technology improves.

“The sensors are still quite expensive right now. The sensors are also pretty bulky, mainly because of the battery,” Sheng says. “There are problems we need to solve before we push this technology into the market. Hopefully future sensors will be cheaper, computers will be more powerful, and the batteries will be smaller with a longer lifetime.”

“We have to accommodate all these realistic problems,” Cheng says.

Cheng says this project will help offset the rising costs of health care.

“Medical costs and insurance are very high these days,” Cheng says. “We want to make this kind of system as cheap as possible, so everyone can afford it. If you can detect something early, then the treatment is much cheaper and you won’t have to visit the hospital.”

The two professors anticipate this project will make a significant difference in the lives of others.

“I think when the goal of this project is achieved it should help people have a better life,” Sheng says.

Sheng is also working on research that integrates robots and wearable computing.

“Robotics is a very exciting research area, and we hope we can see more and more robots in the future smart homes to help the elderly and patients,” Sheng says.

“The robot will be able to help the elderly when they fall or to help patients get medicine,” Sheng continues. “With the motion sensors, it will also be able to detect the activities and send out a picture to the relatives or doctors if a fall occurs.”

Once the sensors improve, there will be more opportunities to incorporate them with the human body.

“In the future we can integrate the sensors into the human clothing, which makes the system less intrusive and more acceptable by many people,” Sheng says.

“I think when the goal of this project is achieved it should help people have a better life.”

-Weihua Sheng
Associate Professor
NEW ASSOCIATE DEAN OF RESEARCH WANTS TO SEE MORE COLLABORATIONS

Dr. Charles Bunting, the newly named Associate Dean of Research and Halliburton Professor of Engineering, has been developing full system electromagnetic compatibility evaluation in the School of Electrical Engineering. In his new role, he hopes to expand interdisciplinary research in the College of Engineering, Architecture and Technology at Oklahoma State University.

BEFORE OSU

Bunting was born in Virginia Beach, Va., and received his bachelor’s degree in engineering technology from Old Dominion University in Norfolk, Va., and his Master’s and Ph.D. in electrical engineering from Virginia Tech in Blacksburg, Va. He taught at Old Dominion from 1994-01, where he also mentored graduate students and did research.

From 1981 to 1989, Bunting worked with the Naval Aviation Depot as an apprentice, an electronics mechanic, and an electronics measurement equipment mechanic. From 1994 to 2001, he was with the department of engineering technology faculty at Old Dominion and worked closely with NASA Langley Research Center on electromagnetic field penetration in aircraft structures and reverberation chamber simulation.

Bunting remembers one master’s student who was an engineering and academic “rock star.” The opportunity to mentor a person as brilliant as this student excited Bunting, leading him to want to be more involved with people who were energetic and engaged in all aspects of engineering. It is addicting to encourage someone to grow who wants to be successful, and that’s what brought Bunting to OSU in 2001.

Bunting knew he wanted to work in electronic technology at a very young age. In high school, he had a teacher who was a former helicopter pilot and led his class in crazy projects that piqued Bunting’s interest in electronic technology.

Bunting says he knew where his future was when his class commandeered the intercom system and reversed it from his class to the rest of the school.
AT OSU

Bunting arrived as an associate professor in electrical and computer engineering in the fall of 2001. He has a passion for engineering education, applied computational electromagnetics, statistical electromagnetics, electromagnetic characterization and application of reverberation chambers, and the analysis and development of near infrared tomography and microwave acoustic tomography for prostate cancer detection, according to a recent article.

Bunting is interested in all things connected with communications systems and avionics systems. “It is fascinating to consider how antennas work, how it is that we can take energy that exists in a system and have it efficiently broadcast through the air, and then do useful stuff with it,” he says.

“I have been successful in reverberation chamber applications,” Bunting says. “You embrace complexity in the system to allow you to solve problems.”

To predict the propagation characteristics in a room is very difficult because if one thing changed it would have to be redone, Bunting says. “You have to embrace the complexity and use the complexity to be able to make prediction rates over given frequency regimes,” he says.

“Since February of 2012, I have been working on a major proposal initiative associated with bringing a National Science Foundation Engineering Research Center in Unmanned Aerial Vehicles to Oklahoma State University,” Bunting wrote in a recent article. “This effort has broadened my exposure to higher research administration and has considerably expanded my perspective on defining a successful research environment particularly with a focus on large multidisciplinary centers.”

“I brought courses the industry use for reverberation chamber applications in terms of mitigating high intensity radiated fields and aircraft systems,” Bunting says. “I hope to be able to apply this to unmanned aerial vehicles and bring full system compliance testing to OSU.”

This research will determine whether a system will operate in a given environment, whether it is in medical system, aircraft system or communications system. Using these tools, a developer will be able to determine early if a system will operate and will avoid expensive simulations that attempt to predict performance. No other university has a system emphasis in the area of electromagnetic compatibility.

“I want to bring a research center here, to bring in working groups of faculty across multiple departments to bring in more collaborative grants to grow our reputation.”

-Charles Bunting
Associate Dean of Research and Halliburton Professor of Engineering
“Our students use it so that they can develop a research mindset—an inquisitive mindset of ‘How can I understand? ’ ‘Do I want to slave my computer to model a room or get results that can be useful?’” Bunting says. “I want to bring a research center here, to bring in working groups of faculty across multiple departments to bring in more collaborative grants to grow our reputation. Right now, we want to use aerial systems to perform precision agriculture and wildfire monitoring and control — aerial systems that will ultimately be able to help in a situation like a fire by dispersion of chemicals.”

LOOKING TO THE FUTURE

“I am honored to have been appointed to this position and look forward to the opportunity to serve and work together to improve the research culture for both faculty and students,” says Bunting. “I hope to help streamline the processes of the sponsored research office, and am excited about building collaborations that are deep and sustainable across the college and the university.

“We need to grow as organically as possible,” he says. “We need to get undergraduate students engaged because they bring in energy and ask good questions.”

In 10 years, Bunting would like to see OSU have engineering research centers and institutes, and vibrant multidisciplinary research across colleges. “I would like to see three or four college centers with multidisciplinary faculty actively telling their story, talking to future students, engaging graduate and undergraduates in research and showing the citizen of Oklahoma and the United States that we are known for things that people care about,” he says.
DAVID FRITZ: TAKING EDUCATION TO SANDIA

David Fritz earned his bachelor’s, master’s and doctorate in electrical engineering from Oklahoma State University.

He says he decided on his academic path early on. The Tulsa native’s family all went to OSU, selling him on the school long before he had to choose. And he turned an early curiosity with electronics into a career dream.

“There are two salient reasons I chose to get my Ph.D. in electrical engineering,” Fritz says. “First, I enjoy and value the process of academic research, and second, electrical engineering is one of the few degree programs left that truly broadens your career opportunities and worth with a Ph.D.”

As a bonus, OSU also beats other engineering programs in the region hands down, Fritz says.

At OSU, Fritz excelled in electrical and computer engineering, earning him a spot on the dean’s honor roll for his master’s and Ph.D. He also helped start the Mercury Robotics Competition, held at OSU every April.

The challenge is to design, build and remotely operate a robot, according to the Mercury Robotics website. The robot must navigate through a maze and detect communication problems and provide position information to the operator.

Fritz was involved with a number of engineering and non-engineering related groups, he recalls.

“I was a member of IEEE [Institute of Electrical and Electronic Engineers], and HKN [Eta Kappa Nu], and started the annual (now defunct) EE Game Day, an engineering specific social event with students and faculty,” Fritz says. “Outside of engineering, I was the president of the OSU Buddhist Organization.”

Fritz says he started EE Game Day because it sounded like fun. It was only after the second year that he realized it was actually useful.
Since graduating with his doctorate in 2012, he has had several internships, worked as an expert witness for legal proceedings, worked as a researcher in an academic lab and taught many courses at OSU.

Currently, he is a senior member of technical staff with Sandia National Laboratories in Livermore, Calif. Sandia is a laboratory under contract with the U.S. Department of Energy’s National Nuclear Security Administration, Fritz says. He works on supercomputing and cyber critical defense systems.

“My studies in the ECE program gave me a significant amount of breadth in the field, and I’ve found that to be especially useful in my position at Sandia,” Fritz says.

“Sandia National Laboratories is a federally funded research and development center and is the engineering arm of the nuclear weapons complex,” Fritz says. “Sandia’s core mission is to support the mission of nuclear nonproliferation and stockpile stewardship. As with all the laboratories, our work is a critical component of national and international security. The safety of critical infrastructure and weapons of mass destruction is important to and impacts everyone.”

In 10 years, Fritz hopes to have helped developed next-generation Exascale supercomputing systems.

“I have a number of research interests in high performance computing that are all painfully boring to most folks I talk to,” Fritz says. “More importantly however, in 10 years, I hope to have seen my young son through his first years of school, and perhaps see another kiddo join our family.”

Lauren Stelzl, an Oklahoma State University electrical engineering graduate, loves playing with circuits.

Stelzl says she has been interested in engineering since elementary school.

“I majored in electrical engineering,” Stelzl says. “At first it was because I wanted to work with computers, which later turned into small handheld devices such as GPS, cellphones, etc.”

The great thing about electrical engineering is that electricity is used almost everywhere, so it’s a versatile degree, Stelzl says.

The Carrollton, Texas, resident says she chose OSU because it has a good engineering program, offered good
scholarships, and she liked the campus and people. She also liked that real professors with teaching experience taught most of her classes.

While studying at OSU, Stelzl was involved with many activities, including Campus Crusade for Christ, tutoring at the MLRC (Mathematics Learning Success Center), CEAT Scholars and many other activities.

About 20 student are selected annually as CEAT Scholars based on leadership and academic qualities. Students in the program study and visit engineering colleges and companies in the U.S. and abroad.

“Through CEAT Scholars, I was able to gain a better understanding of applications of engineering and technology in other industries and areas of the world,” Stelzl says. “This is valuable because a diverse background is a good foundation for new ideas.”

Stelzl was involved in Eta Kappa Nu, the honor society for electrical engineers, and calls it her most beneficial activity overall.

“It was a good way to facilitate relationships with classmates and professors,” Stelzl says. “At our monthly meetings, we usually heard from professors about research that was going on in the department, a lot of which was outside my area of study, so they were good glimpses into what else is out there.

“Eta Kappa Nu also provided me leadership and volunteer opportunities, which helped me grow as a person.”

On top of Stelzl’s extracurricular activities, she also took a full course load and minored in physics.

Stelzl’s experience at OSU gave her both classroom and hands-on experience, which are valuable to her job everyday.

For three summers, Stelzl interned with Raytheon in McKinney, Texas, which is where she works now. She worked with a variety of groups and gained diverse experiences.

“Raytheon is a defense contractor,” Stelzl says. “I work in a division called space and airborne systems, which builds sensor platforms such as radars, long range cameras, etc., for airplanes and satellites.

“The products I work on are responsible for providing the most accurate information possible to military forces. This is highly valuable for protecting people at home and abroad, but also improves distinction between the enemy and civilians. The essence of our job is to protect the lives of those who are protecting ours.”

In 10 years, Stelzl says she hopes to be well-known and respected at her job.

“Luckily, Raytheon provides a mentoring program to help people mold their career as they like,” Stelzl says. “I’ve considered getting a master’s degree, but haven’t yet decided what I would get it in. Right now, the current options are EE, systems engineering, MBA, or meteorology.”
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A


B


C


D


D


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**ETA KAPPA NU (HKN)**

This past year at Oklahoma State University, Eta Kappa Nu, the National Electrical and Computer Engineering Honor Society, strived to give more back to the community while honoring its old traditions.

The Omega Chapter of HKN strives to open younger students’ minds to the field of engineering. During the fall 2012 and spring 2013 semesters, some HKN officers and new pledges traveled to a Broken Arrow middle school to showcase what electrical engineers can design and build. Many students showed interest and asked enthusiastic questions. Although we are electrical engineers, our intentions were more to expand the children’s thoughts on life after high school — as well as introduce them into electrical engineering. It’s important to trigger children’s minds at an early age to the great opportunities after high school.

Every semester, HKN holds regular tutoring hours for many electrical and computer engineering courses. Officers and members also hold a Circuits review to help those enrolled in the course, providing extra preparation for the challenging exams.

A few meetings throughout the year bring students and faculty together. A guest speaker, usually a professor, gives interesting presentations about their research, previous work or fun facts related to their specialization. As an example, Damon Chandler, a signal processing professor, proved how many images and photos we see on the Internet are deceiving because they have been changed with tools such as Photoshop. Although Photoshop is a relatively new technology, people have been editing photos since World War II.
In the fall, HKN had eight students pledge to join the society. Each pledge participated in tutoring, reviews and the trip to Broken Arrow. At the end of the fall semester, HKN held a banquet with members and faculty to honor the induction of the new members.

Members of HKN will soon have a place to lounge, study and socialize in a newly renovated room in Engineering South under plans to renovate the current HKN room into an up-to-date facility for students to relax and study in private.

Eta Kappa Nu’s Omega chapter will continue to excel and grow. There are many great things HKN can provide to OSU, ECE and the community. It is HKN’s goal to improve and make each year better. Eta Kappa Nu will continue its tradition of excellence.

Jake Wyzard
Omega Chapter president
Spring 2013
hkn.okstate.edu
The student branch of IEEE, the Institute of Electrical and Electronics Engineers, at Oklahoma State University is centered around helping students build connections.

IEEE offers students a chance to meet and interact with other students and faculty members outside the classroom. Monthly meetings feature an industry speaker who gives a presentation on what students can expect when entering the workforce. These meetings are a great way for students to get face-to-face interactions with recruiters because the speakers are usually accepting résumés to fill available internship and full-time slots.

IEEE also hosts a fall picnic, which gives students and faculty members an opportunity to take a break from the daily grind and have fun. People can enjoy grilled food and play volleyball while taking a break from their busy schedules. Each spring, IEEE hosts a formal banquet, which is an opportunity to network with many companies at one place. At the banquet, ECE department head Keith Teague announces scholarship recipients for the following year. The speaker at the 2013 Banquet was Dr. Matt Perry whose position is Silicon Partnerships and Hardware Strategy at Microsoft. There were also a wide variety of door prizes, thanks to generous donations from companies and alumni, including a solid state drive, a $200 Amazon.com gift card and an iPad mini.

IEEE is constantly looking for more ways to reach out to students. If you are interested in learning more, visit ieee.okstate.edu, and we hope to see you at the next meeting.

Dr. Matt Perry speaks with student at the 2013 IEEE banquet.

Corey Vyhlidal
IEEE-OSU president
Spring 2013
ieee.okstate.edu
While at Oklahoma A&M, Vogt served all four years in ROTC and was a member of Who’s Who in American Colleges and Universities, Eta Kappa Nu and Phi Kappa Phi, as well as president of the Engineering Student Council.

Vogt says he owes it all to Dean Edward Stapley and EE Dept. head Al (Pop) Naeter for encouraging him to step out of his comfort zone.

“Having grown up in such a small town, I was a little timid and wasn’t familiar with those opportunities,” Vogt says. “I never would have dreamed of being president of a student council.”

Vogt says Stapley also made it possible for him to teach a laboratory course and grade papers, which helped offset some of his college expenses.

“Not only was it help financially, but it taught you that you could go out there and do things you never thought you could do because someone gave you the opportunity and encouraged you,” Vogt says.
This was only the beginning of Vogt’s success. He received his bachelor’s degree in electrical engineering in 1952 and set off to New York City with his wife, Marilyn.

“I left Oklahoma and never expected to come back,” Vogt says. “The day after we graduated, we got in the car and left.”

Vogt began as a member of the technical staff with Bell Telephone Laboratories. He received a patent and wrote a technical paper, “Switching Time of Grown Junction Transistors.” In 1954, the Vogts said goodbye to New York City.

“Our first child was born at that time, and we decided we didn’t want to raise a family there,” Vogt says. “It had nothing to do with the employment because it was great.”

For two years, Vogt served in the signal corps of the U.S. Army as a first lieutenant. Eventually, the Vogts made their way back to Oklahoma, and Calvin went to work as a research engineer for Century Electronics & Instruments Inc. in Tulsa. He also began working on his master’s degree part time at OSU.

“I actually really liked the environment in Tulsa,” Vogt says. “It’s a great place to raise a family.”

By 1969, Vogt wanted to do something different, so he began his own company — Southern Specialties Corp. Throughout the years, he has received several patents for his electronic innovations, including his invention of the first automated parking meter.

“The parking industry was an interesting one,” Vogt says. “It was ahead of its time, and people weren’t used to it. I really enjoyed it.”

Vogt was nominated to serve on the National Parking Association Board of Directors, where he remains an honorary member. Southern Specialties also designed and manufactured fixtures for QuikTrip convenience stores, including its coffee bar.

“We got involved with QuikTrip, and when they needed something, they came to you,” Vogt says. “They were a great company to do things for.”

Vogt also served as president of Geophysical Research Corp., a research subsidiary of Amerada Oil Co which he and his partners purchased. He established sales, repair and calibration offices in Mexico; Canada; Aberdeen, Scotland; India; Dubai and Singapore.

“One of the areas I particularly appreciated was the opportunity to see the world,” Vogt says. “It made me appreciate this country.”

His unusual experiences abroad enhanced that appreciation — for example, arriving in Libya late one night.
Traveling was a big part of Vogt’s career, and he made more than 20 trips to China. At Mudanjiang in northeast China, Vogt signed contracts for his joint venture.

“The airport terminal was a small metal Quonset hut,” Vogt says. “There was only dim lighting and armed guards everywhere.”

He made more than 20 trips to China, experiencing some of the country’s culture. A customer once tried to impress Vogt at a restaurant.

“They brought a live snake to the table and held it in front of me, like they might order a bottle of wine in some countries,” Vogt says. “Then — in front of me — they cut off its head, drained the fluid into a bowl and poured it into our glasses for a toast.”

Vogt assisted some of his friends in China to come to the United States to further their education. One attended OSU for a master’s degree in engineering. Another attended and graduated from Spartan School of Aeronautics.

“It was fun seeing how you can affect people’s lives who don’t have the benefits that we do,” Vogt says. “They made life worthwhile.”

Although Vogt is now retired, he continues to hold ownership and directors’ positions with several companies. He was named Citizen of the Year by the Executives of Tulsa in 2011 and was inducted into the CEAT Hall of Fame in 2012.

One person who played an important role throughout Vogt’s career is his longtime secretary, Pat Ballard, who became like a family member. The two first met almost 60 years ago.

“People are somewhat intrigued by the fact that we worked together for so long,” Ballard says.

She was hired at Century Electronics a few months after Vogt was in 1956.

“I tell people I was a child secretary, and he was a child engineer,” Ballard says.

She left the company after eight years, but she stayed in touch with Vogt. In 1972, Vogt was president of several companies and asked Ballard to join his staff as his secretary and personal assistant.

“Each company was like a small family,” Ballard says. “The support I’ve received is beyond measure.”
Vogt’s children threw a party to celebrate their parents’ 60th wedding anniversary and 80th birthday of their parents.

Ballard says after all of his success, Vogt remains humble.

“He’s very driven to succeed, but at the same time very down to earth,” Ballard says. “He would always say there are no problems. There are only challenges and opportunities.”

Ballard worked with Vogt until the last company was sold in 2003. After all these years, she still remains in contact with the Vogt family.

“I was just so fortunate,” Ballard says. “It turned out to be a great career.”

Vogt remains connected with OSU and acts as an ambassador for the engineering program. He gives credit for this to Karl Reid retired Dean of Engineering. Vogt says that Dean Reid involved him deeply and convince him of the needs and opportunities. He looks forward to Dean Tikalsky doing the same.

To show their love for the university, Vogt and his wife established a professorship endowment in ECE. They have also provided support for the ATRC, the Reynolds Architecture building and the HATRC in Tulsa.

“I like to try to make a difference in other people’s lives because certain people made a difference in mine,” Vogt says.

“I like to try to make a difference in other people’s lives because certain people made a difference in mine.” -Calvin Vogt
KEITH TEAGUE WINS NEW APPOINTMENT

The head of the School of Electrical and Computer Engineering, Keith Teague, was recently appointed as a faculty member of the OSU Division of International Studies and Outreach School of International Studies (SIS).

The SIS faculty has more than 150 active members from all six traditional academic units and the Center for Health Sciences, the Graduate College and the Center for Veterinary Health Sciences. SIS faculty members hold concurrent appointments with their home departments and are available to the SIS to provide intellectual capital and engage in international activities of the school.

The diversity of the faculty’s professional experience and academic disciplines provides the SIS with direct access to OSU’s rich multidisciplinary and multicultural expertise. Our faculty’s deep involvement in overseas research, training, and education initiatives sets the pace for peer institutions. Faculty serve as instructors, mentors, committee members and program partners across all SIS program units including the SIS Academic Programs (the SIS graduate programs and the minor in international studies), Study Abroad, International Outreach and the English Language Institute.

ECE FACULTY AND STUDENT EARN SNA HONOR

A paper authored by Ye Gu, Dr. Qi Cheng and Dr. Weihua Sheng was awarded the best paper award at the Third International Conference on Sensor Networks and Applications in New Orleans.

“Classifier Fusion for Gesture Recognition using a Kinect Sensor” is a collaborative work between Cheng and Sheng on human robot interaction through depth sensor-based human gesture recognition.

From left: Dr. Weihua Sheng, Ye Gu, and Dr. Qi Cheng
Photo courtesy of Lory Ferguson
BUNTING RECEIVES TEACHING EXCELLENCE AWARD

Dr. Charles “Chuck” Bunting has received the Lockheed Martin Aeronautics Teaching Excellence Award. This award recognizes and encourages teaching excellence in the College of Engineering, Architecture and Technology at Oklahoma State University. Two awards are given each year; they include a cash prize and a commemorative memento.

ALAN CHEVILLE HEADS TO BUCKNELL UNIVERSITY

Dr. Alan Cheville has accepted a position as a professor and department chair at Bucknell University in Pennsylvania.

Cheville made many great contributions while at OSU, including a large effort and commitment to assessment and accreditation, which has led to outstanding results for ECE and CEAT.

His interest and work in engineering education and capstone design have had a significant impact on CEAT’s curriculum and students, and he played a key role in the creation of Design Day and the new ECE Design Commons laboratory.

Cheville’s commitment to education and scholarship, his collegial nature and his friendship over the years will be missed at OSU.

ECE and CEAT wish Cheville the best of luck with the new endeavor.

DAN GRISCHKOWSKY FEATURED IN AN IEEE JOURNAL

Dr. Dan Grischkowsky was featured as a “Terahertz Pioneer” in the July 2012 issue of IEEE Transactions on Terahertz Science and Technology (Vol. 2, No. 4). As a tribute to individuals who have contributed significantly over many years to the terahertz community, and as a guide and inspiration for those just beginning their professional association with this field of study, this IEEE journal has featured a series of biographical interviews with technical researchers who have appreciably affected the THz community in a positive manner.
AMERICAN ELECTRIC/PUBLIC SERVICE CO. CONTINUES SUPPORTING OSU ENERGY LAB

Since 1962, the American Electric Power/Public Service (AEP/PSO) Co. of Oklahoma has provided annual program support for the Oklahoma State University Engineering Energy Laboratory directed by Rama Ramakumar.

Continuing support from AEP/PSO and other sponsors enables the energy engineering program at OSU to graduate hundreds of power engineering professionals who are employed in all aspects of the industry and academia worldwide, including at AEP/PSO in the Tulsa area. Ken Brand, manager of distribution operations services and an OSU alum, presented a check for program support for the OSU Energy Laboratory.

FOUR ECE FACULTY MEMBERS PROMOTED

The School of Electrical and Computer Engineering promoted four faculty members in 2012. Damon Chandler, Qi Cheng and Weihua Sheng were promoted to associate professor (with tenure), and Guoliang Fan was promoted to professor.

ECE STUDENTS AND FACULTY EARN SPIE BEST STUDENT PAPER AWARDS

Two Best Student Paper awards were given to former graduate students Kedarnath Vilankar, Darshan Siddalinga Swamy, and Kellen Butler, and Associate Professor Damon Chandler, at the 2013 SPIE Human Vision and Electronic Imaging conference in San Francisco, California. The two papers, which were titled “On the Perception of Bandlimited Phase Distortion in Natural Scenes” and “Parametric Quality Assessment of Synthesized Textures,” both explored the interface between image processing and human vision.
Hans R. Bilger, 78, passed away on Wednesday, May 15, 2013, at the UW Hospital in Madison, Wisc. He is survived by his wife of almost 55 years, Edeltraut, their five children and their spouses, and 11 grandchildren. He was born in Singen, in southern Germany, in 1935 and grew up in the village of Efringen-Kirchen and attended the Hans Thoma-Gymnasium in Lörrach. He married Edeltraut Gönner, his classmate of nine years, in 1958. Three years later, he received a Ph.D. in physics from the University of Basel, Switzerland. In the fall of 1963, he joined Oklahoma State University’s Department of Electrical Engineering as an assistant professor, beginning a 34-year career at OSU.

He loved teaching and took pride in his students’ achievements. Dr. Bilger’s scientific interests focused on noise and optics, and in the 1980s he was inspired to build large ring lasers that could detect subtle movement with high precision that might be used to detect gravitational waves. An exciting collaboration with researchers in New Zealand began in 1986, and resulted in the construction of a highly sensitive prototype in Christchurch. Dr. Bilger went on to design a 16m ring laser that was built in Wettzell, Germany, and was used to measure the earth’s rotation rate — without reference to celestial bodies — to six digits. In 2012, at the age of 77, he contributed a detailed description of his ring laser work and its theoretical underpinnings to Wikipedia.
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If you have any noteworthy events or would like to see a particular item in the ECE Newsletter please contact:

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Also check out the newsletter on the website at ece.okstate.edu

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