A Note from “iDean” Christine Hailey...

In the past year, our college and students have received top awards in a number of national competitions. College of Engineering students took first nationally in the Air Force Research Laboratory Design Challenge; had a top-five finish in the American Society of Civil Engineer’s national Concrete Canoe Competition; and took the Grand Prize at the national University Student Launch Initiative.

This just begins the list of the many impressive student success stories scattered throughout the disciplines in the College of Engineering and throughout the pages of this and past issues of our magazine Creating Tomorrow: Many of that success can be attributed to H. Scott Hinton and his leadership as dean of the college for the past 11 years. His forward thinking and support of students in all disciplines of the College of Engineering have allowed them to grow and successfully compete with top-tier engineering schools from around the world.

As seasons change, however, so does our College of Engineering. Scott Hinton was recently named president of the Utah State University Research Foundation. His deep understanding of business, his industry expertise and his leadership skills that have elevated the College of Engineering to great heights will allow him to continue success as he moves on to his new and important position. I have been appointed to replace him as interim dean (“iDean”).

Although the college feels his loss, I am reminded that we all serve and work in environments of continuous change. As the newly appointed “iDean,” I realize that change can be challenging, but I am grateful for the opportunities that change brings. Change demands new ideas and creativity and provides us with opportunities to become even better. I am delighted to take on this new challenge and make it my personal mission to help every College of Engineering student become technically sound and grow as leaders.

The theme of this issue of Creating Tomorrow is leadership. Upon graduation, our students not only leave with engineering degrees but many of them also leave with resumes that showcase their experiences on winning teams, or in research labs, or developing engineering solutions for villages in third-world countries or serving as officers in professional societies. We offer students a wide range of extramural activities to help them build their confidence, improve their communication skills and understand the importance of engineering in a global context. I like to think that we are not only “Creating Tomorrow—Today” but that we are also “Creating Tomorrow’s Leaders—Today.”

Stories that reflect the success of current and past engineering student leaders are scattered throughout this issue of the magazine. The next several pages also reflect a variety of engineering research projects and programs. Please take some time to celebrate the accomplishments of our current students. And if you are an alum of this great college, please let us know of your recent accomplishments.

Sincerely,
Christine E. Hailey
Interim Dean, College of Engineering

Christine Hailey Named Interim Dean of College of Engineering

Christine Hailey is a professor of Mechanical and Aerospace Engineering and served as the senior associate dean in the college during Dean Hinton’s administration. At USU she is director of the National Center for Engineering and Technology Education, a National Science Foundation-funded center for learning and teaching.

Hailey is a licensed professional engineer who spent close to ten years working at Sandia National Laboratories before coming to USU.

“I am delighted that my first academic appointment as provost of Utah State is Chris, who is ready and willing to step into the dean’s role,” said USU Provost Noelle Cockett. “She will be a great contributor to the university’s leadership and will serve as a worthy role model for women in Engineering and across campus.”

Dean Hinton Appointed to Lead USU Research Foundation

H. Scott Hinton was named president of Utah State University’s Research Foundation (USURF) effective August 7, 2013.

“Scott has done an exceptional job as dean of our College of Engineering, and it has been a great pleasure to work with him,” said USU President Stan Albrecht. “I look forward to working with him in his new position and I am confident that his many leadership skills will move another essential part of the USU portfolio to new, higher levels of achievement.”

Prior to his new role, Hinton was dean of the College of Engineering at USU for 11 years. In his assignment as president of USURF, he will be responsible for the strategic direction of USURF and all business operations.

Niel Holt will continue to lead the Space Dynamics Laboratory, a unit of USURF, as director.

Hinton began his career at AT&T Bell Laboratories in Naperville, Illinois. After four years on the technical staff at Bell Labs, he was promoted to supervisor of the Photonic Switching Technologies group, eventually becoming head of the Photonic Switching Department in 1989. From 1992 to 1994 he was the BNR-NTT/NSSERC chair in the Photonic Systems at McGill University until he became the Hudson Moore Jr. Professor of Engineering at the University of Colorado at Boulder in 1994.

He then accepted a position as Dean E. Acker Distinguished Professor and the director of USURF and all business operations.

Hinton has operations in Albuquerque, New Mexico; Bedford, Massachusetts; Washington, D.C.; Los Angeles, California; Huntsville, Alabama; Colorado Springs, Colorado; and Houston, Texas.
Many researchers, faculty, students and alumni from Biological Engineering have played an important role in the internationally recognized Institute of Biological Engineering (IBE). From Biological Engineering Department Head Ron Sims to BE alum Elisabeth Linton, to serve as chair of an Industry Liaison Committee to IBE beginning in 2013. Also, collaboration between IBE and the Korean Society of Bioengineering and Biotechnology (KSBB) was strengthened with visits to Korea by Dr. Sims and Dr. Soonjo Kwon to make presentations and discuss the initiation of joint research activities and student exchanges between the two organizations in 2014. Dr. Sims is continuing to lead IBE in strengthening industry participation and KSBB collaboration in his role as past president in 2013.

At the Annual IBE Conference held in the Research Triangle of North Carolina in 2013, the USU undergraduate team for the International Genetically Engineered Machine (iGEM) Competition won the Grand Prize for its poster presentation “Arachnicoli: Production and Purification of Spider Silk Proteins in Escherichia coli.” Read more about the team on page 4 of the magazine. In addition, undergraduate student Ryan Putman placed in the top five finalists in the Bioethics Essay competition with his essay “Am I Patentable? The Contrasting Effect of Gene Patents,” and received an Honorable Mention award.

BE graduate student teams also won several awards in the poster competition at the IBE Conference. One BE graduate student team, with members Kandy Napan and Whitney Morgan and BE faculty mentor Dr. Jixun Zhan, was awarded the Grand Prize for its poster presentation "Pradimicin: A Biosynthetic Pathway." Asif Rahman was awarded first place for presenting "Economic Production of Polyhydroxyalkanoates in Escherichia coli," with faculty mentors Dr. Sims and Dr. Charles Miller. Joshua Ellis was awarded third place for his poster presentation titled "Isolation and Characterization of Anaerobic Microorganisms from the Logan City Wastewater Lagoon.""Participation and leadership in the IBE is a strategic goal for our department," Dr. Sims said. "Our relationship with the organization will continue to be a high priority and I am proud of the various leadership roles the BE Department has played in service to the national IBE organization over the past several years.”

Kirsten Sims, a BE master’s student, served as the graduate student representative in 2011. Dr. Soonjo Kwon served for three years as chair of the International Relations Committee and Dr. Jixun Zhan was elected councilor. Asif Rahman, a BE doctoral student, and Ryan Putman, a BE junior, were elected as graduate student and undergraduate student representatives, respectively, for 2013. In addition, Dr. Yue Cui served as a member of the IBE Awards Committee in 2012 and continues to serve in 2013.

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Evident in 2012 and 2013

Many researchers, faculty, students and alumni from Biological Engineering have played an important role in the internationally recognized Institute of Biological Engineering (IBE). From Biological Engineering Department Head Ron Sims to BE alum Elisabeth Linton to the BE undergraduate team working on spider silk protein, they are all working in various aspects with the organization. The Institute of Biological Engineering was established to encourage inquiry and interest in biological engineering. As an emerging discipline, biological engineering lies at the intersection of biological sciences, engineering sciences, mathematics and computational sciences.

Dr. Sims served as the president of the IBE in 2012. During his tenure, more than a dozen industries were involved in providing support and collaboration, including financial support for student poster competitions, sponsorship of keynote speakers, support of undergraduate student design projects and for participation in at least one conference to learn more about IBE.
Biological Engineering Students Continue Winning Streak at International Competition

Undergraduate Biological Engineering students on the USU International Genetically Engineered Machine (iGEM) team travelled across the country during the 2012-13 academic year to compete in several national and international competitions. The team, whose research dealt with engineering bacteria to produce spider silk proteins, took home high honors at every competition.

The team competed in the World Championship iGEM competition held at the Massachusetts Institute of Technology in November 2012 and went home as World Champions in the Manufacturing Division for its project Arachnicoli. The team was able to engineer DNA sequences to enable E. coli to produce spider silk, develop functioning spider silk BioBricks that could be easily assembled and also worked on a method to increase yield of spider silk protein produced by E. coli.

iGEM is a competition where students from around the world design, build and test biological machines. The USU iGEM team competed against 193 other teams from the United States, Asia, Europe and Latin America. “At the World Championship iGEM competition, USU was only one of two North American teams to win an award for experimental based iGEM work, the other team being Carnegie Mellon,” said Dr. Miller. “The USU team is proud of its achievements this year and demonstrated that it can compete with the best teams on the world stage.”

The team would like to thank all of its sponsors for their generous donations, including ASU/USU Academic Opportunity Fund, USU Department of Biological Engineering, USU College of Engineering, USU Synthetic Biomass Manufacturing Institute, Sustainable Waste-to-Bioproducts Engineering Center, USU Commercial Enterprises Office, Pressure BioSciences Inc., Integrated DNA Technologies, GenScript and Spyder Active Sports.

The Arachnicoli team is harvesting spider silk proteins from engineered bacteria that is then spun into fibers. The team believes it will ultimately be the best way to produce large amounts of this very useful biopolymer. Spider silk is one of the toughest fibers known, with several properties similar to Kevlar.

The team that includes BE undergraduates Charles Barentine, Andrea Halling, Thomas Harris, Elizabeth Martinez, Ryan Putman, Federico Rodriguez and Brian Smith, and Logan High School student Kathleen Miller, worked hard on its research project throughout the year. Under the leadership of graduate student mentor Aaf Rahman and BE faculty advisor Dr. Charles Miller, the team was able to engineer DNA sequences to enable E. coli to produce spider silk, develop functioning spider silk BioBricks that could be easily assembled and also worked on a method to increase yield of spider silk protein produced by E. coli.

Sustainable Waste-to-Bioproducts Center: Creating Value Product from Produced Water

The Sustainable Waste-to-Bioproducts Engineering Center (SWBEC) is growing algae in oilfield wastewater from Utah, Wyoming and other states during petroleum and natural gas mining. SWBEC student Jonathan Wood, along with Biological Engineering faculty member Ron Sims and Jon Takemoto, a Biology professor from the College of Science, was able to cultivate a type of algae, referred to as blue-green algae, that excretes a high-value chemical called phycocyanin.

Blue-green algae earns its name because of its predominant color on produced water and is, in reality, a type of bacteria classified as cyanobacteria that can use sunlight as a source of energy to grow. Phycocyanin is a water-soluble pigment found in cyanobacteria that is used as a fluorescent label and as a food supplement and dye.

Cyanobacteria were observed growing on a biofilm on the SWBEC-designed reactor – referred to as a rotating algal biofilm reactor (RABR) – that treats municipal wastewater at the Logan, Utah, Wastewater Treatment facility. Jonathan, along with fellow SWBEC student Terence Smith, made a serendipitous observation that cyanobacteria were predominant in the film of algae that grew on the surface of the RABRs, according to Dr. Sims, who is the co-director of SWBEC.

“Cyanobacteria can grow and produce phycocyanin in a type of wastewater that is highly contaminated with salts, minerals and organic chemicals,” Dr. Sims said. “In addition, the cyanobacteria assist with bioremediation of the produced water by removing nitrogen and phosphorus chemicals and also several metals through uptake from the wastewater.”

Tests have been successfully conducted on produced water from the Danish Flats site near Cisco, Utah, and from the Southern Cross facility near Bagg, Wyoming. SWBEC is currently in collaboration with the Center for Biofilm Engineering at Montana State University to test the system at other sites in Montana. The RABR-cyanobacteria system may provide a new technology and platform for utilizing wastewater from oil and gas mining operations to produce phycocyanin, while simultaneously bioremediating the wastewater.
Engineers Without Borders

BROADENS HORIZONS

for Civil and Environmental Engineering Students

If there’s one way for engineering students to not only learn how to be great engineers but also how to be great leaders, Dr. Laurie McNeill, associate professor in Civil and Environmental Engineering, thinks Engineers Without Borders might just be that way.

“These students get to experience so much during the project,” said Professor McNeill. “From beginning to end, it is a completely student-organized effort.”

The Utah State University student chapter of Engineers Without Borders formed in 2003 and, though it is focused on Civil and Environmental Engineering, hundreds of students from across the College of Engineering, as well as other colleges, have participated in the program.

The EWB projects focus on sustainable engineering in developing countries. Teams have traveled to Tibet, Uganda, Peru and Mexico to work on projects, including water infrastructure improvement for both irrigation and drinking, structural improvements, latrine construction and health and sanitation education.

USU teams work with a partner, non-governmental organization already based in the project country. In Mexico, students are working with Choice Humanitarian in La Salitrera to improve the town’s water system and increase hygienic awareness.

The EWB students are responsible for planning all aspects of the projects. Work includes contacting and working with NGOs, fundraising, travel logistics and, most importantly, project management. Professor McNeill feels that the skills practiced and learned during the experience give the students a great advantage in life and their future careers.

“What’s most important to understand about the EWB experience is that the experience teaches the students lifelong skills,” said Professor McNeill. “It is a fantastic opportunity to apply classroom principles in the field as well as develop leadership and organizational capabilities.”

Past USU-EWB president, Karen Nelson, couldn’t agree more about the value of her experience. She joined EWB as a freshman in 2010 and traveled to Mexico for the first time in December 2010. Karen was proactive and took over as the leader for team Mexico immediately after her return not even three years to see the realization of all the hard effort with the Mexico team.

“This year I traveled to La Salitrera for the third time,” said Karen. “I had the wonderful opportunity to help install a wireless monitoring system for the existing water distribution system there that supplies several hundred people with water. The community loved the system and thanked us profusely for our efforts.”

Karen credits her EWB experience as well as the mentorship from the professors for her personal as well as professional growth. She especially learned the importance of delegating.

“When I first started out I would take on everything myself and try to do it all on my own,” said Karen. “But by the time I was president of the club I had improved immensely and delegated everything from planning club-wide events to designing and printing flyers to different members. This made my work a lot more enjoyable and easy... which was especially important to me as I applied to graduate schools and fellowships last year.”

Karen is now attending Purdue on a full NASA Science and Technol-
Mitch Dabling is a natural born leader who has raised the bar for his students. In addition to being a driven, dedicated, and fearless contributor to the field, Mitch is an excellent experimentalist and has been very successful when life outside the classroom gets challenging as well. Craig Adams, department head of Civil and Environmental Engineering, feels Dr. Rice is a great addition to the department.

"John is an excellent experimentalist who has taken a lead in developing USU’s geotechnical programs and fabricating state of the art equipment to support research," said Dr. Adams. "It is important to note that John is also an excellent mentor for his students, as exemplified in their winning a variety of awards for their work."

Distinguished Alum: Zan Murray

As Utah State University’s College of Engineering Distinguished Alumnus of the Year for 2011, Zan Murray has certainly made an impact in the engineering world. Mr. Murray exemplifies the kind of graduate the college strives to produce: someone who is passionate about their profession and takes on leadership roles with comfort and confidence.

"Through my experience in the college, I learned how to work successfully in large groups dealing with complex problems," he said. "I enjoy bringing people together to create a unified solution."

Mr. Murray is project manager for JUB Engineers Inc. in Logan and manages projects for city, county, and state agencies. His most recent project, the $22 million Logan canal project, has been one of his toughest challenges. He has worked at JUB for 15 years and has hired multiple USU graduates following internships with the company.

"Utah State creates high caliber graduates who are prepared to work in the industry," said Mr. Murray. "The employees we get from USU are not only great engineers, but they understand how to manage and lead others."

While at USU, Mr. Murray was ASCE student chapter secretary. Since then, he has also served as the ASCE Northern Utah Branch President, taught courses at USU and served as a panel member for Engineering State ABET accreditation. He is also an avid runner and credits USU, as well as his supportive family, for his self-disciplined and goal-oriented nature.

"My family, especially my wife, pushes me to be the best I can be," he said. "Combined with the discipline I learned throughout my engineering education, my family’s support keeps me going to the last mile."
When a pressure cooker bomb tore through a crowd of spectators near the finish line of the Boston Marathon in April, people with smart phones were recording, tweeting and posting not only the horrific scene, they were also mobilizing the power of social media that proved invaluable to police and emergency personnel.

An entire new crisis reporting model has emerged with the advent of social media and Utah State University’s Dr. Amanda Hughes was one of the pioneers who recognized the value of this new phenomenon. Now, this pioneer is trying to help public information officers (PIOs) use this new social media data flow into manageable information streams.

Common citizens as digital delineators are not only morphing into re-tweeters by the Federal Emergency Management Agency (FEMA) in the days up to and immediately following a disaster. The analytics she is developing will quickly go to a website and manage social media activity around an event. For the first few years, she and her lab group, led by Professor Leysia Palen, were among a very few who were connecting the dots between the fledgling social media apparatus and what role, if any, it played during periods of crisis.

She has gone on to publish 12 articles on the topic, including three book chapters and invited publications and six presentations and two posters. She may not be comfortable with the title Dr. Disaster, but she is, in her own right, a forerunner in disaster communication and the social media realm.

Check out her Twitter postings and you will also see that Dr. Hughes is a social media darling in her own right. In fact, her tweets are not only an obsession for her followers, but they are also her information gathering method of operation. The analytics she is developing will allow them to capture and categorize the social media conversation on any topic in real time.

With this type of information at one’s fingertips, the role of the PIO can dramatically shift from gatekeeping to chronicling and translating by taking information that may initially seem disjointed and disconnected and meaningfully transform it into another format that can be better understood by others, Dr. Hughes said.

Defining and refining these partnerships and finding ways to effectively filter wide swaths of data will be to everyone’s advantage in light of the fact that expanding urban populations and increased density are posting, what is being posted about it, and where the treatment centers are located. The categories are limitless.

The analytics she is developing will allow them to capture and categorize the social media conversation on any topic in real time. The faster these public, private and government crisis communication relationships are understood, modeled on computers and adopted in practice, the better off everyone will be. So hang on to your cell phone and thank Dr. Hughes for her ongoing efforts to turn crazy amounts of data into sensible information whenever catastrophe strikes.
Tung Thanh Nguyen: Fishing Nets to Internet

A clue to his active and extraordinary mind can be found in the people he idolized as a boy: Isaac Newton, Leonhard Euler, Albert Einstein and Thomas Edison. When he was young he liked science and technology. He taught himself programming by reading books, and then writing and running numerous programs on paper long before he had actual access to a computer. Whatever science bag that was flying through the humid, Southeast Asian air of his childhood, it found him early and he liked it.

“I conducted several ‘scientific’ experiments and created a telescope with self-made materials and equipment,” he said. “It is difficult to make big things with just your bare hands.”

Likely not. Neither has Tung Thanh Nguyen Dr. Kyumin Lee who gave up easily, was pessimistic and never thought to fish alone. And don’t be deceived by his boyish face or the wild look in his eyes. He knows how important it is to take successes and be patient — five years’ worth of patience.

What’s Trending?
Ask Kyumin Lee

What’s Trending? Ask Dr. Kyumin Lee. Maybe the best way to describe Dr. Kyumin Lee is to say what he is not. He’s no slacker. And don’t be deceived by his boyish face or the wild look in his eyes. He knows how important it is to take successes and be patient — five years’ worth of patience.

He comes to Utah State University with a disarming smile and a robust resume that suggests young hipster computer scientists in the best sense of that oxymoron.

“I look forward to working with people in the Computer Science Department and other departments such as Psychology and Sociology,” he said. “My research areas are complementary to other faculty members’ research areas.”

That, and his apparent disdain of idle talk. Dr. Watson said. “They make the decisions,” he said. “They are absolutely running the show. If I were asked what cameras they should be using.

He said no one has come to him to ask about switching task management systems or what associated with the construction, design and software.”

“The students are the ones making all the calls,” Dr. Watson said. “I’m only peripherally involved.”

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“The students are the ones making all the calls,” Dr. Watson said. “I’m only peripherally involved.”

But his collaborations will not be confined to faculty. He looks forward to working with students as well. What better way to keep up on what’s trending? “I like teaching,” he said. “I think both research and teaching are important.”

Dr. Lee immersed himself in the collaborative world of social systems when he worked as a software engineer for Internet giant NHN that operates South Korea’s top Internet and online game portal. He was a designer and implementer of core logic on online game web sites.

This early career experience is particularly notable when considering that he was working at NHN at the same time he was earning a master’s degree in Computer Engineering at Sungkyunkwan University in South Korea, just two years after obtaining a dual degree of Computer Science and Electronic Engineering at Kyonggi University in South Korea.

His work at NHN helped to pave the way for his research on challenges related to large-scale social systems within the vast networking world of computers. He most recently received a much sought-after Google Faculty Research Award (only one of 105 projects awarded out of $500 proposals) to fund a project focusing, in part, on preventing crowd-sourced manipulation of search engines.

He said he looks forward to sharing his expertise and further collaborating with faculty and students through research and teaching, and to be there for his students every step of the way. He knows how important it is to take special interest in the lives of students. It was that personal attention he received from teachers and mentors early on that helped to set him on his path to success. That, and his apparent disdain of idle talk.

“Having good mentors, talking with them and friends and then writing on your dreams are key to achieving goals,” he said. “Some people just think about achieving a goal, but without taking any action, taking action is the main key to achieving new experiences.”

...
College of Engineering

NEW FACULTY MEMBERS

Wade Goodridge  
Assistant Professor  
Engineering Education

Jeff Horsburgh  
Assistant Professor  
Civil and Environmental Engineering

Amanda Hughes  
Assistant Professor  
Computer Science

Daniel Hyduke  
Assistant Professor  
Biological Engineering

Kyumin Lee  
Assistant Professor  
Computer Science

Marcus Maguire  
Assistant Professor  
Civil and Environmental Engineering

Tung Nguyen  
Assistant Professor  
Computer Science

Jeliko Pantic  
Assistant Professor  
Electrical and Computer Engineering

Nicholas Roberts  
Assistant Professor  
Mechanical and Aerospace Engineering

Rajnikant Sharma  
Assistant Professor  
Electrical and Computer Engineering

Elizabeth Vargis  
Assistant Professor  
Biological Engineering

Idalis Villanueva  
Assistant Professor  
Engineering Education
The generosity of USU alum David G. Sant, who died in 2008, and his wife, Diann, included the creation of the David G. Sant Innovation Fellowship. The award is presented to a graduate student on the basis of his or her research proposal, scholastic achievement and potential for contribution in the field of electrical engineering.

Nate took his idea of the baby monitor, already in the works as part of his senior project, and expanded it in his proposal that he submitted to the fellowship committee. After review by the faculty group, he was selected to receive the Sant Fellowship which includes a cash award to be used for the development and production of the proposed project now christened “Baby Watch.”

“The legacy of David Sant can be seen throughout the College of Engineering,” said Todd Moon, ECE department head. “An impressive building with labs and research space bears his name, but he also endowed multiple scholarships as well as a fund to assist graduate students in our department to develop ideas that can be transferred to the commercial marketplace.”

Dr. Moon said he refers to the fellowship as “the Filo Farnsworth” fund — it might help a student develop the one brilliant idea that might become the next television.

“David Sant was an electrical engineer and he wanted to help young electrical engineers,” Dr. Moon said. “That’s what this fellowship does. Nate got a prototype of the monitor up and running for his senior project and now the fellowship allows him to take it to the next level. It provides the investment to support a place to work, it pays for parts and it provides an opportunity to connect with the technology/commercialization office.”

Nate is also enrolled in a unique degree option in the College of Engineering, the concurrent BS/MS program that allows engineering students to begin taking graduate classes during their senior year and to complete the requirements concurrently for both undergraduate and master’s degrees over the next two years.

In a nutshell, Nate’s idea for Baby Watch incorporates several features, but it is used to monitor the child’s heart rate, something that is especially important in premature babies. Now, thanks to the Sant Fellowship, Nate has added a second function to the monitor — respiration rate.

In Nate’s prototype, there is no “equipment” on the baby. The monitor is in the room with the baby and provides raw video — via an infrared camera that can “see” in the dark, then, working through any web browser and with a variety of apps, a parent can check the heart rate or respiration rate of the child by using any electronic device from a smartphone to a tablet.

“The idea,” Nate said, “is to make it very robust, that it doesn’t have any bugs in it and that it doesn’t malfunction.”

The fact that the monitor does not have to be physically placed on the child is an important concept. Other monitors in development might function through a sock on the child but that raises issues of movement and, as parents know, socks don’t always stay on children, Nate notes.

The monitor could be especially useful for babies with sensitive skin or expanded to be used in burn cases. There are many options for the monitor’s expanded use, he continued.

Sant Fellowship Leads to STUDENT INNOVATION

They say that necessity is the mother of invention. In today’s world, that might include a father as well, or, perhaps, an entire family.

When Utah State University student Nate Ruben and his wife, Sarah, became the parents of a premature son they named Hyrum, Nate’s parental instincts kicked in along with his innovative side. Although healthy, Hyrum was a preemie and that brings potential health concerns for the child. For first-time parents, that can bring stress and worry.

But, as a student in USU’s Department of Electrical and Computer Engineering, Nate’s engineering side took over.

“I thought there was a need to develop a baby monitor that would allow parents to check the heart rate of an infant remotely — from any location — when the baby was sleeping,” he said. “It could be done through a raw video feed, but there wouldn’t be a monitor on the baby. And, importantly, since babies often sleep in the dark, the monitor would need to work without full light.”

The idea for that monitor became the core of Nate’s senior project but it also led to a proposal submitted as part of his application for the Sant Fellowship in the ECE department.
In real-life applications, they’re helping farmers analyze soil conditions, assess invasive weeds. The technology can track fish with implanted antennas to monitor habitats and gauge the health of fisheries. And, in a recent application in the past year, the Utah State students took an unmanned system to Christchurch, New Zealand, to assess earthquake damage, using technology in a cost-effective manner in a research trip sponsored by NSF. But, in the midst of the research and student involvement, the realities of the academic world also influenced the experience. Dr. Chen left the university to head a new program and lab in California. That move affected Calvin, but he continued to be advised by Dr. Chen. It also gave him a new role. “A faculty member had always led the UAS team but the level of student leadership was high,” Dr. Moon said. “When Dr. Chen left, the student leadership and involvement was so high the program didn’t miss a beat — it’s operated this past year entirely under student direction. Our student team really exemplifies the ‘can do’ attitude in our department and programs.” Stepping in was Calvin to lead the research elements of the team with fellow graduate student Austin Jensen coordinating the applications side. Calvin coordinates the research work of both undergraduate and graduate students. He is now a doctoral candidate and continues to work with the team. “I think part of my role is to keep the students organized,” he said. “I set deadlines and set reasonable goals but also try to push the boundaries of research — look for the things that haven’t been done before. I want the students to capture new ideas and take the research in new directions.” Calvin says the team includes 20-25 students and he looks for students who show an aptitude for the creative part of engineering — students who are not afraid to pick up a tool, he said. “We want to make systems that work,” he said. Dr. Moon endorses Calvin’s leadership. “The work being done by this student-led team goes far beyond the level of involvement in classroom learning,” Dr. Moon said. “They’re taking the technology and developing systems for multiple civil or public applications.” For Calvin, it’s that research that is important. “This isn’t about the flying, it’s about making science,” he said. “It’s about delivering data — getting brand new data that is of scientific quality. We can do better science with better data.”

“When Dr. Chen left, the student leadership and involvement was so high the program didn’t miss a beat — it’s operated this past year entirely under student direction. Our student team really exemplifies the ‘can do’ attitude in our department and programs.”

—Todd Moon

1. **Department Snapshots**

Since joining the ECE department, Dr. Rose Hu has quickly built a strong program in wireless networking, gaining corporate funding from Intel as well as a grant from the National Science Foundation. She brings experience in higher education and the public sector, including work with Research in Motion, developer of the Blackberry. Prior to her arrival the ECE department offered courses in networking, but under her leadership the courses have been updated, reflecting current trends while offering a broader range of topics. As a result, the department is assembling a much larger networking lab, and the graduate program is expanding under her leadership. She has been very successful in recruiting graduate students through her effective mentorship and teaching.

Signal processing, the art and science of extracting information from measured data, is used so widely in daily life we rarely take notice. But every cellphone or Skype call made employs dozens of signal processing algorithms and HDTVs are packed with signal processing hardware. As a discipline, signal processing sits in a sweet spot between mathematical theory, computer programming and practical applications. At USU, the ECE department team of Drs. Jacob Gunther and Todd Moon contributes to the world of signal processing in a variety of ways:

- **Hyperspectral image processing.** There are instruments that can “see” and form images at wavelengths that the human eye cannot detect. Using these instruments, it is possible to see smokestacks that violate clean air standards or contribute to greenhouse gasses or, from a safe distance, see if smokestack emissions meet international treaty requirements. Research at USU is aimed at improving the ability to detect very weak signals.
- **Advancing communications.** Normally, cell phones are controlled so they don’t occupy the same frequency band. When two people talk on their cell phones at the same time, the phones automatically transmit on different bands to keep from interfering. Now, imagine two people communicating simultaneously over the same frequency using the same communication format. If the signals could be pulled apart, in principle, the number of people communicating could be doubled without increasing the available bandwidth. That is what Drs. Gunther and Moon have accomplished and report in recently published work. Using a signal processing tool known as “turbo processing,” they repeatedly work on received signals (in this case, interfering signals) until they “wash clean.”
- **Speech recognition.** Today, when we talk to a computer, it understands because of speech recognition. The system “dulled down” about what was spoken until it settles on what was said. In lab experiments, this brings substantial improvements in word error rates. The hidden Markov model, the commonly used mathematical model, attempts to account for how speech sounds are instantaneous to the next. The model, a workhorse of speech recognition for almost three decades, has been recently upgraded and improved by work done at USU. It is anticipated that application of the improved model could push recognition performance further down the road.

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As signal processing becomes increasingly present and relevant in life via the myriad of hardware that surrounds us, the underlying theory becomes increasingly theoretical. Students working in the area need a high degree of sophistication to be able to understand and contribute. Anticipating the need over a decade ago, Dr. Moon, working with his colleague Dr. Wynn Stirling at BYU, put together a graduate-level textbook on signal processing, Mathematical Methods and Algorithms for Signal Processing. The book, widely adopted in the United States and abroad, lays out the theory that is now becoming commonplace.
ends of their doctoral-student careers, they both share the same enthusiastic passion. Santosa are two such students in the EED doctoral program. Stacie is just beginning her second semester, while Harry is finishing his last. Although they are on opposite ends of their doctoral-student careers, they both share the same enthusiastic passion for learning and teaching as one would expect from education specialists.

Before coming to Utah State to work on his doctorate, Harry was a faculty member in the Computer Science Department at the University of Indonesia. While at UI, Harry worked to develop a computer science e-learning project for pre-college age students. “My biggest challenge with the project was that I had no idea how to analyze how well students were learning,” said Harry. “I didn’t have the necessary background in pedagogy that would help me analyze the project’s efficiency.”

Harry was directed to USU’s EED program by the dean of his college. The USU program’s systemic model involving cross-departmental research was the missing piece he needed for his e-learning project’s success.

Now, as an EED doctoral candidate, Harry works closely with the Department of Computer Science, as well as with USU’s Atkinson-Eccles Jones College of Education and Human Services, to improve a computer science e-learning module previously developed at Utah State.

Harry’s work has benefited from the university’s close relationship with Logan High School and InTech Collegiate High School. He visits both schools and takes with him the tactics employed in cognitive research to understand how well students are learning. He analyzes videos of the students and conducts in-depth interviews with them after they have used the module.

While Harry has benefited immensely from reversing roles by essentially returning to the role of student at Utah State, he is looking forward to finishing his studies and returning to his family in Indonesia. “My wife and son were here with me for two years,” Harry reflected. “They both returned to Indonesia in March. I’m excited to see them and my recently-born son whom I’ve yet to hold in my arms.”

On the other end of the spectrum is Stacie who is still in her first year of USU’s EED program. However, she is not deterred from taking on big issues. It’s no secret that the engineering profession in the United States lacks in multi-cultural diversity and Stacie hopes to change this.

Stacie began her studies in in January 2013. It was the unique collaboration of engineering and education that brought Stacie to Utah from her home state of Georgia.

“It was a perfect match,” said Stacie. “A degree in Engineering Education affords me the opportunity to merge the two things I love: engineering and education.”

An alumna of Spelman College, an all-female, historically Black college in Atlanta, Georgia, Stacie knows first-hand the impact that role models play in inspiring students.

After earning a master’s in Material Science and Engineering from the Georgia Institute of Technology, Stacie wanted to use her passion and educational training to motivate pre-college students to excel in mathematics and science.

“Mathematics and science are the courses that are most important for success in an engineering degree program. My desire is to inspire students who are traditionally under-represented in these fields so that they can pursue careers in science and engineering.”

Prior to coming to USU, Stacie founded a non-profit organization that worked with school districts in Atlanta, Georgia, that was tasked with engaging K-12 students and teachers to look at new ways of teaching math and science. “Most students and quite a few teachers do not know what engineers actually do,” she said. “I worked with teachers to assist them in designing curriculum that demonstrated the application of engineering and, in doing so, getting students more excited and engaged in the curriculum itself.”

Stacie believes service learning is a great way to excite students about math and science. Under her organization’s direction, high school students were introduced to aspects of science by engaging in the cultivation and maintenance of community gardens. “Many of these students had never experienced such a hands-on learning activity,” said Stacie. “Kids are generally really excited about learning. I think the way it’s presented in school often makes science seem boring and irrelevant.”

During her tenure in the non-profit arena, Stacie saw first-hand other factors that affected the way in which students viewed math and science, including the traditional stereotype threat, whether it be related to race or gender.

While at Utah State, Stacie hopes to work closely with the Emma Eccles Jones College of Education and Human Services to develop interventions that help break stereotype threats.

Although still in the early stages of her research, Stacie is designing a project that will investigate the impact that gender and racial role models have in decreasing the adverse effects of stereotype threat in women and under-represented minorities involved in engineering education.

The research of engineering education is what will shape the future of engineering.

“Mathematics and science are the courses that are most important for success in an engineering degree program. My desire is to inspire students who are traditionally under-represented in these fields so that they can pursue careers in science and engineering.”

—Stacie Gregory
From High School Teacher to College of Engineering Professor

Professor Wade Goodridge, recently hired in the College of Engineering’s Department of Engineering Education, is a man who understands hydraulics. He understands the properties that push and pull liquids and relates that to the fact that he has “mud in pipes.”

Education has always been in Professor Goodridge’s blood. Growing up in Alaska, his father was a high school teacher, and his mother worked in early childhood education for more than 20 years. “Maybe it was those extra-long, Alaska summer days,” mused Professor Goodridge. “But I guess I was bound to end up a teacher.”

After earning an undergraduate degree in Industrial Technology Education at USU, he then followed his father’s career channel and taught high school. After two years of teaching at Mountain Crest High School in Hyrum, Utah, Professor Goodridge was back at Utah State to earn a second bachelor’s degree; this time in Civil Engineering. While earning a second undergraduate degree and on to a master’s degree alike, Professor Goodridge spent many hours in the Utah State Water Research Laboratory, physically modeling stair-step spillways. His modeling was eventually applied to a dam in upstate New York that accounts for one-third of New York City’s water supply. Professor Goodridge completed a doctorate at USU and spent his time at the Utah Water Research Laboratory studying sediment transport in culverts, or as his friends like to say, “mud in pipes.”

Upon graduation, Professor Goodridge’s career streamed back into education. For the past five years he has held the position of a principal lecturer at USU’s Brigham City Campus. His passion for teaching was institutionally recognized while at the Brigham City Campus when he was awarded the Undergraduate Research Mentor of the Year, Brigham City Regional Campus, in both 2012 and 2013.

And while Professor Goodridge is passionate about educating students, his research is of equal merit. He was awarded the Researcher of the Year, Brigham City Regional Campus in 2013, as well as USU’s Regional Campus and Distance Education Researcher of the Year, in addition to his mentor recognitions.

Now as a professor, teacher and researcher at Utah State’s Logan campus, Professor Goodridge will draw from his experiences as a high school teacher and regional campus lecturer to continue developing better methods of teaching engineering, especially to students who may not have access to traditional classroom methods.

“It’s a burgeoning science,” said Professor Goodridge. “I’m excited to find what lies around the bend.”

While doing post-doctoral work at NIH, she met colleagues working in the office of Intramural Training and Education. Their interest in education and training of postdoctoral students sparked an interest in Dr. Villanueva that led to her taking on an internship in that office.

“My job was to create some professional seminars and events that required many informational interviews,” she said. “This included meeting with professionals in science education.”

The concept, modeled to Dr. Villanueva in science education, seemed like a perfect fit.

“I thought, ‘Wow! This is really neat!’ I could still teach and still do research and, at the same time, make a lasting impact on education,” she said. After completing her stint with NIH, Dr. Villanueva worked as a lecturer in the Fischell Department of Bioengineering at the University of Maryland College Park, where she taught undergraduate bioengineering courses. The experience further confirmed her passion for helping students.

“For me, it’s not just about teaching,” said Dr. Villanueva. “It’s about finding out what works for the students and what doesn’t work for the students.”

When the position in the Engineering Education Department opened at USU, she had already done the career tailoring that led to her joining the department. She will conduct research on engineering design competency models as well as the accessibility of engineering education to diverse audiences.

“If we are to move this society and this generation into more technical jobs, we need to do something about it,” said Dr. Villanueva. “I think the first place to start is in the classroom.”

Dr. Idalis Villanueva
Repeat: MAE Engineering Students WIN U.S. Air Force Design Competition. AGAIN.

Mission
Design and develop a portable, light-weight, multipurpose (multifunctional) tool to traverse obstacles such as irrigation canals, rooftops, minefields, streams, desert rock formations, unstable structures and compound walls.

Requirements
Enable ground forces with heavy body armor and gear to cross aforementioned gaps, extract recovered equipment and rescue injured persons (total combined weight of 350 pounds) from the battlefield in day or nighttime conditions, regardless of obstacles.

Simplify deployment and minimize size and weight for increased mobility.

Design for a multipurpose role, while being reusable and easy to maintain.

Solution
Utah State University’s Break-Apart Mobile Bridging and Infiltration device. Code name: BAMBI

A team of students in the Department of Mechanical and Aerospace Engineering bested 18 other universities to take top honors during the 2013 U.S. Air Force Research Laboratory (AFRL) University Design Challenge at Eglin Air Force Base in Florida on April 18. This is the second consecutive AFRL University Design Challenge win for Utah State MAE students.

The process to win this year’s competition started during the fall semester of 2012 when universities across the nation were issued a challenge that, according to the Air Force, “USAF Special Tactics Battlefield Airmen executing rescue and assault operations around the world have experienced difficulty traversing irrigation canals, moving from one rooftop to another, crossing minefields, fast flowing mountain streams, snow and glacier crevasses, desert rock formations, unstable/collapsed structures and compound walls.”

While the team certainly made it look easy, the bridge to this year’s victory for USU wasn’t immediate.

“When we initially received the challenge, we came up with some very interesting ideas,” said USU MAE student Tasha Davis. “We thought about inflatable devices and some technologies that haven’t matured, yet, but we found that the simpler the design was, the better it became. In the end, that strategy worked.”

That strategy led to the design and manufacturing of a traversing system constructed of a composite made from foam board and wrapped with two layers of carbon fiber. Added to that is Kevlar encased with rubber at each end. BAMBI weighs less than 28 pounds and has a volume of less than four cubic feet when packed. When fully deployed it spans 20 feet and is able to support loads in excess of 350 pounds. During the competition it took only six and a half minutes for the team to fully deploy BAMBI, cross the competition obstacle course, disassemble and repack. The next fastest time was more than 10 minutes. The obstacle course had 18 gaps ranging from two to 20 feet wide.

“Of the goals that the BAMBI team set for itself was to complete the design with enough time and budget to test it multiple times to failure. “We had to construct twice as many sections than were actually needed for BAMBI just because we broke so many of them during testing and proving our manufacturing process,” said BAMBI team member and USU graduate Taylor Clawson (BS, Mechanical and Aerospace Engineering ’13). “It was critical for us, as a team, to finish this project on time and on budget — and to finish with a product that could be used during actual Air Force missions. We had a rigorous schedule that we adhered to with an almost zealous-like attitude.”

During the competition the results of the engineering zealots spoke for themselves.

Former MAE department head and BAMBI team faculty advisor Dr. Byard Wood (BS ’63, MS ’66 Mechanical Engineering) indicated that there are two major reasons why USU has consistently come our winners in the AFRL University Designs Challenge as well as other competitions.

“Our curriculum stresses problem solving in many different ways and I think we have a very solid program in fundamental engineering concepts that gives the students a strong foundation.”

—Byard Wood
“I’ve found that USU consistently attracts quality engineering students who share a collective willingness to work hard and we get a lot out of them,” Dr. Wood said. “Our curriculum stresses problem solving in many different ways and I think we have a very solid program in fundamental engineering concepts that gives the students a strong foundation. The personal work ethic of Utah State students coupled with our curriculum made this a great challenge that the BAMBI team was well prepared for.”

The AFRL University Design Challenge gives students a taste of what it is like to respond to a government proposal, design a solution, manage a program, develop a schedule that includes a customer’s preliminary design review and critical design review and see the process through manufacturing, testing and deployment.

“The process of working with the Air Force to complete a project that will be used by airmen in the field was a great way for us to put classroom concepts to a practical application and has enabled me to gain a definitive advantage as I prepare to enter the workforce,” Tasha said.

Utah State’s BAMBI team included Tasha and Taylor, as well as Clair Hawkins (BS, Mechanical Engineering ’13), Ruth Miller (BS, Mechanical Engineering ’13), Ben Scott (BS, Mechanical Engineering ’13), Michael Terry and Joseph Woods (BS, Mechanical Engineering ’13). The team’s faculty advisors were Dr. Wood and Dr. Dennis O’Harra. The BAMBI team was very grateful for the help provided by Conductive Composites Company of Heber, Utah and North Fork Composites of Woodland, Washington.

To address the challenge, students from Utah State’s Mechanical and Aerospace Engineering department won first place in the AFFL University Design Challenge by designing and building a vacuum-powered vertical ascender that enabled U.S. Air Force Special Tactics Battelfield Airmen to scale a 90 foot wall without the use of grappling hooks.

The Multiple-use Plug Hybrid is a thruster prototype enabling nano-scale spacecraft to be independently repositioned after deployment from a parent launch vehicle due to a new and improved propulsion system.

Small Satellite Propulsion Goes “Green” at USU

Bigger is not always better, just ask Utah State University Mechanical and Aerospace Engineering Professor Stephen (Tony) Whitmore. The Multiple-Use Plug Hybrid for NanoSats, or MUPHYN as it is referred, is a thruster prototype enabling nano-scale spacecraft to be independently repositioned after deployment from a parent launch vehicle due to a new and improved propulsion system.

There is an emerging market in very small spacecraft and the miniaturization of electronics has gone crazy in the last few years,” said Dr. Whitmore. “The propulsion industry in general has not kept up with that trend, so we are working on a system that will improve the functions of the smaller satellites.”

The MUPHYN uses the safe-handling and inexpensive acrylonitrile-butadiene-styrene (ABS), as well as nitrous oxide as propellants and offers a variety of benefits, he said. Because the environmentally benign “green” propellants are mixed only within the combustion chamber once the ignition is initiated, the system is inherently safe and can be piggybacked on a secondary payload without increasing overall mission risk to the primary payload.

Dr. Whitmore is working closely with a team of Utah State University graduate students, as well as NASA’s Space Marshall Flight Center and USU’s Space Dynamics Laboratory, to increase the understanding of the science behind MUPHYN so that it will be ready to fly into space. The technology has many potential uses, including in the cellular communications arena by allowing cellular service in more remote areas of the globe, as well as in the area of military surveillance.

“The applications for this technology are limitless and I am excited to take it to the next level,” he said.

Dr. Whitmore says working with graduate students is a very important component of his research. He gives his students the ability to take charge of a project, including letting them be lead authors of scientific papers that are co-authored by him so that they can further their career opportunities and become leaders in their field once leaving USU.

The research was summarized in a technical paper entitled “Development and Test of Regeneratively Cooled Multiple Use Plug Hybrid (fuel) Nanosat (MUPHYN) Mass”, by Dr. Whitmore and Dr. Shannon Eshers, a recent PhD graduate of USU’s MAE program, and Zachary W. Peterson, a recent MS graduate of MAE. The trio earned “Best Paper” at the 48th Joint Propulsion Conference and Exhibit by the American Institute of Aeronautics and Astronautics Hybrid Rocketers Technical Committee.

While at USU, Dr. Nielson was an honors program graduate, peer advisor and also worked in the Space Dynamics Lab as a research assistant. Before graduating he participated in two internship opportunities, both at Sandia Labs.

After graduating, he went on to attend the Massachusetts Institute of Technology receiving both his master’s and doctorate degrees.

MAE Alumni Highlight: Dr. Gregory N. Nielson Finds Success at Sandia National Laboratories

If solar energy is ever going to become a mainstream power source, the technologies for harnessing sunlight have to become cheaper than all other forms of energy, be easy and quick to install and work more safely, reliably and durably than present-day grid power.

Dr. Gregory N. Nielson, who graduated from USU in 1998 with a bachelor’s in Mechanical and Aerospace Engineering and a minor in Computer Science, is leading a research team at Sandia National Laboratories to make this happen by utilizing microdesign and microfabrication techniques used in the semiconductor, LCD and microsystem industries.

“The unique approach converts sunlight to electricity more efficiently,” said Dr. Nielson. “It increases the total power output available per unit area. It significantly lowers the cost for solar power. Most remarkably, the cells can be built into flexible produces like tents, bags or clothing, or embedded directly into more sturdy structures to become the outer shell of cell phones, tablets or laptops.”

As evidence that he is on the right path to achieving this goal, he and his research team received the R&D 100 Award in November 2012 for the MEPV technology. Additionally, he was named by Popular Science magazine in its October 2012 issue as “one of the 10 most promising young scientists working today.” Dr. Nielson was selected by the MAE Faculty for its 2013 Outstanding Alumnus Award.
“I never dreamed that my studies at USU would give me the confidence to expand our family business from paving roads and streets to helping to build everything from sanitary landfills to athletic complexes, schools and more,” Mr. Matich said.

“What you can learn in the classroom at USU can expand your horizons in ways you will never imagine.”

Mr. Matich is part of the third generation that works for his family business as a heavy engineering contractor in southern California. After graduating with a bachelor’s degree in Civil Engineering from USU in 1989, he went back to his home state to earn an MBA from the University of Redlands in 1991 and became registered as a civil engineer in California. Although his career took him away from Logan, he still remains closely tied to his time as a student and that is why he continues to be an avid supporter to the College of Engineering.

USU changed Mr. Matich’s life. The light came on during his time as a student and that is why he continues to be an avid supporter to the College of Engineering. “I believe that those of us who try to be good ambassadors for USU can make a positive difference in the world every day,” he concluded.

Dr. Kay Baker

Dr. Kay Baker is a great advocate of Utah State University’s College of Engineering. It has a strong program leading to a degree that allows one to have the flexibility to choose to do things in their career that are not only productive, but fun. Dr. Baker was the original founder of a research laboratory in 1970 that later coalesced with others to form USU’s Space Dynamics Laboratory. During his 30 years with the lab, he would see it become one of the most prestigious space research institutions in the United States. As a professor in the College of Engineering he taught many engineering classes and directed many research projects involving students before retiring in 2000.

Dr. Baker enjoyed his career and he wants to continue to pay it forward. “Supporting the College of Engineering can help the students,” he said. “It relieves some of their financial burden so that they can focus on their education, enjoy their time in school and be productive in their ‘space time.’”

Before coming to Utah State, Dr. Baker earned three degrees from the University of Utah where he began his career studying disturbances in the atmosphere, both natural and man-made. He then moved to Utah State where he would continue the research. Between the two universities he directed atmospheric research utilizing more than 300 rocket payloads and 18 earth satellites.

Although he was known as an expert in space science, he said that teaching took precedence. “It was so rewarding to be involved with students and to help them become confident and see the lights come on in their eyes,” he said. “I used the research to help students learn and to help them realize that they could do something useful with their lives. My main focus was launching students on careers they now have. These former students usually mention that their future wouldn’t be possible without the education they received from the College of Engineering at USU.”

I appreciate the many individuals and companies that contribute to the success of the College of Engineering and our students. The college receives cash gifts and equipment for student projects and competitions, donations for student scholarships, new scholarships and faculty endowments, as well as estate gifts. Without this assistance we wouldn’t be able to do the work we do to recruit and retain the best faculty and students, in addition to providing them with the best hands-on learning environment around.

As alumni of the College of Engineering, you can be proud of the college’s growth and the fact that we continue to provide an excellent educational experience for our students. The support that many of you give to USU is appreciated and I look forward to seeing great things continue to happen here in the College of Engineering.

Please contact me with any questions you have about the college and its programs.

Sincerely,

Val Potter
Executive Director of Development
College of Engineering

Students’ Excitement for Engineering is Contagious

From my experience and observations over the past several years, I feel safe in saying that there has never been a better time to be an engineer than right now. The success and impact engineers are having in developing and sustaining businesses is one of the main reasons we’ve experienced economic growth in our country.

We are seeing continual growth in enrollment and graduation rates in the College of Engineering and our students are better prepared for their educational experiences. I enjoy working with our students as they create projects and prepare for competitions. I see them complete their coursework to become engineers in the variety of fields taught in our college. The excitement that our students show for their discipline and for their futures in engineering is contagious!

I have seen our students graduate and move on to remarkable futures with organizations that motivate and encourage success in our graduates. One of the best things I do is meet former students and talk with them about the exciting careers they now have. These former students usually mention that their future wouldn’t be possible without the education they received from the College of Engineering at USU.

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Robert Matich

Utah State University College of Engineering alum Robert Matich says his success as a person was made possible by the many wonderful people at Utah State University and in Cache Valley.

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College of Engineering

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From my experience and observations over the past several years, I feel safe in saying that there has never been a better time to be an engineer than right now. The success and impact engineers are having in developing and sustaining businesses is one of the main reasons we’ve experienced economic growth in our country.

We are seeing continual growth in enrollment and graduation rates in the College of Engineering and our students are better prepared for their educational experiences. I enjoy working with our students as they create projects and prepare for competitions. I see them complete their coursework to become engineers in the variety of fields taught in our college. The excitement that our students show for their discipline and for their futures in engineering is contagious!

I have seen our students graduate and move on to remarkable futures with organizations that motivate and encourage success in our graduates. One of the best things I do is meet former students and talk with them about the exciting careers they now have. These former students usually mention that their future wouldn’t be possible without the education they received from the College of Engineering at USU.

I appreciate the many individuals and companies that contribute to the success of the College of Engineering and our students. The college receives cash gifts and equipment for student projects and competitions, donations for student scholarships, new scholarships and faculty endowments, as well as estate gifts. Without this assistance we wouldn’t be able to do the work we do to recruit and retain the best faculty and students, in addition to providing them with the best hands-on learning environment around.

As alumni of the College of Engineering, you can be proud of the college’s growth and the fact that we continue to provide an excellent educational experience for our students. The support that many of you give to USU is appreciated and I look forward to seeing great things continue to happen here in the College of Engineering.

Please contact me with any questions you have about the college and its programs.

Sincerely,

Val Potter
Executive Director of Development
College of Engineering