INNOVATE is a week-long summer program for high school juniors with an interest in science, mathematics, and technology who want to explore engineering and computer science. The program focuses on mechanical, aerospace, and electrical engineering as well as computer gaming and programming experience. Sessions include working in labs, talking with industry professionals and taking classes from Baylor faculty. Participants also gain the college experience through the residence hall, campus cafeterias, and fun activities on the Baylor campus. Twenty-four students will be selected for each week of the summer program.

FOR MORE INFORMATION OR AN APPLICATION
www.ecs.baylor.edu • Adam_Ecklund@baylor.edu • 254-710-3890
Meet the New ECS Staff

Process + Product
Software Engineering: Seeking the Right Solution

Q&A with Dr. Greg Speegle
A Candid Conversation with the Interim Department Chair for Computer Science

Game On!
Aaron Thibault’s Addition to the ECS Faculty Takes Program to New Heights

Kolt Browder
Pitcher Finds Balance on the Mound and in the Classroom

DEPARTMENTS

From the Dean
Elsewhere at Baylor
Around the Lab, New Faces, Faculty Publications
Alumni Updates
These are precious moments and unprecedented days at Baylor. Some say the stars are aligned… others refer to divine intervention. As Texas’ oldest and perhaps most distinguished university, I see Baylor simply implementing ambitious plans and assuming her ordained location in the constellation of higher education institutions.

What is so special about 2012 for Baylor? In the athletic realm, we have seen Baylor’s first Heisman Trophy winner, first appearance in the Women’s College World Series, back-to-back bowl games and first bowl victory in a generation, deep runs into the NCAA basketball tournament, and Top 10 rankings for tennis and track and field.

Though athletics may be ancillary to the core Baylor mission, academic programs also proceed into uncharted territory. The School of Engineering and Computer Science (ECS) is at the nucleus of this charge as evidenced by a U.S. News and World Report ranking of 13th in the nation. Within the past decade, ECS undergraduate enrollment has doubled - as has the number of faculty and staff serving within the school - and the quality of all continues to soar. Resulting accolades have rained in from prestigious scholarships to professional society recognition and champions at student competitions to new and innovative faculty research grant awards.

The extraordinarily successful ECS Living Learning Center is maturing into the ECS Residential College and will move to sparkling new facilities being constructed in the East Village Residential Community. Completed renovation of the 300,000 square foot Baylor Research and Innovation Collaborative (BRIC) building is within sight and several research programs and laboratories will be launched in this space in the near future. In addition, the ACM International Collegiate Programming Contest, which is headquartered at Baylor, eclipses new milestones of excellence each year.

Synergy magazine is now in its tenth year with each new issue outshining the previous. Christian-grounded discipline-specific mission projects transcend the four corners of the globe. Inclusion as a Kern Entrepreneurship Education Network institution and the ? China and Technical Entrepreneurship programs are providing unique opportunities for ECS graduates as well.

These achievements are not by accident or happenstance and have been guided by both Vision 2012 and extraordinary colleagues, with more success to come. The Electrical & Computer Engineering PhD program is but two years old and other new programs, including undergraduate offerings, are emerging from the drawing board. Although the BRIC brings much needed research space for our students and faculty, a new ECS academic building that will more closely connect ECS with several important campus strategic partners is not too distantly on the horizon.

Such growth and progress demand energetic, enthusiastic, visionary leadership filled by a competent and supportive president and provost. Soon too, after 13 years, I will be passing the baton to the third dean of the School of Engineering and Computer Science, who will help us continue the charge and provide leadership that will allow us to continue the rise to unprecedented heights.

“It has been a huge blessing to work in an environment where faculty and staff work together to support students in all areas of life – spiritual, academic, social, emotional, etc. This unique collaboration gives Baylor ECS students an interconnected college experience that separates them from other graduates in engineering and computer science.”

“I am thrilled and honored to be a part of the best school on campus! I love experiencing how ECS faculty support and encourage the growth and development of our students both in and outside the classroom. This, coupled with the other amazing programs ECS provides to its students, allows us to shape students holistically so that they might better utilize their strengths and talents to make positive changes in the field.”

“I am excited to be involved in the creative and innovative activities. Baylor’s ECS is rapidly growing and touching lives across the globe, and I am very proud to be associated with such a fine group of problem-solvers.”

Ben Xelaya
ECS Academic Advisor

Emily Sandvall
Assistant Director of ECS Student Initiatives

Mark McCreary
ECS Financial Manager
Managing the quality process has resulted in a shift in the workforce in which programming jobs are showing little growth, while the design and quality assurance aspects of software engineering have become some of the top needs in the industry.

Baylor’s Department of Computer Science responded to this change by creating a special undergraduate track specifically targeting software engineering. The software engineering process is complex. It includes everything from working with the customer’s original idea through development to maintenance. Engineers must balance the needs of the customer with budget and time constraints. The track was implemented by adding new courses during a four-year window, with the first graduates completing the program in May 2011.

A shift in the workforce isn’t the only thing that’s changed. The platforms have changed as well. “Ten years ago, we didn’t have all these hand-held devices,” said Dr. Paul Grabow, professor of computer science. “One of the challenges that the whole computer science department has is: How do we address a new platform because the old platforms aren’t going away? The PC is still on your desk,” said Grabow.

Platforms may have changed – and frequently do – but for a large part, process skills do not, according to Grabow. The approach to problem-solving is pretty consistent. “The notion of software engineering is probably captured best by process plus product,” he added, emphasizing the process part. Grabow notes that since the dot-com bust ten years ago, the computer science industry has been forced to reconsider the most important aspects of software solutions.”

According to Dr. Greg Speegle, professor and interim chair of computer science. “The industry has learned that while coding can be done in remote locations, design and quality assurance need to be done locally.”

According to the US Department of Labor
around two-thirds of an engineer’s time is focused outside of coding. Software engineering is one of the major clients within the computer science program, and it is also one of the fields projected to grow the fastest and add the most new jobs by 2018, according to the U.S. Department of Labor’s Bureau of Labor Statistics. For these reasons, Baylor’s program provides students a broad education. “The Baylor Computer Science program prepares students for the future by providing a solid understanding of computation, not just computers; problem solving, not just programming; and the ability to learn, not just facts,” said Speegle. Those are things Dr. Eunjee Song, assistant professor of computer science, is making sure her students receive. Last fall, she partnered with the Fort Worth Museum of Science and History to enhance their Energy City exhibit, an exhibit that highlights various energy types. It shows the cost and benefits, as well as how a city can be operated with several types of energy. Song’s students are focusing on the wind- and hydro-generated energy portion of the exhibit.

“One main benefit to our Baylor student teams is that through this course project, they can work for a real customer with a real problem. We plan to make the current Energy City platform more flexible for future extension,” said Song. The current system was built for the museum by an outside company in 2009. No documentation was provided, nor was a final set of source code available. Song’s students will redesign and implement a new prototype system by reusing several existing Flash animations.

“We are working on how to provide the right solution to our customer within a limited budget and time,” said Song. The project is similar to one her students might encounter outside of the classroom. As software engineers, they are working with the museum to identify the highest-priority needs, recommend additional hardware for the exhibit and locate potential collaborators on the Baylor campus. At a recent project review meeting, Colleen Blair, executive vice president and strategist, IBM will provide funding for the continued partnership. The project encourages Song’s students to develop innovative ideas and is challenging them in a positive way. “I really avoid (them) being trained as coders ... rather I want to train them as good software engineers. To me a good software engineer should be able to understand and analyze the requirements to provide the right solution,” said Song, noting that means they must play the role of both analyst and strategist.

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“The cloud team does work on projects in the cloud space, and the reference architectures I was dealing with were cloud-based reference architectures,” said Flores. The cloud space can be thought of loosely as a flexible storage tool that extends IT capabilities and resources.

His role there was creating reference architectures, which required him to read over the text description that someone else had created and develop pictures, or an architecture, for them. He equated his work to creating an abstract for a journal article that gives the reader an overview of what's to come.

“These pictures, these diagrams, they serve as a basis for communication between an individual who's designing an IT system and an individual who's trying to present it to a client. These are serving as a middle ground,” Flores said, noting that part of the team project he worked on will be resulting in a patent.

Baylor helped prepare him well. “The experience with modeling, modeling tools, and design methodologies gained during the software engineering course was very relevant to my work with IBM. Past experience with modeling tools allowed me to learn a new modeling tool during my internship relatively quickly,” he said.

Once school started, Flores continued interning remotely from Waco last fall. He has several ideas for what lies beyond graduation. Whatever his future holds, the standards Flores learned at Baylor are something he will continue to carry throughout his work.

“People look at your code, and they get a sense of who you are as a programmer. They get a sense of the pride you put into your work,” he said.

PLAYING THE PROBLEM SOLVER

Justin Thomas likes to give his fellow software engineers a little trouble from time to time. “I enjoy testing because I think it plays a little mischievous in being able to break your own code and break other people’s code,” the computer science senior said. “When it says enter a positive number, no one considered what would happen if someone entered a negative one.”

In the end, though, it’s that curiosity that makes Thomas good at what he does. “You want to increase the quality of the product while cutting down on risk and schedule and budget.” Thomas said. After all, if the engineer doesn’t find it, the customer probably will.

Thomas likes the problem-solving aspect of software engineering. This summer, he interned with the Dallas office of Pariveda Solutions, an IT consulting firm. His first assignment was to work on a mobile Web app Pariveda will use to help recruit college students to work for the company. In fact, the company frequently recruits students on Baylor’s campus. The co-founder and CEO, Bruce Ballengee, is a Baylor graduate.

The second major project Thomas worked on during the 11-week internship took him to Seattle to work with T-Mobile. “They want to know where they can build the next networks,” he said. The growth in users getting information from the Internet is pushing cell phone companies to try to keep up.

Thomas looked at massive amounts of data, nearly 400 gigabytes from a four-week period. Specifically, he analyzed what types of phones people are using and how much data they are downloading. That will help T-Mobile decide where to add new towers.

Thomas had such a good experience this summer that he already has a job lined up with Pariveda after graduation. He’s been able to apply much of what he learned at Baylor outside of class. As a software engineering problem-solver, one of the most important aspects he’s studied is requirement gathering, or determining what the customer really wants. “The customer might say they want A. The way they tell us is B. But what they really want is option C,” he said. “You have to figure out what they think they want and what they really want.”

In addition, the rigor of Baylor’s coursework, including courses in physics and calculus, has challenged him. He was able to put to use teamwork skills learned at Baylor while at Pariveda. Class projects have increased in size and complexity and will culminate in a full-semester capstone project this spring. “Being able to divide and conquer,” he said, “is key.”
Q: After teaching in the department for a number of years, you recently became the second computer science department chair in Baylor’s history. How has the transition gone for you since Dr. Gaitros’ retirement?
A: Thanks to the great faculty and staff in the Department of Computer Science, the transition is going very well. I always knew Dr. Gaitros did a lot of things for the department and now I’m finding out exactly how much he did.

Q: How long have you been at Baylor in a professional capacity?
A: I started at Baylor in fall 1990 so this is my 22nd year at the University.

Q: You’re a Baylor alumnus (BS, Computer Science). What appealed to you about coming back to Baylor to teach?
A: Originally, I didn’t intend to come back to Baylor. The last year I was working on my PhD at University of Texas, Austin, I came to Baylor for Homecoming. While catching up with my former professors, they mentioned they had an opening in the computer science division (at the time, computer science and engineering were one department). I decided to apply here and, although I received other offers, the great environment made this the right choice.

Q: What is your favorite thing about teaching in general? Are there any specific experiences that affirmed for you this was your calling?
A: It is exciting to see students get concepts—and even better—to see them reach for the next idea before I bring it up. I like to challenge students to think for themselves and to question what I say. Learning is not a passive activity. Some of my favorite experiences involve projects. Last year, I wrote a simple web-database game as an example application for the undergraduate database class. It was very affirming when the students commented on how they could understand how their actions in the game are reflected in the database, or the large number of hours the students spent working to improve the game.

Q: What is your area of academic specialization? What courses do you teach?
A: Databases, specifically transaction processing. I teach the undergraduate and graduate database courses and the capstone course. Right now, I am working with Dr. Young-Rae Cho on a project to improve the representations of protein-protein interactions.

Q: The mission of the Department of Computer Science is: “to educate students, within a Christian environment, in areas of computer science and to advance the field for the benefit of the discipline and for the good of society.” What does that mean to you?
A: It means that the Department of Computer Science at Baylor has a more difficult job than a computer science department at a public university. Not only must our students be competent in their field, they must also understand the impact of the ever-enlarging role of technology in society today. Computing is pervasive in our society. It controls everything from the electric power grid to Wall Street transactions. Thus, computer scientists have not only the capacity for changing the world, but the obligation to do so for the good of society.

Q: What do you see as distinctiveives of the Baylor computer science program?
A: The Department of Computer Science at Baylor has a unique place within computer science education. Unlike major research universities, we have an emphasis on undergraduate education. Unlike smaller programs, we have diverse opportunities such as serving as the headquarters of the International Collegiate Programming Contest (ICPC) — which had over 24,000 participants in 2010 — and research opportunities provided by our Memorandum of Understanding with Czech Technical University (CTU) in addition to a strong master’s degree program.

Q: How does Baylor’s computer science program fit within the mission of Baylor University?
A: The mission of Baylor University is to educate men and women for worldwide leadership and service by integrating academic excellence and Christian commitment within a caring community.

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Q: What departmental goals are current priorities?
A: The computer science department has two primary goals and a secondary goal, which is essential to the success of the first two. One primary goal is the development of a highly respected Gaming and Simulated Environments track within our Bachelor of Science in Computer Science. The gaming and simulated environments field is very active with new companies and rapidly expanding job opportunities. Many incoming students are highly motivated and will add depth to our department and allow expanded research opportunities. Our secondary goal is to hire two new tenure-track faculty members this year. One faculty member will be an expert in the gaming and simulated environments field while the other will be a lead researcher and will add depth to our proposed PhD program.

Q: What challenges do you see to achieving these goals and how can they be mitigated?
A: Hiring is always a challenge. We succeed on about one search in three, meaning we typically have to spend three years looking to hire one faculty member. This is the second year of searching for our two openings, so we hope to fill at least one.

We are working on extending relationships between the department and the rest of the computer science field. Baylor has many distinct qualities but they can be difficult to see unless you are on campus. In particular, we are looking for funding to bring more speakers to campus.

Q: What would be on your "wish list" for the Department of Computer Science?
A: Besides success in our goals, an endowed chair position would be a tremendous asset in recruiting additional high-quality faculty. Additional space to support our growing undergraduate population would also be very helpful.

Q: Is there one piece of advice you would like to give students and alumni beginning their career?
A: Never stop learning. Technology never stops and you can’t either.

Q: And, for fun - if you could modify your computer in any single way, how would you make it different?
A: I would want a tablet to have all the computing capabilities of a laptop and the ability to be connected to the Internet at networked speeds in any location.
The Baylor Research and Innovation Collaborative (BRIC) is one of the projects the National Aeronautics and Space Administration (NASA) has awarded Baylor University more than 32 different artifacts — either of actual space shuttle components or of experiments flown on shuttle missions — that will eventually be on display within the Baylor Research and Innovation Collaborative (BRIC).

Baylor University, University of Dayton, of Dayton, Ohio, of the Virginia Commonwealth University; Commonwealth University's Human Research Ethics Committee (HREC) have received a $2.4 million grant from the National Institutes of Health (NIH) to train engineers to develop innovative ways to educate engineers capable of contributing to research and development in health care, to improve the health care system by involving engineers in the design and development of medical devices and systems.

At the 2011 Cherry Award ceremony, Dr. Jay Dittmann, associate professor of physics at Baylor, and his research team presented results related to the search for the elusive Higgs Boson particle, which is one of the most important discoveries of the century. The work will proceed along two tracks of intrapreneurial curriculum development and intercollegiate student projects.

Dr. Shelley F. Conroy, EdD, RN, has been named as the new dean of the Louise Herrington School of Nursing at Baylor University. Conroy has more than 25 years of experience in higher education, health care administration, and nursing and health care research. She joins Baylor from Armstrong Atlantic State University in Savannah, Ga., where she was dean, professor, and a member of the graduate faculty of the College of Health Professions. She has a significant background in research, grants, and sponsored projects. During her career, Conroy has been awarded more than $6 million in grants and sponsored projects. Throughout her career, Conroy has been active in various professional organizations. She was a gubernatorial appointee to the Virginia Board of Nursing for eight years and served as president as well as chair of the Committee of the Joint Boards of Nursing and Medicine. This led to service with the National Council of State Boards of Nursing, where she was appointed to the Committee on Practice, Regulation and Education. Conroy holds a Doctor of Education degree in curriculum and instruction from the University of Virginia, with a specialization in nursing education and a cognate in health care administration.

President Ken Starr welcomed Dr. Conroy back to Baylor. Our university hosted Dr. Rice on numerous occasions during the administration of President George W. Bush, and it was a great privilege to have her on campus once again,” President Starr said.

Dr. Rice’s appointment as the chief diplomat for our nation, a post she held from 2005 to 2009, was also confirmed as the 66th U.S. Security Advisor, Rice was also one of the first female National Security Advisors. She was also named as an Honorary Chairperson of the Board of Directors of the California Symphony Orchestra.

Baylor University physics researchers joined scientists from around the world on July 4, 2012 to announce results relating to the search for the elusive Higgs Boson particle at the International Europhysics Conference on High Energy Physics, or EPS, in Grenoble, France.

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When Aaron Thibault became an adjunct faculty member in the Department of Computer Science at Baylor this spring, the excitement of gaming development students – and their professors – was tangible. Having been an active member of the industry for more than 14 years and serving in both commercial and academic posts, his immense knowledge of gaming will certainly assist students in taking their skills to the next level.
Aaron is currently Vice President of Product Development at Gearbox Software located in Plano, Texas, where he is responsible for production and staffing of all projects. While at Gearbox, he has worked on titles such as Borderlands 2, Aliens vs. Predator, Brothers in Arms: Furious 4, and Brothers in Arms: Furious 4: Rent Collector.

He has experience in entertainment production, military R&D and academia. After earning his undergraduate degree at The University of Texas at Austin, Thibault began working at Origin Systems where he was a sound designer and cinematic animator, which was a part of Electronic Arts, the company behind the Madden franchise and other popular games. After EA began to downsize, he returned to his alma mater. "Dr. George Kozmetsky, raised money to build an R&D program with games," Thibault said. "I started with a research agenda of artificial intelligence, learning and online games. I built Digital Warrior, which was a learning game for decision-making for the Army. I tied that in to other gaming projects that were happening around the Army. I did a number of very cool projects there."

After launching the IC² Institute at UT, Thibault moved to the Dallas area where he served as Deputy Director and Senior Lecturer at Southern Methodist University's Guildhall graduate program in videogame arts and sciences. The time spent teaching and researching was a highlight for Thibault but his desire to return to commercial gaming led him to his current company, Gearbox Software. "Gearbox has a great team," says Thibault. "I’m able to work directly with the founders of the company, who are awesome game makers, having made some games I loved playing: Counter Strike, Tony Hawk, and Halo PC."

**EXCITING PARTNERSHIPS**

Though the majority of his time is spent on the commercial side of the industry these days, his desire to remain engaged in academic circles has never waned. Thibault began his relationship with Baylor as a visiting lecturer in the film and digital media classes of both Drs. Corey Carbonara and Michaela Korpi. Not only did he share with students his experiences but he also took these opportunities to visit with students about their gaming experiences and expectations of new products on the market.

"I really enjoyed coming down and having a sounding board of students to talk to," Thibault said. "These guys are gamers. They know about games in the market. I love to see the reactions and see what they’re thinking about and talk to them about new developments within the industry."

Through these experiences, Thibault began discussing opportunities to get more involved with the program at Baylor. In January he officially stepped into an elevated role by taking on the challenge of teaching the computer science capstone course for Game Development. Baylor’s program is highly regarded as one that consistently produces graduates capable of positively impacting a business immediately. The addition of Thibault will only advance the University’s reputation in this area.

"Find what’s really interesting to you and work to improve each and every day."

"He brings many years of experience to the game development industry. He has found a balance between academia and corporate gaming. Thibault believes students have an incredible opportunity to see the fruits of their labor very quickly in the current environment as games can quickly be created and published through iTunes, Steam, Xbox Live and the PlayStation Network among others."

**HIS ADVICE? START LEARNING NOW.**

"There’s a ton of pickup game programming opportunities available. Students should find hobby projects and actually complete game projects," says Thibault. "Find what’s really interesting to you and work to improve each and every day."

BAYLOR UNIVERSITY SCHOOL OF ENGINEERING AND COMPUTER SCIENCE 17

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According to the Entertainment Software Association (ESA), gaming in the United States brought in more than $25 billion in sales of video games, hardware and accessories in 2010. This is a number that increases significantly each year and shows no signs of slowing down despite an uncertain economy. Seventy-two percent of American households play computer or video games, and those who participate span genders and generations. In short, this is a booming industry that is in need of fresh talent on a regular basis.

To prepare students to enter this rapidly evolving industry with the best skill set possible, Baylor’s Department of Computer Science offers a game development and simulated environments concentration, within the Bachelor of Science in Computer Science degree program. This specialization is designed to provide an understanding of the development and application of interactive digital media technologies. The program is offered in cooperation with the Film and Digital Media Division and combines media course offerings with technical content in order to produce a graduate with skills that go beyond design and implementation.

The program features a traditional computer science core, with a three-course game development sequence and a four-course media production sequence taught in Film and Digital Media. As a concentration of the BSCS, the curriculum features the breadth of an undergraduate Computer Science degree along with specialization in areas central to the game development industry. Graduates of the program are awarded a fully-accredited Computer Science degree with all the associated career and graduate education opportunities.
“I’ve always liked getting my hands dirty and building things,” KolT BroWder WanTs noThinG less down a BaTTer, Baylor Bears piTcher “The best feeling in the world is striking someone out with a fastball,” ranch and in high school. His interest in engineering was something that developed on the family as class valedictorian. he played shortstop and outfield on the baseball team and graduated Kolt’s academic and athletic journey started in his hometown of Coldspring, named to the Big 12 Commissioner’s Honor Roll five times and a 2009 Fall average crowns an already impressive academic record which includes being an academic scholarship. He eventually engineering department and receiving Kolt’s passion for Baylor baseball is palpable, but the junior mechanical engineering major doesn’t let that intensity upset the balance he’s established between life on the mound and life in the Baylor classroom. His 4.0 grade point average crowns an already impressive academic record which includes being a baseball player by several junior colleges and a few smaller universities. But academic opportunities won the day. His decision to attend Baylor was reached after visiting campus, meeting with faculty members from Baylor’s engineering department and receiving an academic scholarship. He eventually joined the baseball team as an invited walk-on. An athletic scholarship came a few years later. I did some research and asked around and found that Baylor had a great engineering program,” Kolt says of his decision to attend the University. “The classes are smaller. You can meet with professors. They know your name. They all have office hours when you can come in and meet with them.” Kolt says he made the correct decision, adding that the opportunity to attend Baylor was made possible by the scholarship assistance.

WHEN HE’S ON THE MOUND STARING DOWN A BATTER, BAYLOR BEARS PITCHER KOLT BROWDER WANTS NOTHING LESS THAN THE SWING AND THE MISS. “The best feeling in the world is striking someone out with a fastball,” Kolt says. “I don’t like people to even touch the ball with the bat.” KolT’s passion for Baylor baseball is palpable, but the junior mechanical engineering major doesn’t let that intensity upset the balance he’s established between life on the mound and life in the Baylor classroom. His 4.0 grade point average crowns an already impressive academic record which includes being named to the Big 12 Commissioner’s Honor Roll five times and a 2009 Fall Semester Baylor Award for Academic Excellence. Kolt’s academic and athletic journey started in his hometown of Coldspring, Texas. The son of a rancher, Kolt attended Oakhurst High School, where he played shortstop and outfield on the baseball team and graduated as class valedictorian. His interest in engineering was something that developed on the family ranch and in high school.

“I’ve really grateful for the people who stepped up to help,” he says. “I know it’s been a help to my family.” As a Baylor student-athlete, Kolt had to learn quickly how to devote substantial amounts of time to a rigorous degree program and still be physically able to take the mound during a game. My parents have always said that school comes before baseball. I’d say school and baseball are equal,” he says with a grin. To maintain the proper balance, Kolt works ahead on his assignments when he can. He works with his coaches when he needs to carve out extra time for schoolwork. He works with his professors when he needs to carKolt, visit baylor.edu/extraordinarystories.
the opportunity to engage with outstanding students and colleagues in a Christian environment."

Dr. Anderson and his wife, Brittany, have a very young son, Sam. Although Dr. Anderson admitted "my research is my hobby," he also enjoys following college football and mountain biking. Dr. Anderson said he and Brittany "are so appreciative of the many warm welcomes we’ve received from our new ‘Baylor family.’"

William Anderson
Assistant Professor / Mechanical Engineering

Prior to Joining the Baylor mechanical engineering faculty, Dr. Will Anderson completed his PhD in mechanical engineering at Johns Hopkins University (2011). As a graduate student, his research focus was the development of a novel (and simple) tool for use in computer simulation of atmospheric flows over multiscale topographies that are commonly found in nature, such as eroded landscapes or the rough ocean surface. In 2010, he earned a master’s degree from Johns Hopkins University in mechanical engineering and a master of science in civil engineering from Texas Tech University. Dr. Anderson’s current research at Baylor focuses on numerical simulation, with large-eddy simulation LES, of turbulence over surfaces with roughness that is multiscale and fractal-like. This effort has relevance to problems in engineering and geophysics. Common geophysical examples of multiscale roughness include geomorphological evolved fluvial landscapes, the wind-driven ocean surface, and vegetation.

He was drawn to Baylor by what he described as “the opportunity to join a university at such an exciting time in its history: in Baylor’s case, the ongoing focus on research and the trajectory towards research prominence at the national and international level.” Also, he was drawn to "the opportunity to engage with outstanding students and colleagues in a Christian environment."

Dr. Anderson and his wife, Brittany, have a very young son, Sam. Although Dr. Anderson admitted "my research is my hobby," he also enjoys following college football and mountain biking. Dr. Anderson said he and Brittany "are so appreciative of the many warm welcomes we’ve received from our new ‘Baylor family.’"
Dr. Li completed his PhD in electrical and computer engineering at the University of Texas at Austin in 2011 before joining the Baylor faculty. He also earned a master’s degree from The University of Texas at Austin in 2007.

Dr. Li currently focuses his research interests on automation and drone technology, wireless propagation, and machine learning. His work at Baylor continues to push the boundaries of what is possible in the field of electrical and computer engineering.

In conclusion, Dr. Li’s appointment as a new faculty member is a testament to the University of Texas at Austin’s commitment to excellence in research and education. His contributions to the field of electrical and computer engineering are sure to have a significant impact on the future of technology and innovation.
BEFORE ARRIVING AT BAYLOR for the fall semester, Dr. Dong was an associate professor of electrical and computer engineering at Western Michigan University where he received a Faculty Scholars Award for his work on Energy Harvesting for Wireless Sensor Networks. He received his MS (1998) and PhD (2002) in electrical and computer engineering from The University of Texas at Austin. In 1996, he earned a Bachelor of Science in applied physics from Shanghai Jiao Tong University.

In recounting what drew him to Baylor, Dr. Dong quoted Helen Keller: “Life is either a daring adventure or nothing.” He continued by saying, “My adventurous spirit and passion align very well with Baylor’s mission to educate tomorrow’s world leaders with faith and excellence. When I heard Baylor engineering was expanding, I jumped at the opportunity.”

At Baylor, Dr. Dong continues his research, focusing on communication systems, wireless networks, digital signal processing, cyber-physical systems and microelectronics for communications. Dr. Dong was born and grew up in Shanghai, China. Having served as a visiting professor at Shanghai Jiao Tong University from 2007 until 2009 and with ongoing research collaborations, Dr. Dong said, “I hope to serve more Baylor students as a bridge and bring them a global perspective.”

He spent many years studying in Austin and working in Dallas and considers Texas his “second home.” When not at work, he has been involved with International Christian Fellowship and Chinese Student Fellowship.

ALUMNI UPDATES

1982

Pat Keane (BS, Computer Engineering) has a mirror email address: keanep@live.com

2001

Dwight Horne (BSCE, MSCS) received the Abe M. Zarem Award for Distinguished Achievement in 2004.

2010

Diana Joseph (BSME, 2011) has been named student chapter president of the American Institute of Chemical Engineers for 2011. She worked in Germany for a rotation as a semiconductor engineer and then got married in June and started a new job in July. She works for Siemens as a chemical product development engineer.

Jonathan Hu

Assistant Professor / Electrical & Computer Engineering

When he is not teaching or working on his research, he enjoys playing tennis and badminton. Dr. Hu takes regular advantage of the McClane Student Life Center, Baylor’s 100,000 square-foot physical fitness center which includes a weight room, three regulation-size basketball courts, an indoor track, racquetball courts and aerobic rooms among a number of additional features.

NEW FACES

Liang Dong

Associate Teacher & Researcher / Electrical & Computer Engineering

Dallas, TX, April 27-29, 2011. "A National Study on Improving Aircraft Performance at Low Reynolds Numbers for Small-Scale Wind Turbines using Intentional Roughness". AIAA Region IV Student Paper Conference, Arlington, TX, April 29-May 1, 2011 (the paper won first place in the graduate paper competition).

Dr. Hu completed his BS in Electrical Engineering at Zhejiang University, Hangzhou, China (1997) and his MS, Electrical Engineering, at the University of Tulsa (2001). He completed his PhD in 2008 at the University of Maryland, Baltimore.

Before arriving at Baylor for the fall semester, Dr. Hu was a postdoctoral research associate in the Department of Electrical Engineering at Princeton University. While at Princeton, he worked on sensor technology using nanofabrication photonic devices for surface-enhanced Raman scattering towards biomedical application. Baylor’s “integration of faith and scholarly activities and the potential to grow with a promising future in the School of Engineering and Computer Science” drew Dr. Hu to the University.

He feels it was the right move for a number of reasons: “It has been a good fit for me because Baylor has given me the unique opportunity to work in a Christian environment and my colleagues are very welcoming and helpful.”

At Baylor, Dr. Hu continues his research with nanophotonics, metamaterials, nonlinear optics, photonic crystal fiber, mid-infrared supercontinuum generation as well as coherent optical communication, simulation and modeling.