Dear Alumni and Friends of Gonzaga SEAS,

What an incredible year this has been! Our programs continue to grow through the efforts of an extraordinary faculty, an incredible support staff, and most importantly, exceptional students and alumni.

Accelerating Forward: The faculty, staff and students are developing an environment in which excitement, opportunity and demand for excellence is the norm.

Our numbers remain strong, including an overall population exceeding 900 and an incoming class with nearly 300 students. Our Center for Engineering Design & Entrepreneurship is guiding nearly 50 senior capstone projects, ranging from working with permeable road pavement to computer security. Our Executive Council, as well as the new Alumni and Engagement Council, are bringing new ideas and opportunities to our School.

The quality of our students continues to inspire! It is with great pride that we highlight Mr. Christopher Birmingham in this report. Chris, a graduate of our electrical engineering program, earned a prestigious Marshall Fellowship to study robotics at Bristol University in the U.K. Chris is only one example of graduates who are pursuing advanced degrees across the U.S. or accepting exceptional job offers in various fields of computer science and engineering.

Our School is truly accelerating forward! We recently completed a new, 10-year strategic plan. Four new faculty members have joined our programs. We are also planning: (i) a fundamental redesign of our freshman-year offerings, (ii) integration of the new University Core Curriculum, and (iii) expansion of our computer science offerings through the new B.A. in Computer Science and Computational Thinking. Our students are also taking advantage of benefaction and sponsorship of a number of new technical and entrepreneurial opportunities made possible by the generous private support of many of you: our alumni and friends. Thank you for this support!

I very much appreciate our close relationship with you, our alumni and friends of SEAS. Thank you for the privilege and honor of allowing me to share our School with you.

Stephen E. Silliman
Dean of Engineering & Applied Science
SCHOOL NEWS

Transmission and Distribution Program
GOING INTERNATIONAL
The Transmission and Distribution (T&D) master’s degree program is attracting global attention. Recent success of students not only from the U.S., but now also from Africa and South America, has highlighted the global need for technical, online coursework in this critical resource.
T&D has begun to actively market its program to both national and international audiences through websites such as the IEEE Power and Energy website and LinkedIn Power Forums. The program is actively committed to expanding into new international markets, while keeping a strong focus on the engineering needs of the power industry in the U.S.

HERAK Renovation
The Herak Center—which is comprised of the original home for engineering, Dillon Hall and the 1984 Herak addition—has served our School since 1948. Major renovations are underway to ensure the building will continue to meet the needs of students, faculty and staff. The second and third floors underwent considerable upgrades during the summer of 2015. The work is part of a three-year project to upgrade the air-handling system with a sophisticated heat-exchange HVAC system.
Beyond providing a better learning and research environment, the new system provides an example of sustainable design. It will recover approximately 80 percent of the energy that would otherwise be lost in a traditional HVAC system. A state-of-the-art control system will monitor and provide room-by-room control.

IMPROVING AMPLIFIERS for Fiber Optic Networks
Dr. Claudio Talarico, Professor of Electrical and Computer Engineering, is collaborating with Google and the University of Arizona to optimize the design of a transimpedance amplifier that will improve the way fiber optic networks transmit and receive signals.
Low-noise, low-power, high-speed transimpedance amplifiers are one of the key building blocks of the optical communication infrastructure that enable more direct integration between the physical world and computer-based systems, such as cell phones, automobiles with wireless network connections, and field devices used by first responders. Dr. Talarico’s research focuses on increasing the amount of data that can be processed by the receiving device.
Dr. Talarico mentored Hani Lashgari (’15), a computer engineering student who worked on the project through the academic year.
“This was an extraordinary experience, especially for an undergraduate student, and it gave me deeper insight into my field of study,” said Lashgari, who hopes to continue this research in graduate school. He appreciates the guidance he received from Dr. Talarico: “I learned how to enhance amplifiers to meet the desired specifications, and how to remove bottlenecks to make them more efficient.”
Our students are eager to work on projects that help address crucial needs in both local and global environments. Dr. Noel Bormann, Professor of Civil Engineering, is helping to support this student interest through the pursuit of external funding from the U.S. Environmental Protection Agency (EPA). Recently, Dr. Bormann secured an EPA grant to help fund students’ work to improve health in Zambezi, Zambia, through better air and water quality. This summer, students spent three weeks in Zambezi teaching classes on the construction and use of efficient cook stoves. The stoves were designed by students based on prior trips to Zambia and constructed of locally made, compressed earth blocks. Students also taught classes to residents on the use of slow sand filters to remove pathogens from drinking water in homes. The project benefits from the support and organizational efforts of both Dr. Josh Armstrong, Director of the Comprehensive Leadership Program, and Fr. Dominic Sandu, a parish priest in Zambia.

In a second effort, Dr. Bormann recently received approval for EPA funding that will support students’ work to develop fire-resistant housing in Okanogan County, Wash. The project is motivated by the county’s 2014 Carlton Complex fire that burned more than 210,000 acres and 300 houses. Through the project, students will work with the community to develop designs to help residents rebuild after forest fires. Dr. Bormann and Dr. Jon Isacoff, Associate Professor of Political Science and Environmental Studies, will guide the students. Dr. Bormann and other SEAS faculty continue to actively seek external funding to support projects that provide students opportunities to contribute directly to human needs in both local and global communities.
Outstanding Student:  
CHRIS BIRMINGHAM

From a young age, Chris Birmingham (‘15) has wanted to explore ways to use robots to help people. As an electrical engineering major and computer science minor in our School, he was able to pursue this interest by focusing his studies on developing robotic technologies to serve the needs of the disabled and elderly.

Now, Chris will continue his robotics research in the U.K. as one of only 34 young American scholars to win a 2014 Marshall Scholarship. The prestigious award enables future leaders to undertake advanced graduate study at universities in the U.K. The award will finance Chris’s advanced studies in the Ph.D. program in Robotics and Autonomous Systems at the University of Bristol.

“I am more excited than I can say to be studying what I love, and while I am abroad no less! It should be quite an experience, and I am really looking forward to it,” Chris said.

Our School’s department chairs also selected Chris as the recipient of the 2015 School of Engineering and Applied Science Excellence Award. He was presented the award on April 21, 2015, at the Academic Honors Convocation.

“I know there are many outstanding engineers in the School who are all doing and going on to do amazing things,” Chris said. “I am very grateful to be recognized for the work I have put into my engineering education and the GU community.”

Chris has made the most of his time at Gonzaga. He participated in the Honors Program, studied abroad in Florence during his sophomore year, served as vice chair for the Gonzaga chapter of the IEEE, and founded and served as president of the Robotics Club.

Congratulations and Good Luck to Chris!
SEAS STUDENT CLUBS AND PROFESSIONAL SOCIETIES:

- American Society of Civil Engineers (ASCE)
- American Society for Engineering Management (ASEM)
- American Society of Mechanical Engineers (ASME)
- Computer Science Club
- Gonzaga Without Borders (GWB)
- Institute of Electrical and Electronics Engineers (IEEE)
- Material Advantage
- Robotics Club
- Society of Automotive Engineers (SAE)
- Society of Women Engineers (SWE)
- Tau Beta Pi
- Upsilon Pi Epsilon (UPE)

Gonzaga’s SAE student chapter at the 2015 SAE Baja Competition
The Gonzaga student chapter of the Society of Automotive Engineers (SAE) competed in May in the 2015 SAE Baja Competition, a rigorous four-day international challenge in Portland, Ore.

Working with faculty advisor, Dr. Taillian Chen, and the staff of the School’s Machine Shop, students designed, built and raced an off-roading, one-person vehicle with a 10-horsepower Briggs and Stratton engine. The competition provided hands-on experience developing, planning and collaborating on a complex design/build project.

Students also had opportunities to network with potential employers, interact with teams from other countries, and experience lessons in perseverance and teamwork. Victoria Indaco (‘15), mechanical engineering major and the most recent SAE club president, believes the teamwork was the best part of working on this project.

“Every step is important, each item a member works on is essential, and to see it slowly come together as one car is a beautiful thing,” said Indaco, who stayed in Spokane three weeks past graduation to see the project through to completion. “I wanted to finish what I started.”

Project participants spanned from freshmen to seniors and included representatives from all engineering disciplines. SAE is attracting a growing number of students excited to be part of the Baja project. The club welcomes all students and values the passing of knowledge from the older classmates to the newly admitted students. Luis de Artola, a mechanical engineering student, joined the club as a freshman.

“I love working on cars, anything mechanical really. I am a hands-on person,” he said. “Working with senior students was a great experience. I learned from everything they did.”

The club is looking forward to next year’s competition in San Diego. Over the next year, the group will upgrade their car design through improvements in the chain drive, rear suspension and steering.
Ed and Bunny Renouard  
DISTINGUISHED LECTURER SERIES

Funded by a generous donation from Gonzaga alumni, Ed and Bunny Renouard, our School initiated a Distinguished Lecturer Series that challenges students, faculty and staff to consider the broad contributions made by engineers and computer scientists to society. Speakers represented multiple disciplines of engineering and computer science within industry and academia. The lectures are open to all students, faculty and staff across the Gonzaga campus.

The lecture series allows all students to meet with the speaker for an informal lunch. A limited number of students are also able to join the speaker for a formal small-group dinner, which provides an exceptional opportunity for students to meet professionals from both industry and academia.

Ed Renouard is a 1959 graduate of the Mechanical Engineering Program and retired Vice President and General Manager of the Boeing Company. He received the Distinguished Alumni Merit Award in 1992. Bunny Renouard, a retired speech therapist, is also a graduate of Gonzaga, where she majored in education.

"In addition to the many technical courses engineering and science majors must take to get their degree, it is also important for them to learn from successful men and women in industry, business and academia," Ed said. "The Distinguished Lecturer Series allows Gonzaga students to listen to leaders with more experience. They also get practical ideas that will broaden their thinking, and hopefully inspire them."

"The goal of a Jesuit education is to develop the whole person," he continued. "With a wide range of topics over time, the Distinguished Lecturer Series can make a contribution to this broader goal. It may also be an opportunity for networking, mentoring, and a possible avenue to future employment after graduation."

The School’s most recent speaker, Kurt R. Kraft, Director of Engineering for Boeing South Carolina, gave a lecture titled, “Creating a Game Changer: The Story of the 787, the Dream Lifter, and the Aerospace Revolution.” Kraft shared the history of the 787, the revolutionary manufacturing processes and supplier management involved, and the building of the Dream Lifter, the plane created specifically to help connect the worldwide manufacturing effort.

Want to help support educational opportunities and student innovation?

PLEASE CONTACT:
Dori Sonntag
Director of Development
502 E. Boone Ave.
Spokane, WA 99258
(509) 313-6149
sonntag@gonzaga.edu
A record-breaking 45 student teams participated in senior capstone projects during the 2014-15 academic year through the Center for Engineering Design and Entrepreneurship (CEDE). The program provides senior students opportunities to work on real-world engineering projects that are sponsored by private and public companies.

One of the teams, sponsored by The Boeing Company’s 737 MAX airframe team, worked to develop a new methodology for protecting metalbond structures from an aircraft fire event and an optimized design for airplane spoilers. The project began with four Gonzaga students, all mechanical engineering majors, researching applicable materials and manufacturing processes that would satisfy the design parameters. The team selected the material system, procured materials, and constructed prototypes that were tested against the design requirements.

During the academic year, students constructed the design and successfully completed four fire tests. They traveled to the Boeing plant in Renton to present the project results to the entire 737 MAX airframe leadership team, including the chief engineer of the MAX program.

The team’s Boeing liaison, Michael Maffeo, a 2009 Gonzaga alumnus, worked closely with the group. He believes the Gonzaga senior design project was an opportunity for the MAX airframe team to explore outside-of-the-box solutions to a design problem that existed for many years.

“The students were very nimble in their research, build and test of different theories, while simultaneously not allowing administrative hurdles to delay the project’s completion,” Maffeo said. “Being able to witness the level of effort and the lessons the students learned during the course of the project was truly outstanding.”
Incoming Gonzaga students and their families enjoy connecting over dinner at a GU New Student Reception at Thornhaven Estate on Saturday, August 1, 2015.
Alumni Success:
AN ENGINEERING FAMILY

Our School produces broadly educated engineers and computer scientists. A Gonzaga education can have a far-reaching impact, even across generations, as is the case with Jeff Reed (’75, ’81) and his ‘engineering family’. Jeff, his wife Margaret, and their family are passionate about engineering, and they are applying this passion to create a better world.

Jeff graduated from Gonzaga with a B.S. in Civil Engineering and a Master of Business Administration. He originally wanted to study anthropology, but he ended up following in the footsteps of his role model and father, a graduate in civil engineering from Berkeley. Jeff is the CEO and President of Basic Resources, Inc., a company based in Modesto, Calif., that specializes in road materials, construction and maintenance.

Margaret received her degree in chemical engineering from San Jose State. From an early age, Margaret enjoyed making things and discovered she was good at math and science. A high school counselor helped her get a summer job at a chemical plant, and she has been focused on getting bottom-line results in the engineering field ever since. Upon graduation, she worked for Shell Oil Company, became the head of process engineering, and ended her 25-year career with the company on the leadership team as the financial manager. She now works with Jeff at their company.

The Reeds’ son, Matt, graduated in May 2015 from Gonzaga with a B.S. in Civil Engineering. Their oldest son Jordan received his B.S. in Civil Engineering from Santa Clara University, went on to receive his master’s degree from Arizona State, and is now working within the family business. Their daughter, Cameron, graduated with a master’s degree in Information Systems from Berkeley, and is now a product designer for Salesforce in San Francisco.

Jeff said our School prepared him for his professional career by teaching him how to think and problem solve, and by providing heavy doses of business economics, accounting, finance, marketing and law. He believes he received an “unduplicated, humanistic and rounded education” that contributed immensely to his success.

Jeff serves on the University Board of Regents, and both he and Margaret serve on the School’s Executive Council. He hopes to contribute to our School and Gonzaga’s continued success by acting as a sounding board, supporter and unique voice with the perspective of an alumnus and industry leader. He hopes to see engineering, science and business have greater influence and impact on the University Core.

“Every student across the University can benefit from exposure to critical-thinking skills acquired in the STEM disciplines, and an understanding of business and personal finance,” he said. He believes these skills are essential to success in today’s competitive world.

Jeff points to the incoming freshman class, the largest in School history, as a testament that the School’s professional degrees are valued and in demand. He hopes engineering facilities, campus housing and classroom space grow to continue to foster a stellar program.

Jeff and Margaret are passionate about serving others and giving back to Gonzaga, which Jeff describes as “a special place that grounds me in what is really important.” They are loyal financial supporters of the School of Engineering and Applied Science Excellence Fund. This fund supports student experiences, including research projects, competitions and guest lecturers. Another way they contribute to this unique learning environment is by hosting Gonzaga University New Student Receptions at their vineyard, Thornhaven Estate, in Vacaville, Calif. Their desire is to welcome these students into the Gonzaga family and community. They also host a “Game Watch” at their Carseum, where alumni gather to watch a GU game, share a meal and build connection within the GU community.

The Reeds’ passion for lifelong learning, commitment to excellence, and support of Gonzaga’s mission to educate the whole person are instrumental in ensuring our School and the engineering disciplines accelerate forward.
DAVID SCHROEDER

David Schroeder, Ph.D., joins the Computer Science Department as an Assistant Professor. Dr. Schroeder is eager to be part of our School and the learning environment that enables students to be exposed to a wide range of viewpoints and ways of thinking. He believes many challenges can be overcome by the cross-disciplinary collaborations Gonzaga offers students, and he is passionate about equipping every student with the tools needed for success.

- Ph.D. in Computer Science, University of Minnesota.
- Postdoctoral researcher at the University of Minnesota Duluth.
- Research interests include solving visualization problems facing scientists working with ever-growing datasets.

MARC BAUMGARDNER

Marc Baumgardner, Ph.D., joins the Mechanical Engineering Department as an Assistant Professor. Dr. Baumgardner is excited to help educate the next generation of engineers in both theory and application, with the goal of advancing knowledge and positively impacting society. He also works with students through the Society of Automotive Engineers student club. He enjoys spending time outdoors with his family, a good cup of coffee, and pretty much anything with two wheels.

- Ph.D. in Mechanical Engineering, Colorado State University.
- Postdoctoral researcher and teaching assistant at Colorado State University.
- Industry experience in petroleum engineering and gasoline production technologies.
- Research includes combustion efficiency and advancing the state of biofuels and renewables.

TIMOTHY FITZGERALD

Timothy Fitzgerald, Ph.D., joins the Mechanical Engineering Department as an Assistant Professor. Dr. Fitzgerald was drawn to Gonzaga by the profound sense of community, and how members of the community are living out the Gonzaga mission statement. His favorite hobby is learning, but he also enjoys backpacking, photography and singing.

- Ph.D. in Mechanical Engineering, University of Maryland, College Park.
- Research associate for the Vibrations Laboratory and Computational Dynamics Laboratory, Department of Mechanical Engineering, University of Maryland.
- 10 years of teaching experience.
- Research in nonlinear fluid-structure interactions, computational continuum mechanics, experimental characterization of biological systems, system dynamics, reduced-order modeling, and controls.
The future of transportation systems will undoubtedly involve interaction among different modes of transportation, including cars, trucks, bikes and pedestrians.

Envisioning and optimizing these interactions—and the interaction of vehicles with the natural environment—is the foundation of the work of Rhonda Kae Young, Ph.D., the newest faculty member in the Department of Civil Engineering.

Dr. Young brings nearly 10 years of professional experience in civil engineering as a project engineer and manager for the State of Washington. Her background also includes a number of years teaching at the University of Wyoming and significant research experience.

Dr. Young said she is extremely committed to helping educate engineers who are strongly regarded in their profession and will go on to make a positive impact in their communities. She has tremendous enthusiasm for the engineering profession and hopes this enthusiasm will be contagious.

When asked why she chose to come to Gonzaga, Dr. Young said: “The School of Engineering and Applied Science is a good fit due to its focus on teaching and service-learning. I’m excited to join the team.”
DEGREE AND CERTIFICATION PROGRAMS:
M.S. Transmission and Distribution Engineering
Transmission and Distribution Engineering Graduate Certificate
B.S. Civil Engineering
B.S. Computer Engineering
B.S. Electrical Engineering
B.S. Engineering Management
B.S. Mechanical Engineering
B.S. Computer Science

509-313-3523
502 E. Boone Ave.
Spokane, WA 99258-0026
www.gonzaga.edu/engineering