

MECHANICAL & AEROSPACE ENGINEERING

JILL PETERSON
POSES IN HER LAB
AT UF, WHERE SHE
USED LASER-BASED
TECHNIQUES TO
STUDY CONVECTIVE
HEAT TRANSFER AND
FLUID TRANSPORT.



First Female Faculty Member in MAE

Gives Back in an Incredible Way

Jill Peterson's husband supported her switch to engineering, and she hopes to help women engineers excel in that same spirit through The Robert and Jill Peterson Women's Excellence Fund.

MAE PROFESSOR EMERITUS JILL PETERSON always had a passion for math and science, and she entered college leaning toward a career path in medicine. But her first college biology class dissuaded her.

"The first thing they asked was to memorize 100 parts of a nematode," she said. "That was so not for me."

So she switched tracks and decided to earn a degree in social sciences and went on to become a social worker. However, the job didn't fulfill her — she didn't feel like she was really helping people.

So she reconsidered her original passion for math and science along with another

childhood ambition of hers. "I'd always had a dream that I wanted to teach at a university," she said.

But the road that eventually brought her to the University of Florida did not come easily.

When she had the thought to return to school, she'd been married for two years, and their first child was on the way. But her husband, Bob, agreed that Peterson should quit her job and pursue her dreams.

Even though there were periods of financial difficulty, Bob's work operating and expanding the seafood and Mexican restaurants he owned in Dallas supported both the growing family and Peterson's educational aspirations.

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David W. Hahn

While we're rapidly finishing the spring semester, I welcome the opportunity to share our news of the many exciting things happening in the department. Last summer, I accepted Dean Abernathy's reappointment offer and will begin a new five-year term as Chair of MAE. It has been the greatest honor of my professional career to help guide our students, faculty and staff members toward our vision of engineering excellence and to align with President Fuch's vision of UF as a premier university that the state, nation and world looks to for leadership.

Dr. Crane and MAE students hosted a regional kick-off meeting for the upcoming First Robotics competition, which is a wonderful example of giving back to the community by inspiring the next generation of engineers. Recently, at the FIRST regional finals, MAE student Dan Frank received the Woodie Flowers Finalist Award in recognition of his outstanding mentorship to participating students.

MAE continues to thrive on the education and research fronts, and as previously reported, we remain the largest department by enrollment on the UF campus. Along with Dean Abernathy, we are committed to hiring 10 new faculty members in coming years, an important investment to support our undergraduate and graduate programs. This reflects our mission to educate and graduate the best engineers possible, and I believe we carry on our efforts successfully.

We also continue to promote the ability to analyze, create and design in our undergraduate program with the new Capstone Design and Build course underway, including new dedicated lab space. With strong support from our commercial partners Northrop Grumman and Cummins, our vision is being realized, and I am confident our students will begin their careers grounded in technical excellence along with a strong sense of ethics and societal responsibility.

On the graduate research and education front, our faculty members and students continue to lead in many exciting and impactful areas. We are a key member and regional node of the just-announced Advanced Tissue Biofabrication center. This \$80M federal program is led by Dean Kaman of First Robotics fame, and MAE breakthroughs for 3D printing of cells is a foundational technology. This is a compelling example of the intersection of engineering and medicine, and I will be sharing more as the program develops.

Several center-level initiatives are taking shape with our long-standing Air Force Research Lab collaborators; our NSF and NASA projects remain plentiful; and we continue to work with DOE in support of innovative energy technologies and computational science. In summary, research and education remain vibrant!

With this issue, we celebrate the diversity of MAE with a focus on our female students, faculty and alumni. Engineering as a whole remains stalled at less than 20 percent female graduates nationally, with ME and AE lagging significantly (see our infographic). With that said, I am proud that female participation in MAE exceeds the national average, and we continue our strong efforts to attract and retain a diverse student body. You will read about the many accomplishments of our female students, faculty and alumni, from campus leadership to the highest levels of government and industry, as well as collaborative efforts on the research front to promote diversity and inclusion in MAE.

For the US to remain competitive, the engineering pipeline must involve all segments of society, a sentiment echoed to me by all campus recruiters whom I meet with. Toward this end, I am most proud that MAE is leading the charge, and through the generosity of MAE emeritus Professor Jill Peterson, is putting forth effort and resources to ensure success by directly supporting female participation at all levels.

As you will read about the many achievements of our students, faculty and alumni, I am proud to say that the department is in excellent shape and is clearly on the ascent as we continue to lead the campus in so many metrics. It is a great time to be a Gator Engineer. 

They both studied and worked, respectively, while raising their four children, and after a 10-year journey, Peterson had earned her bachelor's in mechanical engineering from Southern Methodist University and then her Ph.D. in mechanical engineering from Rice University with a focus in heat transfer.

"The more I studied it, the more I loved mechanical engineering," Peterson said. "There's a logic there, and once you understand that logic, there's a pathway that leads you forward."

Following the completion of her Ph.D., Peterson joined the faculty of UF in 1990, becoming the first female professor in what was then the Mechanical Engineering Department and the fourth ever in the UF College of Engineering.

She loved her faculty position at UF, where for the next 17 years she taught, mentored students and conducted research.

"To me, engineering is so interesting that just the chance to be around the students and to share in those topics with them was my favorite part," she said.

In addition to teaching, she also served as the faculty adviser for the Society of Women Engineers (SWE) for 10 years.

"The students were so much fun and interesting to be with," Peterson said. "I enjoyed the opportunity to lead them in the direction I thought they should go, encouraging younger girls that they can do it." As SWE adviser, Peterson mentored hundreds of female engineers toward successful careers.

In 2003, Bob passed away. Peterson progressively became more involved in the Dallas restaurants while dividing her time with MAE, eventually taking a leave of absence and a reduced teaching load.

When she ultimately felt it was time to make a decision between what was then two careers separated by two cities, she retired from UF. MAE Chair David Hahn, a long-time collaborator of Peterson, recalls discussing the decision with her.

"She was truly torn over her love of UF engineering and carrying on the rapidly growing legacy of Bob," he said.

The restaurants had been doing really well, and when Peterson took over management, she was able to expand them even further. In the years before, she and her husband had talked business all the time and had made a lot of the major decisions together.

"Of course, when he died, I felt like a fish out of water," she said. "The first thing I did was go around and meet everyone, and I gained even more respect for his business expertise. But I learned that managing people has commonalities — it doesn't matter whether you're

talking about a graduate student studying radiation heat transfer or how to get the food out faster."

Now she's hired a set of managers she has full faith in to continue on the success of the restaurants.

Throughout her entire career, from successful engineering professor to restaurateur, Peterson has reflected on the incredible gift her husband had given her and how she wouldn't have been able to have her career without him.

"I wanted to pass on that opportunity to other women — the opportunity he had given me," she said.

So she established The Robert and Jill Peterson Women's Excellence Fund in April 2016, with the hope that the funding will help recipients surmount the special challenges women face in order to pursue their engineering dreams.

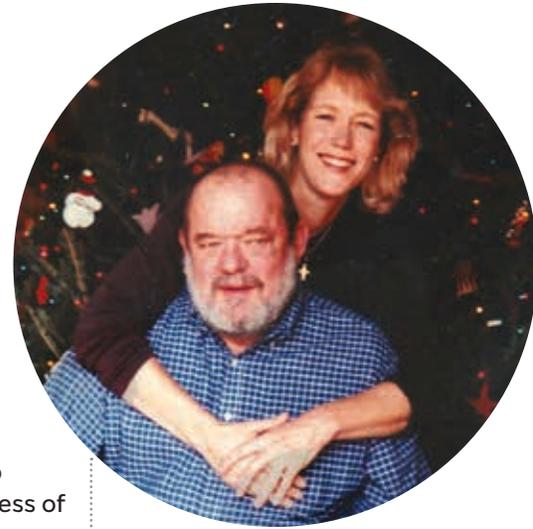
The fund is designed to support the success and inclusion of women engineering students in the MAE department by sponsoring undergraduate scholarships and graduate fellowships, the promotion of extracurricular activities such as SWE, guest lectures with female thought leaders and more.

Hahn believes that Peterson remains a role model to all engineering students, as someone that pursued her dream diligently, made a strong impact on the engineering profession through her research, teaching and mentorship, and by giving back to the next generation of female engineers.

"We need to support the next generation of Jill Petersons," Hahn said, "and I am confident that the Peterson Fund will help with that goal."

Peterson enjoyed helping female students when she was a professor, and she hopes this fund will continue in that effort. But she also has one more bit of advice:

"Keep your eye on where you want to go, but all you have to do is conquer one day at a time," she said. 



"Keep your eye on where you want to go, but all you have to do is conquer one day at a time."

— Jill Peterson

MAE Teams Up with Women's Studies Expert to Promote Female Student Success

The saying is two heads are better than one — and that's doubly true when UF professionals are involved.

MAE chair **DAVID HAHN** and the Center for Women's Students and Gender Research Director Bonnie Moradi have teamed up to better understand why more women don't seek and persist in earning degrees in MAE. While MAE greatly exceeds the national averages in female enrollment (see back cover), the ME and AE disciplines still lag the national overall engineering average of about 20% female.

With seed funding from the UF Opportunity Fund, their goal is to apply feminist scholarship to understand and address gender imbalance through research.

"It also means applying feminist principles of research process by listening to the experiences of undergraduate women and having those experiences guide our understanding and interventions," Moradi said.

Moradi and Hahn applied for a \$1.3 million NSF grant based on their research so far. The NSF proposal is currently under review, but Moradi said they've already gathered invaluable data from focus groups.



Bonnie Moradi and David Hahn

"The preliminary findings are very informative and are already making a difference in our thinking about next steps," she said.

One major insight is the real presence of gender bias and how people of both genders have the potential to engage it in, even if they're not aware of it.

"Reducing gender bias is very doable," Moradi said. "It takes time and persistent commitment and effort, but it can be done, and we hope to generate research-based strategies for doing it."

Hahn added, "When I met Bonnie, I was immediately struck by her passion; I quickly realized that we need to leverage her and the Center's expertise to help us tackle an age-old problem. Together we are committed to removing all barriers to female student persistence and success." ⚙️



Prof. **OANA CAZACU**, HDR, is the only female full professor in MAE. Additionally, she is co-founder of the International Center for Applied Computational Mechanics (ICACM), a partnership between several US and French universities, with the scope of promoting research at the forefront of mechanics. She is a leading international

expert in theoretical and computational solid mechanics with a focus on constitutive modeling of the anisotropy in plastic deformation and damage for both quasi-static and dynamic regimes. Key contributions include the development of the most widely used anisotropic criteria for hexagonal metals, now included in the built-in materials library of commercial and academic finite-element codes. She has authored 11 book chapters; edited and co-edited three books and over 80 papers in the highest impact factor journals in mechanics; and has delivered over 90 invited lectures (17 plenary and keynote lectures).



Prof. **HITOMI YAMAGUCHI GREENSLET** is an associate professor in the Department of Mechanical and Aerospace Engineering. She teaches Manufacturing Engineering, and her research interests include ultra-precision finishing, surface functionalization and measurement, and medical-device development. Her

work has been published in over 80 refereed journal papers, and she has been granted 8 patents. She is currently the secretary of the Scientific Technical Committee for Abrasive Processes (STC-G) of CIRP (the International Academy for Production Engineering). Dr. Greenslet is one of only seven associate members in the U.S. She also serves as the secretary of the North American Manufacturing Research Institute of the Society of Manufacturing Engineers (NAMRI/SME). In recognition of her contributions, she has been elected as a fellow of both ASME (American Society of Mechanical Engineers) and SME. ⚙️

MAE Passes the Baton of Graduate Coordinator

Associate professor **DAVID MIKOLAITIS**, who served as the MAE graduate coordinator for about 20 years, has passed over the reins this spring to associate professor **MALISA SARNTINORANONT**.

Mikolaitis enjoyed the position, particularly when he successfully helped a graduate student overcome a seemingly impossible situation.

“For example we had an international student that for various reasons never had the convocation where degrees are officially conferred before he finished his Master’s degree at UF,” he said. “That was an amazing journey down the rabbit hole of regulations, but we did finally find a way to get the student his degree.”

Mikolaitis, who has been with UF for 35 years, has seen significant changes during his tenure as graduate coordinator, including the successful merger of mechanical and aerospace departments and the unprecedented growth of MAE.

Sarntinoranont sees the job as an opportunity to promote positive learning and growth for MAE students, similar to the experience she had when she was in school, both professionally and through the friendships she formed.

“We were often from different cultures and backgrounds,” she said, “but we shared a drive for learning and the common language of engineering.”

She strives to pass on this positive to MAE students.

“I have an eye out for ways of improving the program and graduate experience,” she said. “And it’s good to

have a point person for students and faculty to consult with about graduate matters.”

The coordinator serves approximately 350 students in the MS program and 200 students pursuing PhDs in MAE.

One of Sarntinoranont’s goals in the spring is to add more of a personal touch to communication.

“I think it’s important to feel part of a class cohort, so we have been re-vamping our Graduate School Welcome activities,” she said. “We’ve also introduced group advising with peers and faculty.”

Mikolaitis is confident she’ll be a great fit.

“I think she’ll do an amazingly good job,” he said. “She has already started making some changes for the better on some of our processes, and she will bring great energy to the position.”

MAE Chair David Hahn has worked closely with both through the transition.

“I’ve observed first hand Dave’s impact on individual students, and I know that Malisa will bring that same spirit to the position,” Hahn said. “We are fortunate to have had Dave and now to have Malisa”

Another change Sarntinoranont is hoping to implement by the end of spring semester is a graduation party. 



CONGRATULATIONS TO:

Prof. **S. BALACHANDAR** for being promoted to the rank of Distinguished Professor, the highest academic rank at UF, in recognition of his outstanding accomplishments in research, teaching and service.

Prof. **PRABIR BAROOAH** and colleagues from UF-ECE for a \$750k NSF grant to study intelligent control of the electrical grid.

Prof. **RICCARDO BEVILACQUA** for receiving a grant from the Florida Space Grant Consortium for a study of cubesats for Mars missions and for hosting the 1st IAA Conference on Space Situational Awareness in 2017.

Prof. **JOHN CONKLIN** for receiving a NASA Small Satellite Partnership grant.

Prof. **WARREN DIXON** for being named a UF Entrepreneurship Faculty Fellow.

Prof. **WARREN DIXON’S** group, whose work was featured on the cover of the ASME Dynamic Systems and Control Magazine.

Prof. **HUGH FAN** for being named a fellow of the AAAS.

Prof. **NORMAN FITZ-COY’S** group, who will partner with NASA and seven other universities to develop a small spacecraft.

Prof. **B.J. FREGLY**, whose work on modelling stroke rehabilitation has been featured on the NIH and UF websites.

Prof. **SAEED MOGHADDAM** as a Herbert Wertheim College of Engineering Doctoral Dissertation Advisor/Mentoring Awardee for academic year 2016-2017 and Prof. **NAM-HO KIM** as the Herbert Wertheim College of Engineering International Educator of Year Awardee for academic year 2016-2017.

Prof. **JOHN SCHUELLER**, for giving keynote lectures at numerous high-profile events in the U.S., Austria, Canada, Czech Republic, Italy and South Africa.

Prof. **CHELSEY SIMMONS**, who was declared a “Rising Star” at the Biomedical Engineering Society’s Cellular and Molecular Bioengineering Conference and for her \$450K NSF award to study scar-free healing and her \$600K NSF FET site award.

PROFILE: Steve Miller

When you become established at NASA, very few people leave.

Prof. **STEVE MILLER** is one of the few.

Miller joined the MAE faculty in August 2016 after working as a United States government civil servant with NASA for 7 years. He had worked as a theoretical aeroacoustician at Langley Research Center in Hampton, VA.

His work involved the combined study of aerodynamics, acoustics and turbulence. The practical applications of this kind of research includes reducing the noise pollution on an aircraft carrier deck and reducing the chances that rocket engine flows vibrate a payload and lead to failure.

“When I joined NASA, I had no idea how much I didn’t know,” Miller said. “There were five to six people in the organization who I would say are literally geniuses. It’s really unique to work with someone like that. You learn so much about how to think about how the world works, how to solve challenging problems and how to have tenacity.”

One of his favorite parts of the job was trying to solve problems that have never been solved before.

“You become an explorer,” he said. “You get an inquisitive sense that gets built into you from that experience, and I don’t think I could have gotten that anywhere else.”

So why did he decide to leave?

Because academic freedom is one of his core values, he said. To him, it means he has the requirement to reach out, learn new things and extend human knowledge to answer the problems of society.

While NASA was an incredible opportunity, he said in the NASA world you’re behind a fence armed with guards — you can’t interact with the public as easily.

“You have a real opportunity at a university to change the direction of society,” Miller said, “to speak out and challenge scientific ideas or engineering processes or even mathematical equations. It’s an environment where you should spread your wings and diversify your knowledge.”

Miller is able to walk out his front door, stroll to campus, listen to the bells sound across the grounds and really absorb the atmosphere of the university. He’s made



friends in engineering but also in other departments, like mathematics and art history. He feels at home.

“People don’t appreciate how amazing the culture is here at UF,” he said.

But before he even arrived at campus, he had a good feeling about the department.

At NASA, he’d worked with a few researchers from UF MAE, and he said every one of them was top-notch.

“The best students coming out of MAE are comparable, if not better than, students coming from other top schools like MIT and Caltech,” he said.

Now he has the opportunity to teach and inspire undergraduates with that same potential. He has an open-door policy, helping students with everything from classwork to career advice to interview prep.

“It’s good to help others,” he said. “Research is important, but people are more important. The university is made up of people — it’s a community — and I really believe that.”

In addition to teaching Compressible Flow this semester, he’s also setting up his research lab. He’s been hiring grad students and formulating research projects.

“It’s sort of like combustion,” he said. “Once you have that spark, the reaction happens. It explodes with awesome research ideas.”

His goal is to set up a great lab with eight to 10 students and carry on the research he’s dedicated himself to. He’s already looking forward to watching his students present their theses, and is off to an excellent start with his recent ONR Young Investigator Program award to study turbulence and acoustic sources.

“Those are going to be the best days of my life at UF,” he said. “That’s the product I’m most proud of.” 

MAE STUDENT STRENGTHENS CONNECTION BETWEEN STUDENTS AND ADMINISTRATION



SIERRA MCVEIGH wants the students of MAE to know that they have a voice.

She's the chair of the Engineering Student Advisory Council, which is a committee of students who represent the interests and issues of the undergraduate students of the College of Engineering.

One of the ways ESAC accomplishes this goal is by hosting SWOT (Strengths, Weaknesses, Opportunities, Threats) analyses at least once a year. The two- to three-hour discussion is open to anyone in the college — students, faculty and staff — and is one of the main mechanisms of feedback for the College of Engineering.

“People come and talk about all the things that are going on in the college; what’s going well or needs improvement; and concerns they have so we can come up with ideas to solve those problems,” McVeigh said. “It’s my favorite part of my ESAC role, as it’s a great way to hear from people.”

She’s been working as a liaison between students and the administration since Spring 2015, when she was brought on as the MAE representative. She was elected chair that semester and has been doing her best to remain active in improving feedback channels and creating ongoing outlets of communication.

For her many contributions, McVeigh was recognized with the College of Engineering’s Dean Earle Award at Spring Commencement.

One of ESAC’s other big events includes Engineering Day, in which about 200 students can meet with eight to 10 companies. Students appreciate this direct communication with recruiters, so ESAC makes it happen every year.

McVeigh fits in ESAC responsibilities in addition to being pre-med; working toward a mechanical engineering major and biomechanics minor; as well as serving as captain of the Biodesign Team, MAE peer advisor, service chair for Pi Tau Sigma, and more. But her busy schedule doesn’t keep her from making ESAC a priority.

“I like the fact that it has the ability to really generate change,” she said.

For example, feedback that’s been provided to ESAC in the past has been part of changes like a section of the Marston basement renovation, the Starbucks that was added to Marston and the plus/minus grading system.

“It’s a mechanism for feedback that may not exist in other colleges and universities,” she said. “A lot of people don’t know where to direct their thoughts, so it’s nice that we’re here for them.”

She also enjoys how she’s able to interact with students from the other engineering departments.

“I think it’s important to be well-rounded as a person,” she said. “We have a certain way of thinking about the college as mechanical engineers, but we’ve found that other engineers can think about it completely differently.”

McVeigh encourages students to voice their opinions by attending events or submitting their feedback by visiting the website at <https://esacuf.wordpress.com/>.

And if they want to get involved with ESAC, she suggests they talk to the department chairs who recommend the student representatives.

If selected, they can then get the opportunity to become part of the change. ⚙️



MAE’S WINNING TEAM NAVIGATOR!!!!

MAE’s Team NaviGator AMS poses with their fully autonomous surface vehicle at the AUVSI Foundation’s 2016 Maritime RobotX Challenge in Oahu, Hawaii.



From left, Erin Winick, Emily Huber and Carolyn Gerzina.

MAE alumna **EMILY HUBER** remembers something her sister told her.

“There’s no way I could be an engineer, Emily,” her 15-year-old sister had said.

Huber was struck by how impressionable her sister was — how she’d let doing poorly on one test discourage her.

“I’m hoping to remove that stigma,” Huber said.

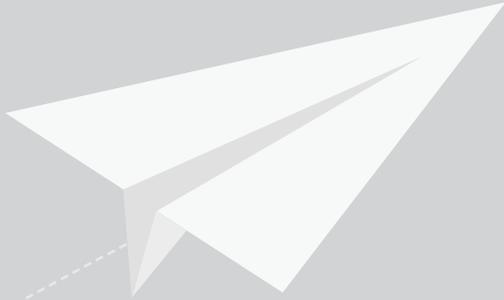
She’s been working toward that goal through her participation in the Society of Women Engineers. She’s hoping to get very involved in the professional section located in Melbourne, FL, where she recently accepted a position at Northrop Grumman.

But her outreach efforts started when she participated in SWE as a UF undergrad. Her friends from engineering classes encouraged her to check out the organization and persuaded her to join in her junior year.

“It was the outreach portion of SWE that got me hooked,” she said, “to be able to work in the community and see young girls introduced to STEM.”

Her first SWE position was in the Mentoring Program, in which upperclassmen are paired with underclassmen based on their majors and interests.

“I think there are many girls who need to meet someone who’s gone through those first classes,” Huber said. “I’ve seen many girls who felt like they couldn’t continue in engineering because there’s this



LAST FOUR CONSECUTIVE SWE PRESIDENTS MAKE MAE PROUD

idea that engineers have to be amazing at all math and science subjects. It’s a mentality that comes from high school.”

Huber’s high school didn’t have a pre-engineering track, which makes her even more interested in ensuring that high school girls understand their opportunities in the field.

“The more outreach you do,” Huber said, “the more exposure these girls have to engineering.”

ERIN WINICK, a 5th-year MAE student and former SWE president in the 2014-2015 year, felt the beneficial impact of joining SWE just a month into her freshman year.

She served as historian and then went on to become recording secretary her sophomore year.

“I really appreciated it because it gave me the gateway to becoming president years later,” Winick said, “and I think that trust helped me get where I am today.”

Today, Winick is the founder and CEO of Sci Chic, a company that designs and makes 3D-printed jewelry and other accessories inspired by STEM. There’s also an outreach component based on the jewelry that is released.

The idea for the company came from a SWE event she’d started: 3D Printing Outreach Day, in which middle school boys and girls came to campus to learn about 3D modeling and printing.

As Winick watched the kids create the designs they had made on their computers, she was struck by their enthusiasm.

“It seemed to have a really big impact on them,” she said, “so it meant a lot to me.”

That experience served as the launching point for her company.

“SWE gave me the leadership experience I needed, as well,” she said. “As president, you run an e-board and 25 chairs, there’s events going on all the time and emails flood in. I felt like I was CEO of a company, so I just transferred that effort and time to continue to get girls interested in STEM.”

KATHLEEN HENCKE, who served as SWE president the year before Winick, also noticed the benefits of SWE leadership on her career. Since graduating, Hencke has earned her master’s degree and moved to Colorado, where she works for United Launch Alliance, building rockets to launch primarily government and scientific payloads.

“SWE taught me to be innovative and to build connections, both great qualities in life,” Hencke said. “It also taught me how to work with others diplomatically and respectfully — to communicate and build working relationships.”

But outside of the professional benefits, Hencke really enjoyed the community aspect of SWE.

“I immediately made friends whom I saw in classes and was able to study with and rely on,” she said. “They were my resource for learning how to find what I wanted to do with my degree as well as how to get there.”

Her SWE friends were a resource outside of the classroom, as well; they were the people Hencke went to when she was having a rough day or wanted to celebrate an accomplishment.

“I was immediately invited into something really close to a family,” she said.

Her positive experience is what influenced her to run for president for the 2013-14 year.

“I’d come to care so much about this organization through the years, and I had a strong desire to improve it — to shape it even further than the fantastic thing it already was,” she said.

Current president **CAROLYN GERZINA** has similar aims.

She first joined SWE in an effort to find like-minded friends, but also to find a mentor who could help her make informed academic and career decisions.

The mentorship meant so much to her that one of her major objectives as president is motivating upperclassmen to continue their involvement with SWE.

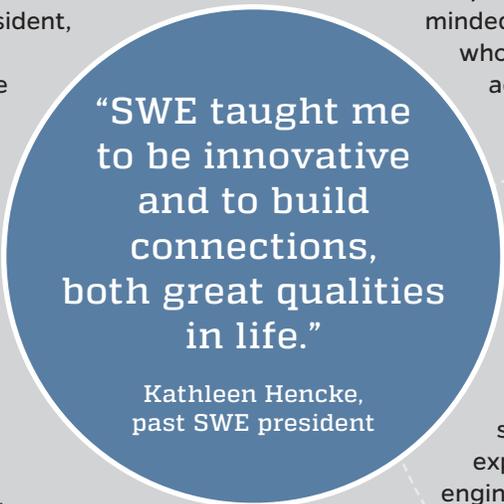
“Their unique and valuable experience can provide leadership and mentoring opportunities,” she said, “but being involved can also expose them to companies looking for engineering candidates.”

She sees SWE as a major force in helping students prepare for their careers.

“It provides a forum to easily meet employers and to build leadership, project management skills and skills working with a team,” she said.

But she said there’s one more major benefit, too.

“It provides students a community where they can feel comfortable being themselves,” she said. ⚙️



“SWE taught me to be innovative and to build connections, both great qualities in life.”

Kathleen Hencke,
past SWE president

CONGRATULATIONS TO:
The **ASME STUDENT CHAPTER**, which has been busy with company tours, charitable fundraising and educational outreach activities.
ABIR BHATTACHARYYA and Prof. **GHATU SUBHASH'S** research group for receiving the Orr Best Paper Award for their recent paper in the Journal of Engineering Materials and Technology.

4

ALUMNA UTILIZE MAE DEGREES FOR THE BETTERMENT OF ALL

When MAE Professors David Hahn and Chelsey Simmons revamped the department's Professional Orientation course last spring, their primary motivation was to instill in all students that mechanical and aerospace engineers are best positioned to tackle the big problems facing society. Teaching around the themes of food and water, healthcare, energy, and security, students learned the diversity of future career paths available as Gator engineers. A growing body of research suggests women are more in tune with societal needs, which brings potential for increasing future engineering participation. Here we profile four successful MAE alumna that embody these sentiments, showcasing the diversity and impact of our profession.



LOUISE SCOTT

Southern Company

As an executive with the second largest utility company in America, **LOUISE SCOTT** (BSME 1986) knows energy. Along the way, Scott has learned much more and is always willing to lend a hand to others.

"Tell yourself, 'I can do what other people are doing,'" she said.

As an engineering student and in her professional career, Scott followed her own advice. She wanted to pass those calculus

and differential equations classes, and she did it. She wanted to get degrees in both mechanical engineering and studio art as well as participate in Emory Executive Education, and she did it.

And when she wanted a career that was a combination of all her interests, she made it happen.

Scott is the VP for Customer Service at Georgia Power, where she's accountable for all of the interactions and experiences the company presents to their 2.4 million customers.

"The combination of business and technology was a natural track for me," Scott said, "and engineering prepared me for the logic of thought. In my job, I'm always problem solving — figuring out the steps to derive a conclusion. My engineering skills have served me well."

Some of the typical questions she has to address in her job include: How do we pick which technology to deploy to communicate with customers? How do we do it in a pleasing way and at a cost the customers find valuable? And where do our customers want to do business with us?

It all involves a complex web of online customer care organization, revenue accounting, day-to-day management and more.

"It's a great tie of systems of people and financial objectives of a company that I oversee," she said.

And while she puts her heart into her work, she takes the most pride in the successes she's had in helping others develop their careers.

"When I see people I've helped or hired succeed, it's a big deal," she said. "I get a tremendous satisfaction from that."

She said another motivation to pay it forward is how other people have helped her along the way, including during her experience studying in the MAE department. She also got a lot out of the engineering organizations on campus, including becoming an officer with the UF chapter of the American Society of Mechanical Engineers and a member of the Society of Women Engineers, of which she remains a member to this day.

To give back to UF, she serves as a member of MAE's External Advisory Board, helping guide us with her industry perspective.

"UF sets up their students for real success," she said. "They have a strong interest in the academic strength and the eventual contributions their students make. That was apparent to me, and that was very exciting and something I wanted to be a part of."

"Find your mentors. People are willing to help you, whether it's a professor or a classmate. Reach out if you need some help — don't go it alone."

— Louise Scott

“Have faith that these difficult and seemingly abstract classes you’re taking are not necessarily what engineering means. You might use it, but chances are you’ll never touch it ever again. One day, everything comes together. One day, you find your niche.” — Elisabetta “Betta” Jerome

The roar of F-35 fighters greets one at the Eglin Air Force base. The base is often seen as the “playground” for the next generation of pilots as they test their wings.

Reflecting back, **ELISABETTA “BETTA” JEROME** (Ph.D. 1991) recalls spending many a day dreaming of becoming an engineer at the playground near her childhood home in Italy. “Now that I’m older, if I had to go back, I would do exactly the same thing,” Jerome said. “Mechanical was really the right thing for my kind of brain.”

With a student visa, she earned her bachelor’s and master’s degrees at Ohio State University. Then her plan was to return to Italy.

However, after meeting her future husband, MAE alumnus David Jerome, they decided to reside in the US. She soon began working as a research assistant at UF in addition to her position as Senior Research Engineer at Eglin Air Force Base.

Through those experiences, she started researching concrete, structures and weapons effects.

“That’s how it happens in life,” she said. “You start working on something, and you get good at it.”

“Good,” in her case, was an understatement. She went on to earn her Ph.D. from UF under the mentorship of Prof. Allen Ross, focusing on the mechanics of concrete to further establish her expertise.

After graduating, she began a new position at Eglin working as a technical fellow, first in mechanics and structures, and then in warhead effectiveness.

“I thought that was the greatest job ever,” she said, “and I was just going to keep doing that forever — until my current job came open.”

Jerome still works at Eglin, but now she serves as Technical Advisor in Armament and Weapons Test and Evaluation at the Air Force Test Center. In this role, she wears multiple hats: as a technical leader who advises on better ways to do testing; how to invest in the future; and how we’ll evolve in terms of armament and weapons. Being a visionary is her responsibility, to look ahead to see what kinds of things will need to be tested in the future.

For example, she said that we’ll want weapons that go a lot faster and farther than they do today, so how will we eventually be able to test for something like this? Where can we test across the country where we can safely kill the test if something goes wrong?

“This job has opened my mind,” Jerome said. “When you’re so technical, you look at the world through a soda straw. For 27 years, I was very narrow and focused on the research I was doing. Now I’m opened up to whole other aspects — how we do business, how the Air Force works and how the DOD works. I am shocked, but I love this. I can influence things.”

Recognizing that her technical side was the base that enabled her position, Jerome looks for ways to continue on that front.

“I’ve really embraced being a mentor to all kinds of people,” she said. “I teach Concrete 101 at Eglin on base, which is the work I used to do. If I don’t keep up the classes, my brain will go to mush. And there’s a lot of research in concrete that needs to be done, so I’m a good person to push people to go out and continue to work on it.”

Jerome found her calling, just like her engineering parents before her, and just like her twin sons who now attend MAE, proudly continuing the UF engineering legacy of the Jerome family.

“The year my husband and I spent in Gainesville was one of the greatest years for both of us,” she said. She cited the beauty and warmth of the city as well as the world-class professors the department had to offer.

“That’s why I wanted my kids to go there and live that same dream,” she said.



**ELISABETTA
“BETTA” JEROME**

U.S. Air Force



ALISON DUNN

Academia

MAE Prof. **GREG SAWYER'S** lab sits at the intersection of engineering and healthcare, focusing on improved contact lenses, biomechanics and recently on efforts to cure cancer. It is the environment that inspired one student to pursue her dream.

The inspiration didn't end there. After graduating from UF with dual B.S./M.S. in mechanical engineering, **ALISON DUNN** (BSME 2004, Ph.D. 2013) joined the Peace Corps. Her assignment was to teach English in China.

"I'd lived my whole life in the U.S., and I knew that most people in the world aren't from here," Dunn said. "I wanted to see the world from someone else's perspective before I started my career."

The experience allowed her to see firsthand how teaching could have a really positive influence on people and decided she would return to UF for a Ph.D. with an eye toward a career in academia.

Now as an assistant professor in the University of Illinois' Mechanical Science and Engineering Department, she reflects that her experience in the Peace Corps has impacted how she structures her courses.

Her teaching experience in China "was an exercise in critical thinking skills and teaching strategies for younger students."

Dunn used various active learning techniques to help her students absorb the material, from diagnostic exercises to group work. This kind of practice prepared her to translate effective teaching to technical topics.

But she credits the academic rigor of the MAE department as primary career preparation, which she experienced during undergrad, Master's and Ph.D. studies, all of which she did at UF.

"The thought that went into the undergraduate curriculum and the freedom of graduate work trained me technically and gave me the opportunity to grow into my potential, which I didn't even know was there when I started," Dunn said.

That potential led her to a faculty role at Illinois, where she's excited to work on important problems and help train the next generation of scientists and engineers. She now teaches mechanical design and a senior-level elective called Introduction to Tribology, which is her research area.

"My favorite part of teaching is shared discovery — "aha" moments in the classroom — and shared celebration when students' training leads them to success," Dunn said.

While Dunn has started to build accomplishments in the academic arena, she's always been actively involved in other interests, too. For example, during her time at UF, she participated in multiple activities, including women's rugby, playing in a steel drum band, to feeding the homeless.

"All of these things confirmed that all people, academic or otherwise, can achieve great things," she said, "and that they should."

"Ask for credit when you know you've earned it. It takes courage to achieve in engineering, and even more courage to petition for the recognition of those achievements."

— Alison Dunn

One would be hard-pressed to find someone who understands the roles of engineering in solving society's big problems more than MAE alumna **JENN GUSTETIC** (BSME 2005).

Graduating with a vision for change and innovation, and she's had quite the decade since, with highlights including MIT, the White House and NASA.

Everything she's done has been a reflection of her interest in cross-sector collaboration.

"I've always had a passion for how different groups can work together to achieve better results," she said.

After seven years of working at both public and private entities, she became the Assistant Director for Open Innovation for the White House Office of Science and Technology Policy, a position she held for about two years.

"Just having the opportunity to serve a president working on science and technology on that level is such a privilege and cool experience," Gustetic said. "I'm really proud of it."

"Execute even the smallest things, don't be afraid to volunteer for more work, and build a network outside of work. But also, life is about a lot more than your job – enjoy it."

— Jenn Gustetic

Much of her work in D.C., including her current role as the Small Business Innovation Research Program Executive at NASA, has involved devising ways the government can better partner with the private sector and philanthropic groups to provide better value to American citizens.

"My big priority is to create new pathways for better engagement and collaboration between NASA and small business," she said, "but also to really try to think about the ways

we can streamline and modernize a 34-year-old research program."

The SBIR Program involves about 40 full-time employees and hundreds of part-time employees; it's the biggest project she's ever led in her career.

"I'm in charge of a system in an engineering management role," she said, "so I'm not doing engineering every day. But I couldn't do my job without understanding the type of technologies we're trying to encourage through the program."

For example, she organized a forum in September at which businesses and technical experts could have the two-way communication necessary to discuss problems at NASA and the potential solutions business could supply.

In addition to her career, Gustetic recently joined a university's advisory board and is working on getting her SCUBA certification.

"I'm a glutton for punishment," she said. "I like having a lot of stuff going on at the same time. I'm as busy as I am because I always take on more opportunities I think are interesting."

She had a similarly busy schedule during her undergraduate experience at UF. In addition to her full course load, she participated in student government and served as new member coordinator for her sorority Zeta Tau Alpha.

"I am such a UF advocate," she said. "Taking that all on at UF — as well as balancing my social and academic lives — laid the groundwork for how I was able to do that in my professional life," she said.

She's always made an effort to stay involved and network and recommends current students do the same.

"It's not just about performing well," she said, "but actively joining interest groups that can help feed opportunities for your next job. That's how careers are made." 



JENN GUSTETIC
Public Sector

MAE Annual Honor Roll 2015-16

The Department would like to extend a very special thank you to all of our donors who gave to our annual fund, endowments and to support research or facilities. In this 12-month period, we received 130 gifts totaling \$506,430 from alumni, friends, corporations and foundations. These gifts have a significant impact on the quality of our academic program and the resources we can provide to our students and faculty. The listings in this Honor Roll reflect gifts received between July 1, 2015 and June 30, 2016. If you would like to support the department, please contact David Hahn, MAE Department Chair, at 352-392-0961 or dwhahn@ufl.edu.

Names of donors of \$500 or more are identified with an asterisk (*). Donors of \$1,000 or more are in boldface. Donors of \$5,000 or more are in boldface with an asterisk, while donors of \$10,000 or more are in boldface caps.

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UF Society of Women Engineers

UF MAE graduate student Mitzi Dennis and MAE Graduate Advisor Karen Ehlers organized the co-founding of a Graduate Student Chapter of the UF Society of Women Engineers. SWE has a longstanding history at the University of Florida, helping women to achieve full potential in their careers as engineers and leaders. The new graduate student group expands the mission and participation of SWE to include our many graduate students across the College of Engineering.



HOW YOU CAN HELP

The Robert and Jill Peterson Women's Excellence Fund supports the success and inclusion of women engineering students in MAE to pursue their engineering passion and career success. The Peterson Fund provides scholarship and fellowship support, SWE sponsorship, and professional travel to promote retention and advancement of women.

The Women's Excellence Fund was endowed with a founding gift of \$100,000 from Prof. Emeritus Jill Peterson. With your help our goal is to grow the endowment to \$1M. Please consider this opportunity with your future giving.

Above: MAE student Myra Kurosu Jalil receives the first scholarship from the Peterson Women's Excellence Fund, shown with Dr. Jill Peterson and MAE Chair David Hahn.

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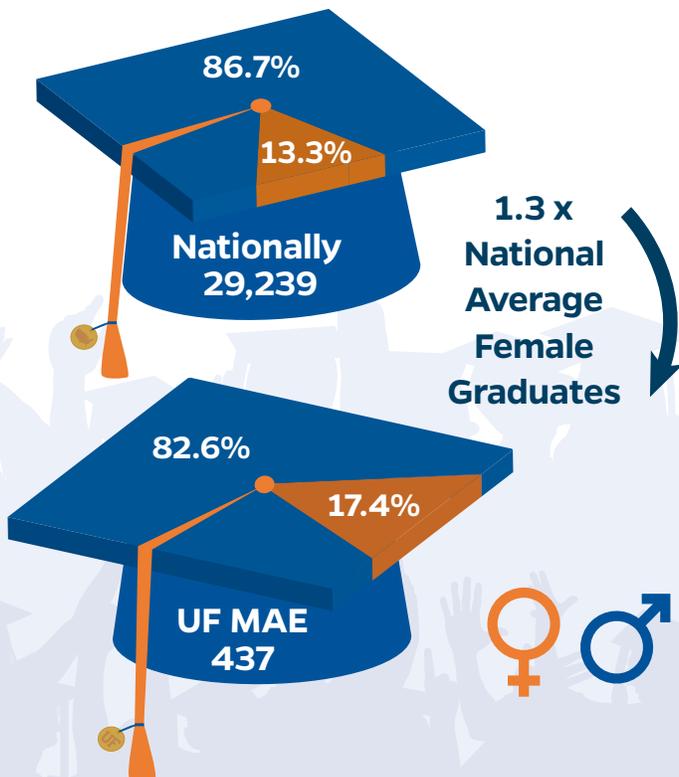
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