

THE ISE CONNECTION

Grado Department of Industrial and Systems Engineering

Fall Semester 2014

Dr. Torgersen, King of Serendipity, Retires

In Spring 2014, Dr. Paul Torgersen bid farewell to his academic career at Virginia Tech, a career in which he has achieved a great deal and inspired generations of students and colleagues. At Virginia Tech, he has served as professor, Department Head of Industrial & Systems Engineering, Dean of the College of Engineering, and President of the University. Despite his illustrious career, Dr. Torgersen did not hide the fact that teaching was his passion when I got the chance to interview him a few weeks ago. He loves teaching so much that he taught at least one class every semester for 48 years, letting neither his health issues nor his great responsibilities as President stop him from doing the thing he loved most.

Dr. Torgersen is most known for teaching Theory of Organization; when asked about the takeaway lesson from this course, he said, "One thing I stress while teaching is that opportunities will appear and you have to take advantage of them even if they hadn't been planned for you in advance." That

being said, the story of this man's journey to become a great professor and eventual President is not a typical one. When he attended Lehigh University for his undergraduate degree, Dr. Torgersen was merely a student on a half-tuition tennis scholarship, his favorite sport, and neither he nor his family expected a stellar career in academia in his future. After finishing his undergraduate studies at Lehigh University, Dr. Torgersen served in the Air Force while enrolled in part-time evening courses at Ohio State University. After leaving the Air Force, he realized that he was a little over a year away from completing his master's degree. He decided to take the rest of the required courses and, through a series of serendipitous events, was offered the chance to join the faculty at Ohio State and pursue a PhD. He took advantage of that chance, fell in love with teaching, and never stopped until the day he retired. After telling this story Dr. Torgersen jokingly said, "I went to graduate school by mistake. That turned out to be a pretty

good one."

He went on to co-author 5 books, two of which were translated to Japanese, and received a host of awards including ASEE's Lamme Medal, Virginia Tech's first Affirmative Action Award, being named Virginia's Engineering Educator of the Year in 1992, as well as the Institute of Industrial Engineers' highest recognition - the Frank and Lillian Gilbreth Award. Despite all these achievements, Dr. Torgersen remains an example to follow in humility, something that was evident during my conversation with him. Last semester, Dr. Torgersen announced his retirement at the age of 82, but he is and will always remain a great symbol and icon not only in the Grado Department of Industrial and Systems Engineering, but in Virginia Tech as a whole.

Written by Farouk Daher

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Fast Facts about the ISE Department

Here's how the undergraduate program is looking:



30% Perform Undergraduate Research



10% Study Abroad



32% Obtain Green Engineering Minor



29% Obtain Business Minor



75% Work as an Intern or Co-op

#6 Ranked ISE Department in the United States

>700 Current Enrollment in the undergraduate program

\$65,000 Median Starting Salary

\$170,000 awarded in merit and need-based scholarships annually

Spotlight on Dr. Joe Gabbard Notable Alumni LTC Casto



Dr. Gabbard's research centers on human factors and human-computer interaction with an emphasis on augmented and virtual reality, usability engineering and visual perception. He has performed human factors studies

in many user interface domains including 3D visualization, augmented reality, virtual environments, multimodal interactive systems, and visualizations for life sciences, military, and transportation domains.

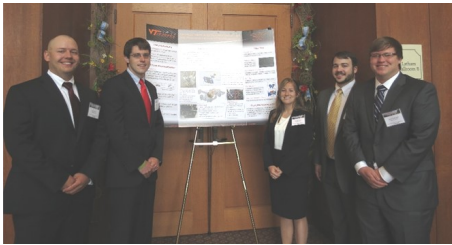
Dr. Gabbard teaches courses at both the graduate and undergraduate level, including Introduction to Human Factors, Human Information Processing, Human-Computer Systems, Usability Engineering, and Visual Displays.

Dr. Kristen L. Casto, Lt Colonel U.S. Army, has been named the Outstanding Recent Alumni for Virginia Tech. Dr. Casto graduated in 2009 from ISE with a PhD concentrating in Human Factors Engineering and Ergonomics with her dissertation winning the Aerospace Human Factors Association Stanley Roscoe Award. This was her second doctorate, the first being in clinical Audiology. Upon graduation, she became the Branch Chief of Acoustics at the US Army Aeromedical Research Laboratory. There, her leadership resulted in a tripling of the lab's research output, making it one of the premier acoustics research facilities in the United States.

Following her Branch Chief assignment, Dr. Casto was promoted to a position for the United States Surgeon General's Office, where she serves as a consultant to the Surgeon General. Lt Col Kristen Casto, PhD, AuD is a truly outstanding alumnae of VT's College of Engineering and of the ISE department.

Senior Symposium 2014: Award - Winning Teams and Projects

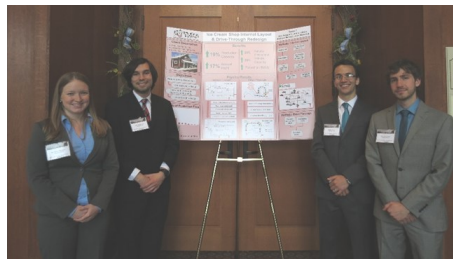
Project Management and Leadership – Formula SAE



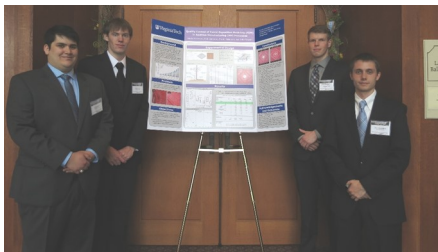
Project Title: *“Development and Refinement of the ISE Program within the Virginia Tech Formula SAE Team”*
 Team Members: Lucas Keesee, Eric Peterka, Rachel White, Jeff Petrillo, Matthew Marchese
 Advisor: Dr. Michael Agnew

Application of ISE Methods and Tools – Moo Thru Ice Cream

Project Title: *“Ice Cream Shop Internal Layout and Drive-through Device”*
 Team Members: Kathryn McNeal, John Morelock, Jamie Loizou, Dan Angelelli
 Advisor: Jeff Herren, ISE Advisory Board Member



Innovation and Creativity – May Solutions LLC



Project Title: *“Defect Analysis of Fused Deposition Modeling Using a Real-time Sensing System”*
 Team Members: Nick Bambino, Jake Snyder, Wade Andersen, David Roberson, Diego Valdez (NOT PICTURED)
 Advisor: Dr. James Kong

Performance Impact – Corning, Inc., Winston-Salem, NC

Project Title: *“Project Vector: Optimizing Batch Production to Increase Cost Advantage”*
 Team Members: Scott Phelps, Grant DePhillips, Chris Patterson, Alex Carr, Nadim Nagui, Chris Thompson
 Advisor: Dr. Subhash Sarin



Communication/Presentation Skills – VT Recreational Sports



Project Title: *“Registrant Information Management System”*
 Team Members: Kevin Meneses, Edi Ekasi-Otu, Megan Hunter, Natalie Sterling, Amber Castle
 Advisor: Bethany Elmore and Michael Emero, STL Research Faculty Members

Outstanding Senior: Alex Monahan



ISE Leadership Award: James Malone



Outstanding Junior: Zvonko Cindrich



Outstanding Junior: Sarah Oertel



Alpha Pi Mu Updates

Congratulations to the newest inductees to the Industrial Engineering Honor Society, Alpha Pi Mu. The new members listed below were inducted on Wednesday, November 15. Faculty and staff members Michael Agnew, Joe Gabbard, Joel Nachlas, Paul Torgersen, Eileen Van Aken, and Paula Van Curen were in attendance.

- Rashad Assir
- Peter Benoit
- Caitlyn Burdick
- Kyle Cacioppo
- Megan Eschman
- Nathan Fubara
- Rachel Hensen
- Heather Keathley
- Jeffrey Moore
- Jeffrey Schwartz
- Daniel Swaffer

Congratulations to Virginia Tech's APM chapter for winning second place in the national chapter competition.



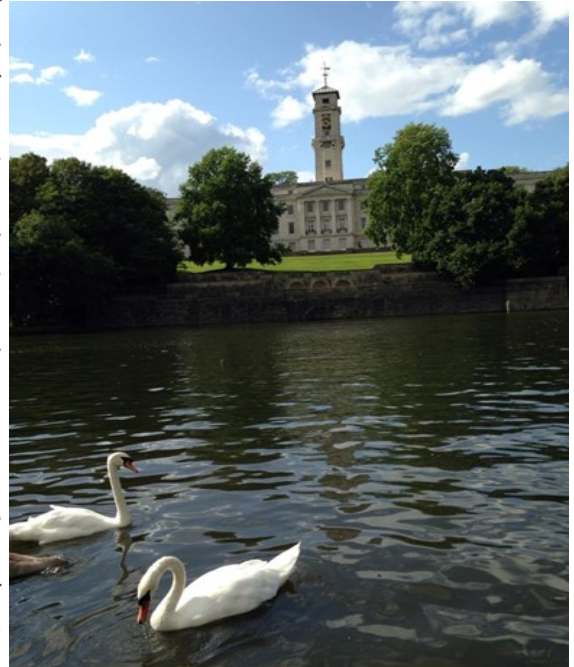
Spotlight on Research: Senior Jill Streeter at Nottingham

This past summer marked the first rotation of the three year partnership between Virginia Tech and the University of Nottingham. Five Virginia Tech students, majoring in industrial & systems, mechanical, and electrical engineering, were given the unique opportunity to study abroad in a whole new way.

For three weeks, the five students attended workshops hosted on the Virginia Tech campus, working with their individual advisors to put together plans and do preliminary research. Dr. Joe Gabbard was in charge of advising the three ISE students, working in the COGENT Laboratory in Whittemore, where Virginia Tech's driving simulator is based. Dr. Gary Burnett, based at the University of Nottingham, was a frequent consultant as the two ISE projects were developed, and was the main advisor for the following seven weeks spent in Nottingham, England.

The primary focus of this research was in the field of augmented reality (AR). The two projects looked into the effects of AR on driving situations. One focused on depth-perception while the other looked into differences in display types, where AR graphics would appear on a Head-Up Display above the windshield and virtual graphics would appear on a screen placed on the middle console.

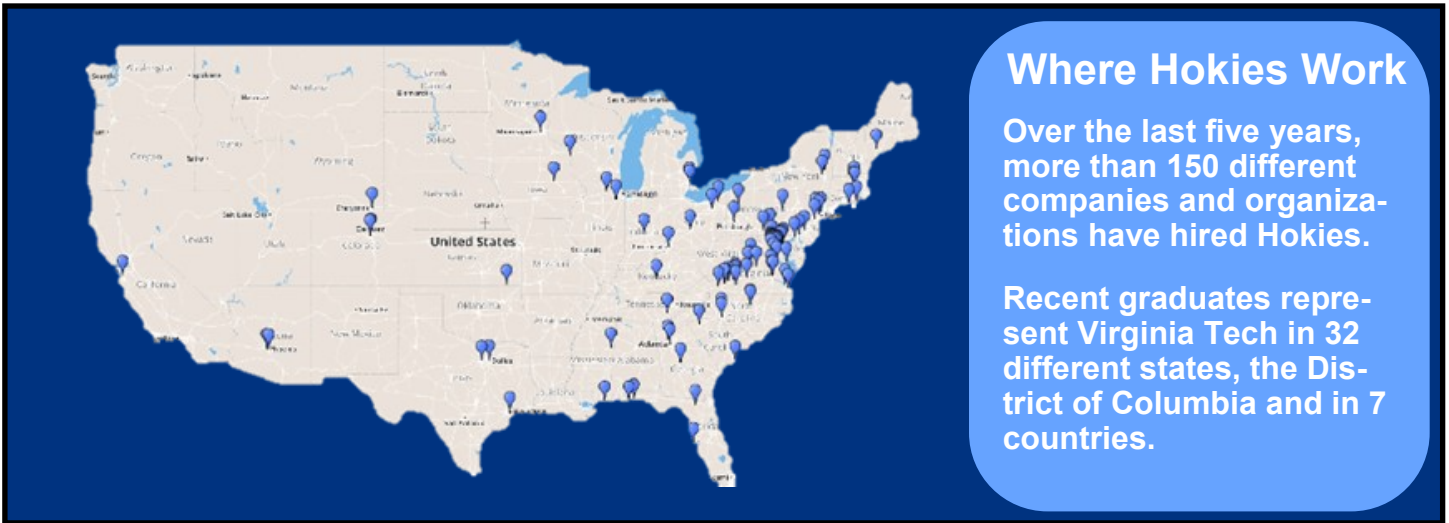
Based at the University of Nottingham for the largest duration of the



Article and photo courtesy of senior Jill Streeter who is currently co-oping with BMW.

project, the students were given the chance to explore England (and Europe!) on their weekends, while working with their Nottingham advisors and co-workers during the week to further their projects. The ISE students recruited volunteers from around the University to participate in data collection, and successfully completed all planned trials in the final weeks.

For ISE students interested in human factors or ergonomics, this is an excellent opportunity to not only explore the field of research, but to also study abroad and live on the campus of the beautiful University of Nottingham.



Where Hokies Work

Over the last five years, more than 150 different companies and organizations have hired Hokies.

Recent graduates represent Virginia Tech in 32 different states, the District of Columbia and in 7 countries.

Spotlight on Gregory Purdy, PhD Student

Over the past five years, I have been able to pursue my research passions in a new and innovative field, as well as take advantage of a number of opportunities to enhance my learning outside of the classroom. My research with Dr. Jaime Camelio is part of a National Science Foundation interdisciplinary grant to explore the potential interactions between two previously unrelated fields. Under this grant we have been looking at the potential ways traditional manufacturing analysis can be applied in the creation of custom DNA fragments through gene synthesis. This work has begun to pioneer a new field with the goal of reducing the cost, time, and waste associated with processes common in molecular and synthetic biology.

In addition to working on this fascinating new research endeavor, I have also been involved with the Graduate Student Assembly (GSA) for the entire time I have been at Virginia Tech. The GSA is the student governance organization which represents the 6900 graduate students across the Commonwealth and abroad. For the last year I have been honored to serve as the President of this organization. During this time, I have come to appreciate the policy and governance side of the University and thoroughly enjoyed being able to assist in changes to benefit the faculty, staff, students, and alumni of this great institution. As part of my role with the GSA, I was honored to speak on behalf of graduate students at the installation of Virginia Tech's 16th President, Dr. Timothy Sands.

The work I have done with the GSA has really bolstered the education I have received with a variety of skills which cannot be taught in the classroom or the laboratory. While some of my experiences are somewhat non-traditional, the ISE department has created an environment to encourage its faculty, staff, and students to continue to uphold the university motto of Ut Prosim.

Written by Greg Purdy

National Capitol Region Extended Campus Grad Program

The ISE extended campus programs include three degree offerings: Systems Engineering, Engineering Administration, and the ISE Ph.D. programs. In addition to meeting the needs of full time students, our systems engineering and engineering administration degree programs are also focused on working engineering professionals and adult learners. The extended campus Ph.D. program has a mixture of full-time and part-time Ph.D. students. We rely heavily on our distant learning technologies to reach students throughout the Commonwealth of Virginia. In September of 2014, Fran Dougherty defended his dissertation entitled, "Complex Adaptive Systems Approach for Productive Efficiency Analysis."

Our extended campus faculty include: Dr. Hazhir Rahmandad, Professor Ken Harmon and Dr. Kostas Triantis. Dr. Rahmandad is spending his sabbatical leave at MIT's Sloan Business School where he is collaborating with Professor Sterman's system dynamics group. He continues his research on obesity, focusing on using dynamic modeling to understand and improve appropriate prevention and mitigation strategies. Professor Harmon continues to be engaged in enhancing the engineering administration curriculum in the areas of program and project management and technology management. Dr. Triantis just returned from the NSF where he managed the Civil Infrastructure Systems program. Last year he led the Resilient Interdependent Infrastructure Systems and Processes solicitation. This inter-disciplinary program focused on enhancing the understanding and design of interdependent critical infrastructure systems and processes that provide essential goods and services despite disruptions and failures from any cause and to create the knowledge for innovation in ICIs. He is currently pursuing research in the design of efficiency measurement systems while serving as the chair of the National Capital Region's College of Engineering programs as well as the senior advisor to the University's vice president for NCR operations.

Written by Dr. Triantis

VT Institute of Industrial Engineers Goes Global: Two Student Leaders Attend ESTIEM Council Meeting in Budapest, Hungary

Virginia Tech's Chapter of the Institute of Industrial Engineers (IIE) has recently joined the national IIE initiative to expand its chapters, both student and professional, across the globe. In order to achieve this goal, the IIE national organization has been seeking to partner with the European Students in Industrial Engineering and Management (ESTIEM), an association of 60,000 students across Europe. We (Zvonko Cindrich, chapter President and Clara Bigelow, chapter Secretary) were given the opportunity to attend an ESTIEM council meeting in Budapest, Hungary this past November to learn about Industrial Engineering and Management (IEM) students in Europe and to discover how our two organizations can collaborate and learn from each other. This trip was made possible by the Excellence Fund's generous donors.

About 250 students from over 20 different countries and 75 local groups or chapters attended the council meeting. ESTIEM is completely student created and run, as opposed to IIE which was originally created for professionals. ESTIEM council meetings are bi-annual events where the central leadership teams update local group representatives on activities, projects, and new initiatives. This event ran from Tuesday evening ice-breakers through Sunday voting sessions on the new ESTIEM leadership teams including the executive team and project leaders.

There are nine projects that ESTIEM runs, but three stand out as areas to which IIE and VT can contribute and gain the most from through participation: TIMES, Academic Days, and the Vision Project. TIMES is a case study competition similar to projects students at VT already participate in. Academic Days and the Vision Project are similar events focused on expanding the knowledge of IEM students.



Above: Students attending the council meeting gather for a photo.



Left: Seniors Zvonko Cindrich and Clara Bigelow in front of the main palace in Budapest.

Alumni and supporters of VT ISE, thank you again for your continued donations to The Excellence Fund. Your support enables opportunities like the ESTIEM trip, department events, and meetings for IIE, Alpha Pi Mu, and the ISE Ambassadors. A special thanks to new donors Maria Bothwell, Jerry and Joan Clarke, and Chris and Ann Mosby.

These would all be excellent ways to have students, professors, and professionals participate in global learning and knowledge sharing.

We were sent to the council meeting to learn what ESTIEM has to offer that the chapter might benefit from, but also to share what we can provide. On Friday, during one of the afternoon working sessions, we teamed up with students from the sole European IIE chapter at Bilkent University in Turkey to share with ESTIEM members how to start an IIE chapter of their own and the benefits of doing so, such as networking, training, and access to cutting edge IE research and developments. ESTIEM members were also

asked to brainstorm ideas for IIE/ESTIEM collaboration and suggested a buddy or exchange program to further facilitate knowledge and idea sharing. We were also able to present to the entire group and received very enthusiastic feedback for collaboration initiatives to continue and a few members were very interested in spending a week at VT to attend our Regional Student Conference and Torgersen Leadership Summit in February 2015.

Written by Clara Bigelow and Zvonko Cindrich

The Excellence Fund: Creating a Culture of Giving

At the Grado Department of Industrial and Systems Engineering, our vision is to be leaders in research, education, and professional outreach as well as in our communities and society. Funds from the Commonwealth of Virginia do not cover our annual budget or needs, and private giving is critical if we are to maintain, let alone improve, the high quality of our processes. Giving to ISE at Virginia Tech can provide student scholarships, maximize students' learning, help us attract and retain the world's best faculty, assist with day-to-day operations, and help maintain state-of-the-art research and teaching facilities. If we are to

be competitive with other top-10 departments, giving is vital.

To aid us in soliciting funds for this endowment, we recently commissioned a sculpture, which has been installed on the wall in Durham Hall right outside the depart-



mental office suite. The names of our Benefactors will appear prominently on the large brass plaques above the sculpture and the names of our Patrons will appear on the brass plaques on either side of the sculpture. Our Sponsors' names will appear on the bronze plaques surrounding the sculpture. For more information on donating to the Hokie Bird fund, visit :

<http://www.ise.vt.edu/support/vitalgiving.php>

A Special Thanks And Recognition To Our Excellence Fund Contributors

Adams, Michael & Brenda
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Arnold, Joseph
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Bailey, Fred
Birk, Lydia
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Brannan, Rory
Burzacchi, Sebastian & Kelly
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Casali, John
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Clarke, Jerry & Joan
Cullinane, Thomas & Katherine
Davis, Darrell & Michelle
Deisenroth, Mike & Marilia
Dick, Dan & Lynn
Doughty, Gary & Eleanor
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Hepler, Clint & Nita
Jones, John & Lillian
Klein, Dave & Christine
Laman, Denise
Leclair, Kevin & Jessica Oi
Leslie, Charles
Mayo, Trevor
McClelland, Robert & Mary
McKnight, John
Memmer, Peter
Miller, Matthew & Holly
Monroe, Ellis
Montague, John & Jean
Montgomery, Doug & Cheryl
Mosby, Chris & Ann
Muscatello, Marty & Andrea
Norris, Jack
O'Brien, Charley & Betsy
Overby, Tom & Carolyn
Pannell, Rob
Polk, John & Marty

Porterfield, Robert & Nancy
Powers, Styron
Reynolds III, Edward J.
Ring, Bill & Sara
Rockwell, Chris & Sharon
Rusak, Jennifer & Mark
Sage, Don & Mary Etta
Sauer, Nancy & Ron
Smith, Jaime & Erika
Smith, Michael & Elizabeth
Snelling, Steve
Spitzer, Kirk & Leila
Stewart, Mona & Kevin
Szabos, Brian & Kurstein
Taylor, Bob & Connie
Taylor, Don & Jo Ellen
Torgersen, Paul & Dot
Van Aken, Eileen & Steve
van Luyn, Dutch & Trudy
Waldmiller, Anne
Wood, Linda Stephenson
Worley, Hal & Thornie

Celebrate with ISE!



Above: Congratulations Mrs. Shellie (ISE '15) and Connor (VT '14) Williams!

Below: Welcome Baby Conrad Lee, born to Colton (ISE '13) and Alicia Wenger



Looking for ways to stay connected? Try these!

- Student-run ISE website: www.vtise.org
- VT ISE Alumni LinkedIn Page: Virginia Tech Industrial Engineering Grads
- VT ISE LinkedIn Page: Virginia Tech Industrial and Systems Engineering

How I Climbed the Ladder: Success Stories and Life Lessons with Members of the ISE Advisory Board

On Monday October 27th the ISE Ambassadors hosted a dinner followed by a panel session led by some of the ISE Advisory Board members. All undergraduate and graduate Industrial and Systems Engineering students and faculty were invited to attend. The questions used were submitted by students and faculty during the week

before the event. The event consisted of a series of questions directed at the board members, who took turns answering the questions in their own perspective, sharing their invaluable life experiences and advice with the audience. This was followed by opening the room for any questions the students or faculty had for the

board members. Questions included everything from how to get your foot in the door to handling discrimination in the work place.

The event was a huge success, setting a new record for attendance in comparison to previous years. The students attending were enlightened after listening to all the enriching, interesting, and funny stories the members shared while the members. Board members were thrilled and excited to come back to campus and talk to current students, sharing their stories and experiences.

Written by Farouk Daher



Students and Advisory Board members share dinner and conversation before the event in Goodwin Hall, the new engineering building.

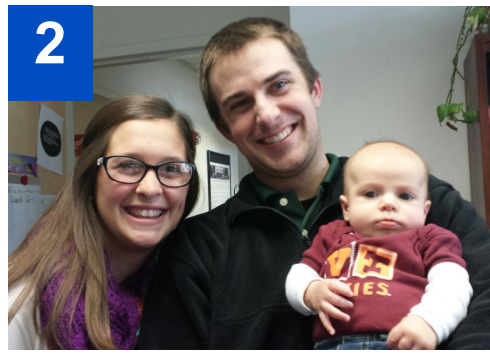
Look who stopped by!

From time to time, alumni stop by the advisors' offices to say hello and catch them up on their lives and jobs. These alumni are either visiting someone on campus, recruiting, interviewing, or even working on research. Don't forget to stop by and see us when you're back in Blacksburg. You're always welcome!

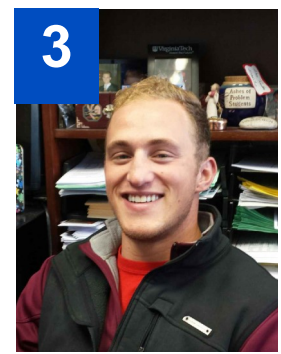
Joyce Vest



1. Rhondy and Yessica Rahardja. Rhondy '08 works at Topcon Positioning Systems in Livemore, California



2. Colton and Alecia Wenger and baby Conrad. Colton '13 works at Miller Coors



6. Dane Harrington '13 works at Deloitte.

3. Max Singer '10 works at Johnson Controls

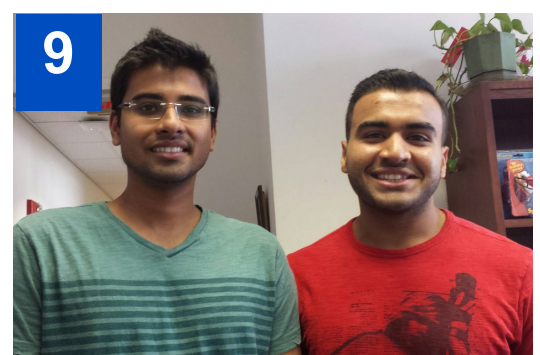
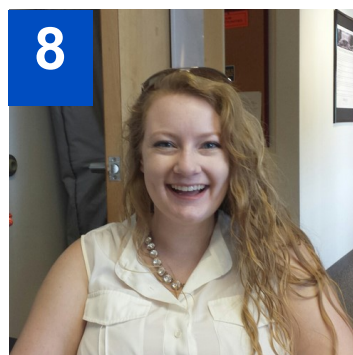
4. Mina Mitry '12 UPS, Richmond, VA

5. Cammy Mann BS'09, MS '11 and Kaitlyn Hines Krukar '10 (married to John Krukar) work at Herren Associates.

7. Justin and Jesse Love. Justin '09 works for MY-CELX and owns his own company Love Energy Advisors, Houston, TX

8. Stephanie Kopelic '13 works at Honeywell in Greenville, SC

9. Dhruv Mehta '14 works for the SI Organization in Chantilly, VA and Vatsal Gandhi '14 works for GE Aviation in Cincinnati, OH



Questions, Comments, Concerns, and Story Ideas can be sent to Farouk Daher (farouk14@vt.edu) or Joyce Vest (vestjs@vt.edu).