

The ISE Connection

Grado Department of Industrial and Systems Engineering

Spring Semester 2016

Greetings from the ISE Department!

I would like to begin by reporting that the Grado Department of Industrial and Systems Engineering is bigger and better than ever. I am incredibly proud to be associated with the outstanding students, staff, faculty and alumni of this great Department. Many of you will be aware of the rapid growth in popularity of the department with students - we have approximately 500 sophomores, juniors, and seniors in the Department, and ISE is in great demand as a top choice for freshman engineering students. Concurrently, our current sophomore class has the highest incoming average GPA in departmental history - clearly, we are not sacrificing quality for quantity. I am also proud to report that we have almost 200 students participating in our various graduate degree programs.

We have added outstanding new faculty to our Department - a total of 10 new faculty members during the past several years, and we are currently searching for several more this year! With more than 30 full-time faculty members, we are also one of the largest ISE programs in the United States. But again, we are not sacrificing quality for quantity as we maintain very

high national rankings. Our current U.S. News and World Report rankings are #5 in undergraduate and #9 in graduate programs.

We are entering a period of change for the ISE Department as many of you know. I will be serving as Interim Dean of the College of Engineering for the 2016-17 year as Dean Richard Benson begins his position as the President of the University of Texas-Dallas. We are sad to see Dr. Benson leave but wish him the best. Dr. Eileen Van Aken will serve as the Interim Department Head for ISE during this time, while Dr. John Shewchuk will be Interim Associate Department Head and Undergraduate Program Director. I know that the Department will be in good hands, and I look forward to returning to ISE in 2017.

Thank you for your ongoing support for the Department!

Sincerely,

G. Don Taylor, Ph.D., P.E.
Charles O. Gordon Professor and
Department Head



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Meet Our New Faculty

Dr. Blake N. Johnson joined the ISE faculty as an Assistant Professor in summer 2015. He holds a B.S. in Chemical Engineering from the University of Wisconsin-Madison and earned his PhD at Drexel University in 2013. He was a Postdoctoral Associate at Princeton University prior to coming to VT. He is teaching ISE 2204 Manufacturing Processes this year.

Dr. Johnson is a highly accomplished scholar with a number of published journal articles and patents completed. Specifically, he focuses on the development of robotics-based advanced biomanufacturing systems using combinations of additive manufacturing and laser technology for fundamental research in biomaterials processing. His work has applications in biotechnology manufacturing with specific interests in customized 3D tissue engineering, biomedical devices, and human-machine interfaces. His cutting edge research should enable us to be one of the first ISE departments in the world working in his research area. We are pleased to announce that he will be teaching a new graduate course on Additive Biomanufacturing in Fall 2016.

Dr. Alejandro Salado joined the ISE faculty as an Assistant Professor in Fall 2015 to enhance our work in the field of Systems Engineering. He has an extensive educational background, starting with BSc/MSc degrees in Electrical and Electronics Engineering from the Polytechnic University of Valencia. He earned two more MSc degrees from the Polytechnic University of Catalonia and an MEng degree at the esteemed Technical University of Delft in The Netherlands. He then earned a PhD in Systems Engineering from the Stevens Institute of Technology. He was a faculty member of the Vestfold Buskerud University in Norway before joining VT.

In terms of research, Dr. Salado is interested in the further development of the scientific foundations of Systems Engineering and the translation of these foundations into practice. Experience gained during his 10+ years of working in industry should help him to achieve his research goals. His extensive work background has helped him to develop expertise in requirements engineering, system architecture and design, qualification, verification and validation, and other forms of specialty engineering. He is teaching a required course in Systems Engineering for our graduate program and our undergraduate ISE 4304 Global Issues in Industrial Management course.



Dr. Blake Johnston



Dr. Alejandro Salado

Meet Our New Faculty (cont'd)

Dr. Niyousha Hosseinichimeh joined the ISE faculty as an Assistant Professor in January 2016. She holds a BS in Mechanical Engineering from Sharif University of Technology in Iran, and a Master's degree as well as a PhD in Public Administration and Policy from SUNY-Albany. During the past two years, she has served as a Postdoctoral Associate in our department, working under the direction of Dr. Hazhir Rahmandad.

Dr. Hosseinichimeh's project with Dr. Rahmandad focused on a systems approach to the dynamic modeling of a major human health problem: adult depression. In this work, she developed data-informed models which work as platforms for simulation-based policy analysis of major depressive disorders. Most of her employment history and many of her current publications are in the field of healthcare, but she has also contributed to projects related to the potential privatization of public assets. Her most recent publications are in the field of system dynamics.

Dr. Divya Srinivasan also started working as an Assistant Professor in the ISE department in January 2016. Dr. Srinivasan brings expertise in human factors engineering and ergonomics, and more specifically she has recently been working on various aspects of human health and performance in occupational settings with a goal to help in designing more sustainable jobs. She is teaching ISE 5614: Human Physical Capabilities this spring semester.

Dr. Srinivasan holds a BSEE Degree from Anna University in Chennai, India and has two MS Degrees from the University of Michigan; one in Industrial Engineering and one in Biomedical Engineering. She also has a PhD in Biomedical Engineering from the University of Michigan. Prior to coming to VT, she was an EU Marie-Curie Postdoctoral Fellow in the Center for Musculoskeletal Research at the University of Gävle, in Sweden.



**Dr. Niyousha
Hosseinichimeh**



**Dr. Divya
Srinivasan**

Meet Our New Advisory Board Members

Ms. Kristen Baldwin is currently serving as the Principal Deputy to the Deputy Assistant Secretary of Defense for Systems Engineering. She is responsible for engineering and technical workforce, policy, and systems engineering planning for major defense acquisition programs. It is also her responsibility to oversee the Department of Defense strategy for Trusted Systems Design. Ms. Baldwin also leads modeling, simulation, system security engineering, program protection, and systems engineering research initiatives through the Senior Executive Service. She holds a Bachelor's degree in Mechanical Engineering from Virginia Tech, as well as a Master's degree in Systems Management from the Florida Institute of Technology.

Mr. David Long is the founder and president of Vitech Corporation, where he developed and commercialized CORE®, a leading systems engineering software environment used worldwide. He served as President of the International Council on Systems Engineering (INCOSE), which is a 10,000 member professional organization focused on the advancement of the Systems Engineering discipline. He holds a Bachelor's degree in Engineering Science and Mechanics, and a Master's degree in Systems Engineering, both from Virginia Tech.

Mr. Donald Meier is a consultant with Deloitte Consulting's Technology Practice. He currently resides in Washington D.C., working with federal clients in this area. His experience includes large-scale system integration within Federal healthcare, as well as process re-engineering and financial systems design for the U.S. Navy. He holds a B.S. in Industrial and Systems Engineering from Virginia Tech.

Mr. John Montague graduated from Virginia Tech in 1967 with a degree in Industrial Engineering, and went on to earn his MBA from UVA's Darden School of Business in 1970. His work experience began with Continental Can in New Orleans, starting as a Regional Plant Engineer. He later became Assistant to the Regional Manager of the corrugated container division in Atlanta, GA. After moving to Richmond, VA, he became comptroller of a small homebuilding company and then started his own homebuilding company. Mr. Montague also has 12 years of service on the Board of the VA Home for Boys and Girls, as well as service on the Board of the W.E. Skelton 4-H Center.



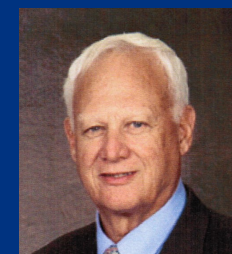
Kristen J. Baldwin



David A. Long

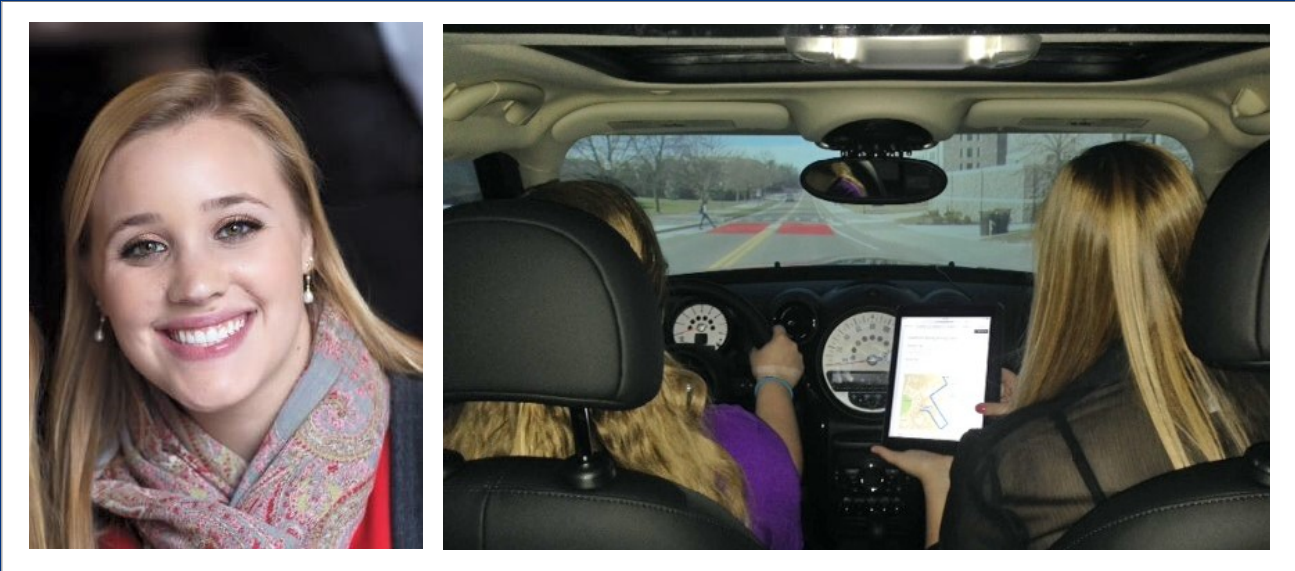


Donald A. Meier



John W. Montague Jr.

Spotlight On Undergraduate Research



Behavioral Analysis in Multitasking Environments

By Melanie Greene

After taking a Human Factors course with Dr. Joseph Gabbard during Fall Semester of my Junior year, I became incredibly interested in the ergonomic/human factors side of Industrial and Systems Engineering. My interest led me to approach Dr. Joseph Gabbard regarding an opportunity to conduct undergraduate research during the 2015 spring semester.

I worked with PhD candidate Martha (Missie) Smith with her research on eye-tracking within a driving simulator in Dr. Gabbard's lab. Our first task was to assemble the software and hardware that had been purchased for this project. We worked with an SMI Eye-Tracker, which contained a few several interesting components. First, it came with a set of physical glasses, which the participant wears during driving simulation. These glasses track the minute fixations and saccades of the eye. They were connected by USB to a laptop, which contains software that collects the data taken from the glasses. A mobile phone was also included so that the participant could connect the glasses to the phone instead of the laptop, for better access. The second software we used was called Noldus, which allowed us to import the data from the SMI Eye-Tracker, and analyze it. The goal of this was to help see what distracts a driver based on the eyes movements. Additional cameras were placed in various areas of the car to capture all movements. All of this information was analyzed in Noldus and allowed us to gain a deeper understanding of the way drivers act while multitasking.

Currently, we are still working on assembling the software and hardware components and identifying the various uses for it. Once this is completed, we plan to run an actual experiment so that we are able to analyze real data. Working with Dr. Gabbard and Missie Smith I am completing literature reviews, getting hands-on time with very powerful and complex software, and making it possible for me to gain an incredible amount of research experience.

IISE

2015—2016 Year In Review

Operations

2015 membership - 146 Students

2016 membership - 171 Students

VTIIE has launched a new website at vtiie.com. The new form of our website will allow us to keep in better contact with our members, and anyone who wants to find our information.

Organization Name Change



INSTITUTE OF
**INDUSTRIAL
& SYSTEMS**
ENGINEERS

As of May 2016, IIE is now the Institute of Industrial & Systems Engineers!

Student Affairs



This year's Regional Conference was held at NC A&T State. VT IISE had 34 members in attendance and Farouk Daher won third place in the Technical Paper Competition.

We will be taking 12 undergraduate students to the 2016 IISE Annual Conference in Anaheim, California!

Professional Development

In the fall before Engineering Expo IISE hosted the first annual Corporate Networking Reception!

CORPORATE NETWORKING RECEPTION

Hosted by Virginia Tech Institute of Industrial Engineers



We had 11 companies recruiting our ISE students and 112 students in attendance!

Torgersen Leadership Summit

Hosted by Virginia Tech Institute of Industrial Engineers

We also hosted the First Annual Torgersen Leadership Summit!

We had 105 students registered to attend from all majors in the College of Engineering.

This one day leadership immersion seminar had six guest speakers including President Timothy Sands and break out sessions to develop professional and personal leadership skills.

Certifications

Both a Six Sigma and Lean Green Belt Certification courses were held this year!

Six Sigma Green Belt (Fall)

131 Certifications

Lean Green Belt (Spring)

37 Certifications

International Relations

We sent two students to the ESTIEM Council Meeting in Vienna, Austria this past Fall; and, we are in the process of assembling a student team to compete in the TIMES Case Competition in Spring 2017.

If you have any questions or want to participate in any of these events, please contact us at:

VirginiaTechIIE@gmail.com

For Professional Development Events or Company Sponsorship contact us at:
Corporate.vtiie@gmail.com

Our 2015-16 ISE Ambassadors!



ISE Ambassadors in front of the Torgersen Bridge

Caroline Abbott
Pitts Austin
David Bohn
Dylan Burnette
Hunter Buyalos
Kyle Cacioppo
Meg Carper
Jenna Craig
Farouk Daher
Devin Fitts
Kyle Gentle

Edward Gerow
Melanie Greene
Rachael Hensen
Zeto Judith
Mason Keen
Samantha Leong
Christopher Macaulay
Patrick Moody
Kristen Pastor
Alejandro Perilla
John Redlinger

Kaitlin Roelofs
Aaron Schulz
Jack Sistare
Annabel St. Louis
Kane Valerie
Kyra Vila
Moriah Viviano
Julie Wright
Hannah Zauner

Alpha Pi Mu

Congratulations to inductees to the Industrial Engineering Honor Society, Alpha Pi Mu.

Fall 2015 Initiates

Abigail Armstrong	Kristine Cantin	Patrick Mittereder	Jeremy Stable
Kiran Bagalkotkar	Max Guzinski	Leah Rosso	Holly Vasquez
Mary Buckingham	Grant Glowacki	Lauren Schwartz	Brandi Wells
Jake Burger	Danielle Knust	Mohannad Shaheen	
Dylan Burnette	Daniel Lozano	Ben Shtuhl	

Spring 2016 Initiates

Madeline Anderson	Nicolas Davis	Rebecca Gullickson	Annabel St Louis
Connor Baker	Haley DeVoe	Michelle Musco	Andrew Thomas
Babak Barazandeh	Carolyn Elliott	Kanleyanee Prael-Arpor	Brian Umberger
Maria Barrell	Colleen Ferlotti	Neel Ronvelia	Wenjing Wang
Sophie Bromberger	Devin Fitts	Liza Salhoub	Ryan Withers
Brian Charatan	Hannah Good	Pritam Solanki	



Current and new members at the 2016 spring initiation

Congratulations to **Meg Carper** for receiving the Paul Givens Scholarship from Alpha Pi Mu, one of only four awarded nationally.

Congratulations to Alpha Pi Mu for receiving *First Place* in the National Chapter Competition for 2014-2015.

ISE Excellence Fund Contributors

Our vision in ISE 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 continue to improve the quality of academic programs. To aid us in sustaining excellence, we commissioned a sculpture which is on the wall in Durham Hall.

The names of contributors at various levels appear on plaques within the sculpture. Names of all contributors are shown below, with our 2015-16 contributors in **bold**.

For more information, visit: <http://www.ise.vt.edu/About/support/excellence-fund.html>.

In 2015, we used the Excellence Fund to:

- Send 25 students to the ISE international annual conference in Nashville, TN in May 2015;
- Send 34 students to the regional ISE conference at NCA&T State University in February 2016;
- Charter buses to take all sophomores in the required Intro to ISE course on one of 4 facility tours;
- Support student organizations including the ISE Ambassadors.

A Special Thanks To Our Excellence Fund Contributors

Adams, Michael & Brenda

Adkins, Roger & Mary

Arnold, Dick & Sally

Arnold, Joseph

Askew, Tom

Bailey, Fred

Barbee, Doug & Chris

Birk, Lydia

Blanchard, Ben & Dot

Bothwell, Maria

Brannan, Rory & Jacqueline

Burzacchi, Sebastian & Kelly

Canada, John & Wanda

Casali, John

Chachra, Vinod & Ranjana

Clarke, Jerry & Joan

Cullinane, Thomas & Katherine

Davis, Darrell & Michelle

Deisenroth, Mike & Marilia

Dick, Dan & Lynn

Doughty, Gary & Eleanor

Easterly, Mary Chris

Farls, Chris and Teresa

Finch, Robert

Fitzgerald, William & Vicki

Forbes, Charles & Patricia

Fulton, Steven

Fultz, Rodney

Gillespie, Megan Story

Gingrich, Pete

Grado, John & Corrie

Guynn, Jack

Harmon, Ken

Hepler, Clint & Nita

Horr, Jacob

Jones, John & Lillian

Kerrick, Stanley

Klein, Dave & Christine

Kusterer, Joseph

Laman, Denise

Leclair, Kevin & Jessica Oi

Leslie, Charles

Leung, Yiu

Lobik, Spencer

Marchese, William and Kelly

Mayo, Trevor

McClelland, Robert & Mary

McKnight, John

Meier, Donald

Memmer, Peter

Meyers, Jared

Miller, Matthew & Holly

Monroe, Ellis

Montague, John & Jean

Montgomery, Doug & Cheryl

Mosby, Chris & Ann

Muscatello, Mary & Andrea

Norris, Jack

O'Brien, Charley & Betsey

Overby, Tom & Carolyn

Pannell, Rob

Patel, Morgan Blackwood

Polk, John & Marty

Porterfield, Robert & Nancy

Powers, Styrn

Reynolds III, Edward J.

Ring, Bill & Sara

Rockwell, Chris & Sharon

Rusak, Jennifer & Mark

Sage, Don & Mary Eta

Sauer, Nancy & Ron

Smith, Jaime & Erika

Smith, Michael & Elizabeth

Snelling, Steve

Spencer, William

Spitzer, Kirk & Leila

Stein, Gary

Stein, Michael

Stewart, Mona & Kevin

Sturek, David

Szabos, Brian & Kursten

Taylor, Bob & Connie

Taylor, Don & Jo Ellen

Torgersen, Paul & Dot

Van Aken, Steve & Eileen

van Luyn, Dutch & Trudy

Van Valkenburg, Sandra & John

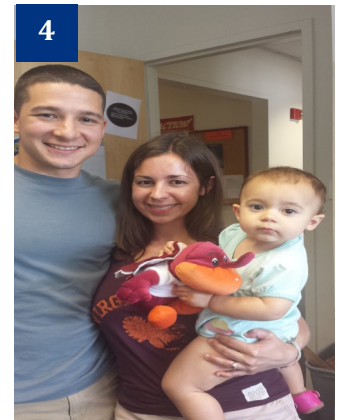
Waldmiller, Anne

West, Reginald

Wood, Linda Stephenson

Worley, Hal & Thornie

Look Who Stopped By!



1. **Kari Atkins (Beasley)**, 2009, US Postal Service

2. **Todd Banks**, 2013, Wake Forest Medical Center

3. **Erica Patel**, 2013, MSA North America

4. **Alexia Ioannou (Pappas)**, 2011

5. **Dana Krell**, 2014

6. **James Malone**, 2014 (Left), **Dan Angelelli**, 2014 (Right), Deloitte Federal

7. **Christopher and Matthew Chegin**, 2013, Deloitte

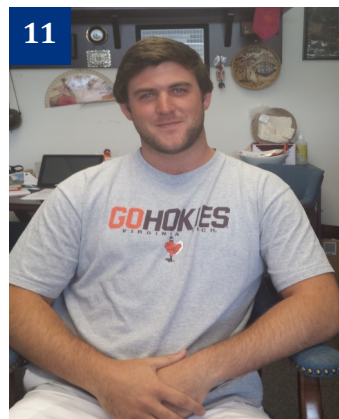
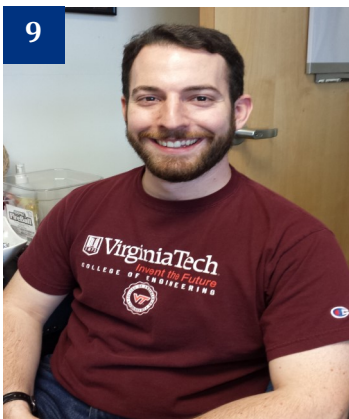
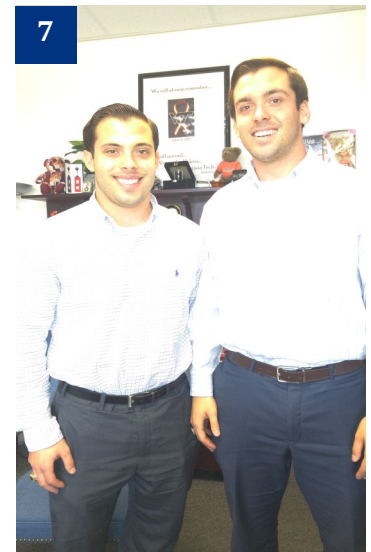
8. **John and Kelly (White-HNFE) Freno**, 2008

9. **Ethan Reed**, 2011

10. **Alejandra Begazo Quiroga**, 2014

11. **Corey Sandras**, 2013, Accenture

12. **Israel Groves**, 2015, Deloitte



2015 Senior Design Award Winners

Project Management and Leadership



Team: **Formula SAE**
Project Title: ***Ergonomics and Project Management in VT Motorsports: Formula SAE***
Team Members: **Patrick Ciboldi, Ian Eisele, Eric Graff, Vincent Sorrento, Matthew Tucker**
Advisor: **Dr. Mike Agnew**

Application of ISE Methods and/or Tools



Team: **Interfaith Food Pantry**
Project Title: ***Applying ISE Techniques to Help Feed the Blacksburg/McCoy Community***
Team Members: **Emily Miluski, Taylor Rains, Jillian Robbins, Alex Ross, Matt Sullivan**
Advisor: **Dr. Brian Kleiner**

Innovation and Creativity



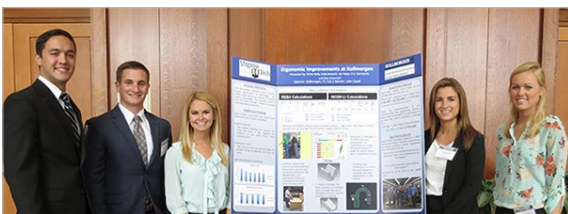
Team: **UPS**
Project Title: ***Reserve Pilot Scheduling***
Team Members: **Israel Groves, Sejeong Kim, Jenna Reed, Patrick Stevens, Matthew Tilson**
Advisor: **Dr. Natalie Cherbaka**

Performance Impact



Team: **General Electric**
Project Title: ***Mark VIe Dedicated Module Line***
Team Members: **Haley Baldwin, Tim Dumminger, Casey Glinowiecki, Drew McMahon, Shellie Williams**
Advisor: **Dr. Joe Meredith**

Communication/Presentation Skills



Team: **Kollmorgen**
Project Title: ***Ergonomic Improvements in the PMDC Department***
Team Members: **Kelly Bennett, R.K. Durnwirth, Sam Greenlief, Britta Nally, Jennifer Yelpe**
Advisor: **Dr. John Casali**

We look forward to announcing our 2016 winners very soon!

Alumni Spotlights: Dan Surber & Lucas Still



Dan Surber is a 2010 ISE graduate. Much has changed for him since graduation – he is currently a Sen-

ior Consultant for a small technology commercial consulting firm, ADI Strategies, based out of San Francisco. He started working for Deloitte Consulting in the DC area which he says was a fantastic place to launch his career. One of his long-term goals is to start his own consulting practice, but knowing that this is still years away he is primarily focused on enjoying his current work and continually challenging himself in all his endeavors.

Dan had very positive words to say about the ISE Department and how it prepared him for where he is today. He shared how the Department taught him to think logically through complex situations and solve difficult problems.

The various projects set a fantastic foundation for effectively and efficiently working in teams. He went on to share how students in the ISE Department have an excellent advantage over other programs because they are not only taught how to solve problems, but also how to build productive teams, maintain client relationships, and create a positive work environment.

One final thing that Dan shared was to “remember to always continue challenging yourself. If you ever feel you are getting to the point of being complacent and bored, identify new opportunities; and if none present themselves, create them.”



Lucas Still is a 2010 graduate with a B.S. in Industrial & Systems Engineering and a Minor in Business. A New River Valley local, Lucas currently works at Virginia Tech’s Corporate Research Center. Much has changed in his life since he graduated – he has married, had two children, and he has developed a dynamic career. Lucas

works as a software engineering consultant as well as an entrepreneur. Combining his enthusiasm for software development and entrepreneurship, he founded two startup companies. His first start-up focused on Artificial Intelligence and his current business focuses on developing electronic restaurant tablet menus. These tablet menu devices can be seen in many locations around Blacksburg including: Bull & Bones, 622 North, Sharkey’s and Cabo Fish Taco. Lucas’ plan for the future is to pursue additional startups and to grow his skills in software engineering.

When asked to reflect on the part that Virginia Tech’s ISE Department played in preparing him for his current career, Lucas described the ability to employ systems thinking. In a career that revolves around software engineering and business development, Lucas has found a niche combining his ability to program with the data management and analysis tools he learned in ISE.

The final aspect of the curriculum that he highlighted was Senior Design. As a year-long project, Senior Design allows undergraduate students to learn to work in a professional setting with a company facing a real problem. This experience teaches many important skills necessary for any career including the ability to interface with a client, the development of communication skills, and the skill to effectively identify optimal solutions to problems.

Lucas finished his interview with this advice to students, “As cliché as it sounds, absolutely do not be afraid of failure. I have learned far more from my failures than from my successes. Do not be afraid to take risks, especially while you are young. After all, what’s the worst that could happen?”

Check it Out

Linkedin: <https://www.linkedin.com/grp/home?gid=1784853>

Instagram: ISE_INSTA

Twitter: @ISE_VT

