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Fairfield  
UNIVERSITY

*School of Engineering*

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## Message from the Dean

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Friends,

It was another banner year for the School of Engineering (SOE) at Fairfield University. We started the Fall of 2015 with about 500 total students split evenly between undergraduate and graduate students. We plan to graduate over 125 MS students and 40 BS students this academic year.

Our new 5-year pathway for a BS in any of our engineering programs followed by an MS in Management of Technology (MOT) is all set to take off in the fall. About 25 percent of our graduate students are in the MOT program and are in high demand upon graduation.

We are pleased and excited to welcome Servo-Robot Group as the Fairfield SOE Engineer-in-Residence for 2016 and 2017. Engineers from Servo-Robot Group will be conducting research in the SOE Applied Research Laboratory along with Dr. Doug Lyon and students. We are especially pleased to welcome Jean-Paul Boillot, CEO of Servo-Robot, to our SOE Advisory Board.

The SOE Advisory Board reconfigured itself this year to be more strategic and philanthropic in its support of the SOE. Members provided financial support for initiatives ranging from Engineers Without Borders (EWB), Society of Automotive Engineers (SAE) Baja Buggy Team and scholarships for female engineering leaders.

The Fairfield University EWB student chapter successfully acquired a Global Grant through collaboration with

Fairfield Rotary Club, Orange Rotary Club, Aquarion Water Systems, La Paz Rotary Club, the Rotary District and Rotary International to build sand filters in Carmen Pampa, Bolivia this summer in collaboration with South Dakota State University (SDSU) EWB student chapter. I am especially pleased and proud of the work both student groups did in developing the detailed construction plans for this project. The Fairfield students also received operational support through ASML and the AMB Foundation. We plan for 12 Fairfield students to travel to Bolivia this summer to work on construction and education activities with the SDSU students.

As I close this message to all of you, I encourage you to read the news articles enclosed to catch up on our activities the past year. We are so thankful to have been recognized nationally by Time's *Money Magazine* as a great school for good students to get their BS in Engineering. We expect many great adventures and accomplishments with our students as we continue to grow and mature.

Sincerely,



Dr. Bruce W. Berdanier, PE, LS, FASCE  
Dean of Engineering



## SOE and SERVO-ROBOT Launch Engineer-in-Residence Program

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The School of Engineering announced a new working partnership with SERVO-ROBOT, a global industry leader in robotic automated manufacturing. Through a two-year agreement, SERVO-ROBOT will provide funding in the amount of \$180K to support the launch of the new Engineer-in-Residence Program (EIR) and initiate the first project in the Applied Research Laboratory (ARL). Together, both partners will engage in research to advance the next generation of intelligent robot design.

Dr. Doug Lyon, the director of the first research project with SERVO-ROBOT, said, “We are very excited to begin this partnership with Servo-Robot. The research experience we give the students today will help them to become the technical leaders of tomorrow.”

The EIR Program was created to develop academic and commercial relationships that lead to advancing applied research at the School of Engineering while simultaneously supporting the partner company’s mission to advance research and development.

SERVO-ROBOT was founded in 1983 and is the largest manufacturer of dedicated vision and sensing systems for intelligent welding automation and other industrial robotic processes. It is the recognized leader in the performance improvement of joining processes such as laser seam tracking, laser seam searching, and weld inspection through 3-D laser vision technology.

Initially, two SERVO-ROBOT employees will conduct applied research in the School’s newly opened Applied Research Laboratory, working closely with Dr. Lyon as well as graduate and undergraduate engineering students. Research will focus on artificial intelligence for industrial robotic systems.

Jean-Paul Boillot, chairman and CEO of SERVO-ROBOT, said that he believes this new venture will encourage innovation in both partners. “We expect that Dr. Lyon will challenge us to think in new ways and that this partnership will allow us to exchange ideas and benefit from each other,” he said. “We are a company filled with established experts as well as rising, young professionals, but it is always good for

companies to engage with experts outside their own umbrella. Our goal is to always create new products and new ideas that produce concrete results for our customers.”



Dr. Doug Lyon, professor of computer engineering; Jean-Paul Boillot, Chairman and CEO of SERVO-ROBOT; and Kevin Lawlor, executive vice president, Fairfield University, sign agreement to launch Engineer in Residence Program.

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**The School of Engineering welcomes  
Jean-Paul Boillot, chairman  
and CEO of SERVO-ROBOT,  
as its newest Advisory Board Member**

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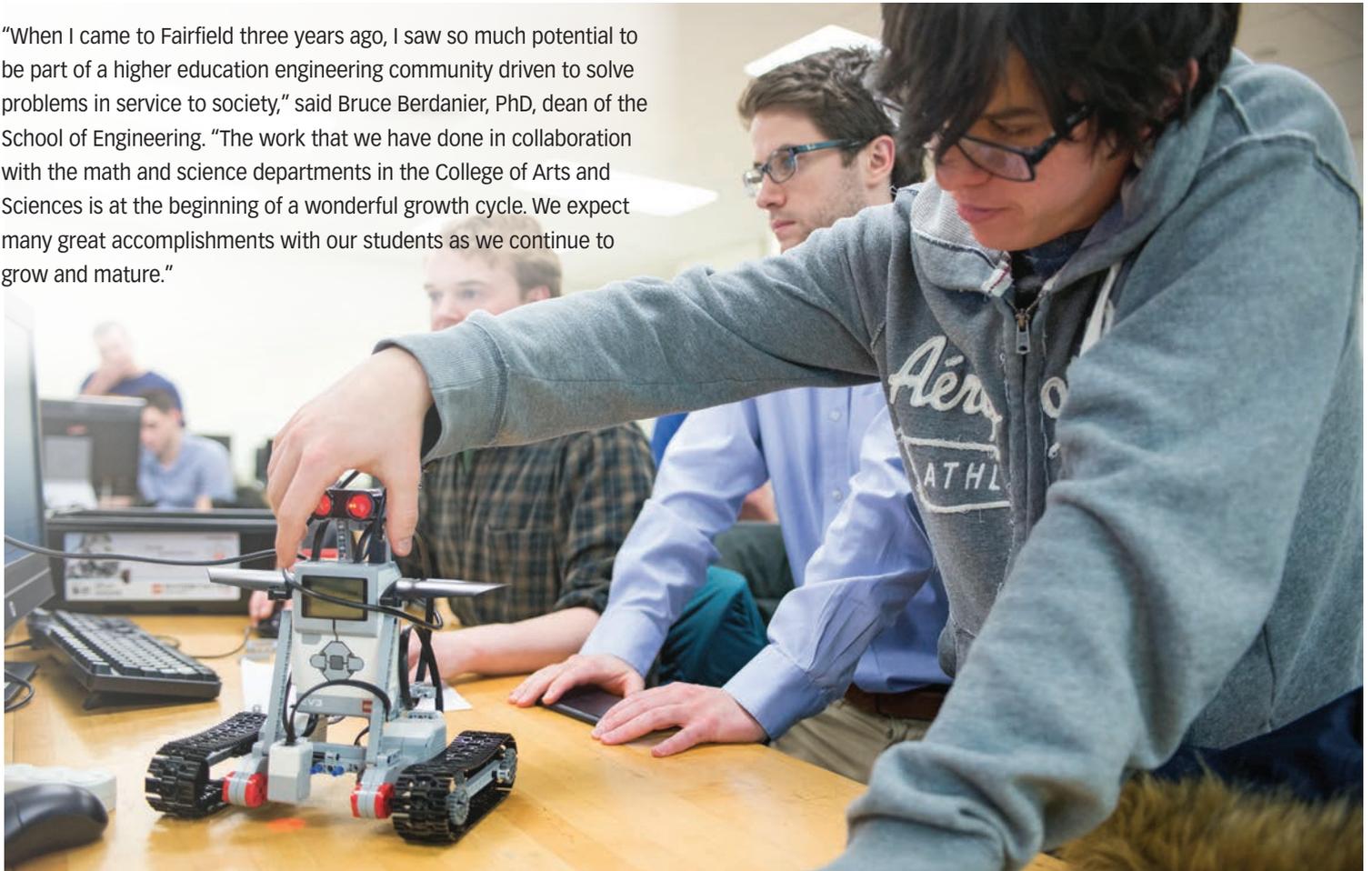
## Fairfield Among Best in the Country for STEM Education

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Fairfield University's science and engineering programs have been named sixth among the "25 Great Colleges for Good Science Students" by *TIME's Money Magazine*.

The ranking included Fairfield as one of the top schools in the country who's early-career alumni working in science and technology earn \$50,000 a year or more. The salary mention reinforces a 2015 ranking from SmartAsset, which named Fairfield the top college and university in Connecticut when it came to the average starting salary of graduates.

"When I came to Fairfield three years ago, I saw so much potential to be part of a higher education engineering community driven to solve problems in service to society," said Bruce Berdanier, PhD, dean of the School of Engineering. "The work that we have done in collaboration with the math and science departments in the College of Arts and Sciences is at the beginning of a wonderful growth cycle. We expect many great accomplishments with our students as we continue to grow and mature."



## New Engineering Faculty

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**DR. DJEDJIGA BELFADEL** is an assistant professor of electrical and computer engineering. She received her PhD in Electrical Engineering at the University of Connecticut. Before joining the Estimation and Signal Processing (ESP) Laboratory at UCONN she worked as an electrical engineer (embedded

systems engineer) from 2009 to 2011, at Evax Systems Inc. in Branford, Connecticut. Her areas of expertise include:

- Design and Development of Multisensor Multi-target Trackers
- Sensor Fusion Algorithms
- Hardware and Firmware Development of Embedded Systems
- Assembly and C programming Languages
- Signal and Image Processing
- Machine Learning and Classification Algorithms



**DR. JAMIE MACBETH** joined the School of Engineering as an assistant professor of computer science in the fall of 2015. For his research, he builds computer systems for in-depth understanding of natural language, and he designs systems that interact with humans to collect and organize the structured knowledge of social concepts needed for language understanding.

His other research interests include cyberbullying prevention and human-subjects studies of computer programming. Previously, he was a postdoctoral fellow at Clemson University and a postdoctoral research associate with CSAIL at MIT. He received his PhD in computer science from UCLA, an MS in physics from Stanford University and a BS in mathematical physics from Brown University. He is a member of the Association for Computing Machinery, the Association for the Advancement of Artificial Intelligence and the Institute of Electrical and Electronics Engineers.

### Staff updates:

Long-time Associate Dean **Harry (Bill) Taylor** retired in January, and we were pleased to welcome **Dr. Ryan Munden** as our new Associate Dean. Ryan has been a faculty member since 2008 and Assistant Dean since 2014.

**Ms. Marcia Arambulo Rodriguez** joined us as our new Assistant Dean. Marcia is a 2014 graduate

of our MSMOT program after earning her BS in Electrical Engineering from Universidad Mayor de San Andres, La Paz, Bolivia.

We heartily welcome both Ryan and Marcia for their expertise with engineering students and the new energy they bring to our community.

## SOE Hosts Computing Education Academy

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High school students spent one Saturday building DNA models at the School of Engineering's Computing Education Academy (CEA).

DNA structures may seem like it's more related to biology rather than computer science and engineering, but Dr. Wook-Sung Yoo, associate professor of software engineering and director of the CEA, said that in addition to exposing students to key computing concepts and basic computer programming, CEA also tackles projects that demonstrate how computer technology can be used to solve problems in fields such as bioinformatics and forensics.

The Saturday morning program for high school students presents those with a love of all things tech-related with fun and engaging hands-on activities on topics including the history and future of computing, algorithm design, app development and web projects.

Dr. Bruce Berdanier, dean of the School of Engineering, said, "This program is important to our School's outreach to local area schools as a way to encourage students to consider a career in engineering and to help establish a K-12 pipeline for Fairfield University. It's so vital to get young people in the U.S interested in these areas, because they're going to grow up to be our next generation of scientists, engineers and innovators."

The need to develop scientists and engineers in the nation is arguably now more important than ever to stay competitive in a global society. But, Dr. Rusu, a co-director of CEA, said not all students are given opportunities to learn about it at a young age. "Math and biology courses are required for high school students, but in most cases, computer classes are just an option, and that subject is so important to learn today."

Funding from various organizations make CEA possible, including ASML, United Illuminating Foundation, People's United Community Foundation and Connecticut Space Grant Consortium

Spoorthi Raghunandan Pattaparla and Sameer Shaik, both software engineering students, assisted the faculty with CEA this year.

Shaik said that the program lets students go further than just scratching the surface of computer technology. "Students today already know so much about using technology at an early age, like how to play games, go on Facebook, etc., but there's so much more than that. This is a very good program and it's fun for them!"



## Students Grow Professionally Through Internships and Study Abroad



**RAVINA HINGORANI '17**, an electrical engineering major with minors in mathematics and physics, heightened her college experience with an internship at United Illuminating (UI) and studying abroad in Aix-en-Provence, France.

### Interning at UI:

**Q.** *What was the most interesting thing about interning at UI?*

**A.** My internship at United Illuminating last summer was fantastic. I learned many things about the power industry, and their internship program was very well thought out.

I was put in the project management department for transmission, which means I was given a variety of tasks. One of my favorite tasks was scheduling. A large part of the project management (and life) is the ability to manage your time and resources in order to meet a certain goal. I learned how to use Primavera (a professional project management system), and I was given the task of scheduling the timeline of a major project that began this year. Finishing that task gave me a wonderful sense of accomplishment.

**Q.** *What was the most important thing you learned by working at a professional business?*

### Project management in Nicaragua:

Associate Dean Ryan Munden is developing an engineer-focused study abroad program in Nicaragua.

Hosted at the Universidad Centroamericana, students will take a course in engineering project management that will be learned through coursework and hands-on tasks performed in the field at Santa Maura. Through the course, students will be introduced to a variety of technical and scientific knowledge relevant to the area where the work is being done, particularly in renewable energy and water resources.

**A.** Engineers don't often learn in class how to give presentations. During the course of my internship, I had to give two presentations in a professional environment with the complete concentration of about twenty adults. It was terrifying. But at the same time, my confidence grew. It isn't often that engineers are given an opportunity like this, and it's even more rare to give a presentation to a group of people who want you to succeed, and whose sole purpose is to want to help you.

#### **Studying abroad in France:**

**Q.** *Why did you want to study abroad in France?*

**A.** Studying abroad was always something I wanted to do. I know that with Engineering, studying abroad is difficult to accomplish, but I was determined to somehow make it work. Travelling is a love of mine and I really felt like this was an adventure I had to experience while I am still young.



The first criteria I had for my study abroad experience was that I really wanted to be submerged in a completely different culture. There were options to go to England and Australia, but at the end of the day, they are both places that speak English and that have cultures very similar to American culture. I did want to go to somewhere in Europe because within Europe there is the option of traveling within the Schengen area. Also, I wanted a small town I could immerse into completely. Through a process of elimination, I ended up picking Aix-En-Provence in France. I had taken French throughout high school, so it was the most natural place to pick. And I am so glad I did.

**Q.** *What has been your best experience while studying abroad?*

**A.** The act of walking has been immensely satisfying. Yesterday I walked 15 miles, making my way through Barcelona, and the weekend before I walked the same amount in Amsterdam. The best thing about walking is that in between the tourist attractions, you actually get to see the "real" city. You see how the people actually live. You smile and wave to the lady who makes crepes on your way to school, and you see a man put four locks on his bicycle in Amsterdam (881,000 bicycles in the city—that's more bicycles than citizens) and you befriend a random sheep that follows you for several blocks through the streets of Cassis. So yes, my best experience while abroad has simply been discovering and exploring places by foot.

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## **Hire an intern**

Post your internship opportunities on Stags4Hire by contacting Susanne Quinlivan, Associate Director of Career Planning at [squinlivan@fairfield.edu](mailto:squinlivan@fairfield.edu) Marcia Arambulo, Assistant Dean, [marcia.arambulo@fairfield.edu](mailto:marcia.arambulo@fairfield.edu).



## Faculty in the News

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### BRUCE BERDANIER

#### Publications:

Ziadat, A.H., Jiries, A. G., Berdanier, B.W., and Batarseh, M. I., (2015), "Bio-monitoring of Heavy Metals at the Vicinity of Copper Mining Site in Erdenet, Mongolia," *Journal of Applied Sciences*, 2015.

### UMA BALAJI

#### Awards and honors earned:

\$8,000 NASA Space Grant, Co-PI, for curriculum development.

#### Publications:

Uma Balaji and Douglas Lyon, "Active Learning Approach for Enhanced Student Learning in Electromagnetic Compatibility Course" accepted for presentation at ASEE Northeast Conference, April 2016, Kingston, Rhode Island.

### DJEDJIGA BELFADEL

#### Publications, exhibitions and performances:

Belfadel, D., "Bias Estimation for Moving Optical Sensor Measurements with Targets of Opportunity," in ISIF *Journal of Advances in Information Fusion*, Dec., 2015.



### SHAHROKH ETEMAD

#### Awards and honors earned:

Named the Inaugural Bannow-Larson Professor of Manufacturing at Fairfield University.

#### Publications:

Co-authored a chapter on "Catalytic Combustion of Hydrogen for Heat Production" and published in *Compendium of Hydrogen Energy Hydrogen Energy Conversion*. Edited by F. Barbir, A. Basile and T. N. Veziroglu, Woodhead Publishing Series in Energy.

#### Presentations:

Chaired the Emission Control Systems technical paper review process for the American Society of Mechanical Engineering, October 2015, Internal Combustion Engine Division conference.

### DOUG LYON

#### Awards and honors earned:

\$8,000 NASA Space Grant, Co-PI, for curriculum development.

\$180,000 for the Fairfield University SOE, Engineer in Residence, Servo-Robot Corporation.



### JAMIE MACBETH

#### Publications:

David Piorkowski, Scott Fleming, Christopher Scaffidi, Margaret M. Burnett, Irwin Kwan, Austin Henley, Jamie Macbeth, Charles Hill, Amber Horvath, "To Fix or to Learn? How Production Bias Affects Developers' Information Foraging during Debugging," International Conference on Software Maintenance and Evolution (ICSME), Bremen, Germany, September 29 - October 1, 2015.

Desmond U. Patton, Ninive Sanchez, Dale Fitch, Jamie Macbeth, Patrick Leonard, "'I Know God's Got a Day 4 Me:' Violence, Trauma and Coping Among Gang-Involved Twitter Users," *Social Science Computer Review*, to appear.

### AMALIA RUSU

#### Awards and honors earned:

Faculty Research Sabbatical, "Metaphor-based serious computer games," Spring 2017.

#### Publications:

"Introducing Gaming Tools for Computing Education in STEM Related Curricula," Proceedings of 45th Annual ASEE/IEEE Frontiers in Education Conference (FIE 2015), October 2015.

#### Presentations:

Introducing Gaming Tools for Computing Education in STEM Related Curricula, presented at the 45th Annual ASEE/IEEE Frontiers in Education Conference, October 2015, El Paso.



## SRIHARSHA SUNDARRAM

### Awards and honors earned:

Recipient of Summer 2015 Pedagogical Innovation Mini-Grant awarded by Center for Academic Excellence, Fairfield University

Senior design team comprising Ryan Brown, Noel Laflamme, Gabriel Schrier and Michael Valvano receive Lawrence Scholarship award for \$1927 from Fairfield University and award of \$1000 from CT Space Grant Consortium for their project "Tabletop Micro Patterning Device".

### Publications:

S. Sundarram, Y.H. Kim and W. Li, "Preparation and Characterization of Poly(etherimide) Nanocomposites and Nanocomposites Foams," in Manufacturing of Nanocomposites with Engineering Plastics, Woodhead Publishing, Chapter 4, July 2015.



### Presentations:

Presented ME 311 Machine Design Project "Design and Fabrication of Car using K'Nex Kits" at "The 21st Century Teacher: Exploring Innovative Teaching at Fairfield University."

## WOOK-SUNG YOO

### Awards and honors earned:

Travel Grant (\$1,000) from Connecticut Space Grant College Consortium, 2015.

### Publications:

"Online Group Embedded Figures Test and Student's Success in Online Course," Proceeding of The Future of Education, Edition 5, 2015.



Forty-five undergraduate and graduate students attended the spring SOE Career Alumni Night. Nine alumni from ASML, CFS Engineering, Edwards & Zuck, Enthone, Kohler Ronan, Lex Products, NASDAQ, PepsiCo and Sikorsky shared their experience of transitioning from Fairfield University to the industry. They emphasized the importance

of an internship and identified some of the technical courses that were beneficial at their jobs. A post networking session provided a closer interaction among students and alumni. The program was organized by the Career Planning Center (Sue Quinlivan) and School of Engineering (Dr. Etemad).



# Engineering Students Build Humanitarian Website for JUHAN Network

With the support of a recent grant, School of Engineering graduate students made it possible for students and faculty at universities across the globe to gain access to a variety of useful materials aiding in quick and effective humanitarian action.

The new, external website, JUHAN Online, is named for the Jesuit Universities Humanitarian Action Network, which was first founded in 2008 as a collaboration between Fairfield, Georgetown and Fordham Universities.

Marcia Arambulo Rodriguez, a recent graduate of the School of Engineering's Management of Technology master's program, took on the project as part of her capstone class in the fall semester of 2014.

After talking to the JUHAN leadership about their needs, Rodriguez assembled a team to build the website, which consisted of three students from the management of technology program and two students from the software engineering program. The website was successfully launched in November. Venkata Siddhartha Penugonda, a current graduate student pursuing a degree in software engineering and graduate assistant for JUHAN, continued on with managing the website this semester.

Funding for the website was made available through a grant worth \$260,000 from the New York City-based Teagle Foundation, who works to support and strengthen liberal arts education. The three-year grant addresses preparing students for responsible civic engagement as well as professional careers in humanitarian service.

Rodriguez said, "Before coming to Fairfield University, I never thought that engineering and humanitarianism could be combined into a career. However, after my involvement with the JUHAN project,

I think that engineering skills can be used to create more efficient processes and services to help people solve problems in a better way."

The website will serve as a communication portal and information clearinghouse to support the work of partner universities across the growing JUHAN network. It will also serve as both a virtual "toolkit" of replicable teaching materials and best practices. Sample syllabi, course outlines, assessment tools and strategies to engage students in humanitarian action will be available.

"Working collaboratively with the Marcia, Sid, Srenika Bachu and other engineering graduate students has been a tremendous enriching experience and we are very proud of their accomplishment, said Julie Mughal, Fairfield's JUHAN director. "We are confident that JUHAN Online will become a 'go-to' site for students, faculty and staff across the Jesuit family of universities — and beyond — who are interested in partnering in humanitarian action."



Julie Mughal, Fairfield University's JUHAN director; Marcia Arambulo Rodriguez; and Venkata Siddhartha Penugonda

## School of Rock at the School of Engineering

This summer, students will have the unique opportunity to make music in the halls of the Bannow Science Center. Dominic Figueiredo, machining instructor at the School of Engineering, will be teaching a brand new course where students will make their own fully functional guitar.

“This is a colorful and creative way to learn,” Figueiredo enthused. “And you leave with your own guitar, which is just awesome!”

Figueiredo was able to develop the course after attending a special summer seminar, hosted by the National Science Foundation, where teachers learn how to make the guitars themselves, and then design a course around it.

Dr. Ryan Munden, assistant dean at the School of Engineering, said, “The National Science Foundation’s goal is to encourage scientific education and research through fun and interesting ways. They sponsor events like these so teachers can learn and then go back and apply it for their students.”

Figueiredo was excited to both take the course himself as well as design one for students. “The great thing about it is that you can make it as easy or difficult as you need to – like if it’s offered in a short format in the summer or longer during the semester.” To make the guitar, students will use laboratory equipment such as a drill press, band saw, and CNC routers.

No stranger to music — Figueiredo plays the guitar and was part of a band several years ago — the first song he played on the guitar he made (which has Fairfield University’s logo lasered onto it) was A Train Kept Rolling, by Aerosmith. “I’ve had lots of experience with guitars over the years, but I had no idea how to make one. There’s a



Dominic Figueiredo plays some tunes on the guitar he made from scratch.

real sense of accomplishment at the end of this course and I think students will love that,” he said.

The course will be offered for the first time this summer as well as subsequent semesters. It will be open to traditional students as well as lifelong learners or even diligent high school students. Initially it will be offered as an engineering elective course, but the hope is to eventually include it as a core curriculum course.

Dr. Munden said, “This course has such great connections between art, music, and science. Students that have taken it at other schools love it. They say it’s the best course they’ve ever taken.”

## Aquarion Water Company Partners with Fairfield University

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Engineer George S. Logan, the Director of Environmental Management and Government Relations at Aquarion Water Company, has become a familiar face at the School of Engineering.

Over the past two years, Logan has been consistently increasing Aquarion's support and collaboration efforts at Fairfield University, particularly through the University's two-year area of focus on the subject of water.

In the spring of 2015, Logan joined Dean Bruce Berdanier for an Ethics Breakfast jointly sponsored by Fairfield University and the Fairfield Rotary Club. The event discussed the ethics of water engineering projects in developing countries, of which both Logan and Dean Berdanier have extensive experience.

In the fall of 2015, Logan moderated a town hall style meeting at the Quick Center at Fairfield to discuss the need for and progress in developing a water plan for Connecticut. The packed event was open to the public and the panel consisted of legislators, water company officials and environmentalists.

During National Engineer's Week in February 2016, Logan met with Fairfield students working on interdisciplinary water research projects to discuss their progress and give them advice. Dean Berdanier and Logan co-hosted a screening of the documentary film, *LA SOURCE*, which details the experiences of Haitian-born Josue Lajuenesse, a janitor working at Princeton University, as he works with students and NGOs to raise awareness and funds to build a water supply system for his home town in Haiti. The film is particularly poignant as it was filmed immediately after the Haitian earthquake in 2010.

Aquarion partnered with the Rotary clubs of Fairfield, Orange and LaPaz, Bolivia to raise the local funds needed to secure a Rotary International Global Grant that will be used to support Fairfield students building sand filters for drinking water for a rural university in Carmen Pampa, Bolivia this year. Logan will travel with Dean Berdanier and the students on one of the implementation trips this summer.

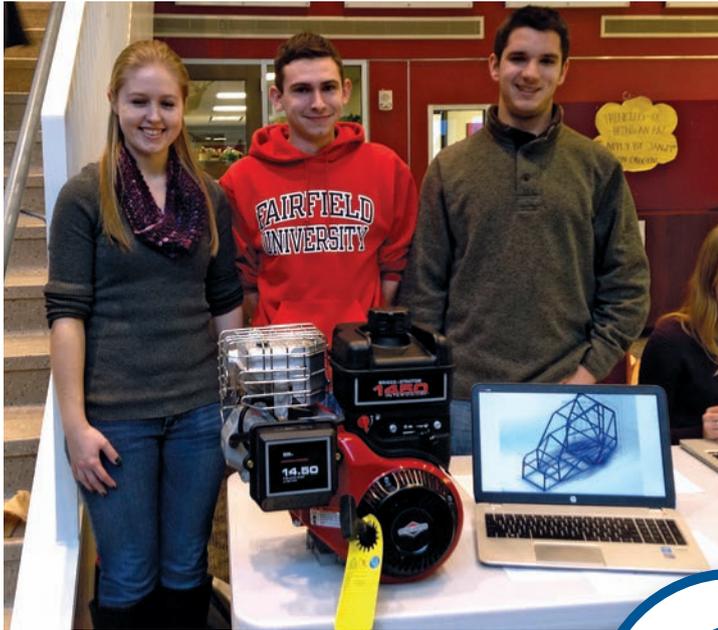
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**Over the past two years Logan has been consistently increasing Aquarion's support and collaboration efforts at Fairfield University, particularly through the University's two-year area of focus on the subject of**

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## Stags, Start Your Engines! Students Compete in Off-road Race



Students in the School of Engineering will be testing their mettle as they compete for the first time at the Baja SAE, an intercollegiate design competition run by the Society of Automotive Engineers (SAE).

Teams of students from universities design and build small off-road vehicles that are tested to see which one can withstand the off-road race's tough terrain. Modeled after the Baja 1000, an off-road race that takes place in Mexico's Baja California Peninsula, Baja SAE is both a challenging and fun event for students.

Emily Yale '18, a mechanical engineering student and the vice president of the Society of Automotive Engineers Club, said, "The competition is made up of several races over rocks, hills, mud, tree roots and fields. It puts an incredible amount of stress on the vehicle, so we must have a design that can withstand the forces acting on it. The races range from a short acceleration test to a four-hour endurance race. In addition to the dynamic races, there are several 'static' events we will be judged on including cost, design and a business plan pitch."

25 Stags joined Fairfield's Baja team and will spend this semester building the vehicle. The race takes place June 9-12 in Rochester, New York. Yale, Dennis Turano '17 and Karim Kharbouch '17 lead the team and are advised by Professor Bob Wojna.

All teams are given a specific engine, as well as a list of parameters they must meet for the race. Fairfield's team has been working on this project since the summer. They spent last semester designing, planning their budget and selecting components for their vehicle.

Dr. Bruce Berdanier, dean of the School of Engineering, reported that it was a major goal of the School of Engineer's Advisory Board to take part in this competition. "Participation in competitions such as the SAE Baja create tangible excitement and engagement for our engineering students. The skills they learn in designing, specification, procurement and all aspects of project management provide added value to the excellent engineering degree that they receive from Fairfield. We are just beginning in this process and expect our students to grow and mature over the next four or five years to be nationally competitive."



Top-left: Emily Yale '18, Raymond Sanchez '19, and Dennis Turano '17  
Above: Close up of engine plus digital design of their vehicle's frame.

# Student Profile: Philip Mayer '16

## MAJORS: SOFTWARE ENGINEERING AND MATHEMATICS

**Q.** *Why did you choose to attend Fairfield University?*

**A.** As a freshman, I was drawn to the small class sizes – you can't beat the faculty interaction here. And it's an exciting time for students to be coming to the School of Engineering. The location change to the center of the campus has been great and its programs like computer science are growing bigger.

**Q.** *Why did you major in software engineering and mathematics?*

**A.** I knew I was interested in these fields since I was young. When I was 11, I went to a junkyard with my dad and I saw an abandoned computer. I asked him if I could take it, and he said, 'Yeah, absolutely. See what you can do with it.' So, I took it home and fixed it, with his help.

After he saw I was interested in the subject, he got me a book about building computers and I ended up building my own from scratch when I was 12. When it came time to choose a major, software engineering felt like a natural continuation of that interest. I decided to major in math because I enjoyed the math courses required for the engineering program and wanted to continue learning.

Over the course of my four years in the School of Engineering, I've also taken lots of computer sciences courses like algorithms and data structures. Computer science is primarily the theoretical application of pure mathematics – you study what can be computed and software engineering is the application of that. So there have been a lot of connections for me between these three programs.

**Q.** *What courses have you enjoyed the most?*

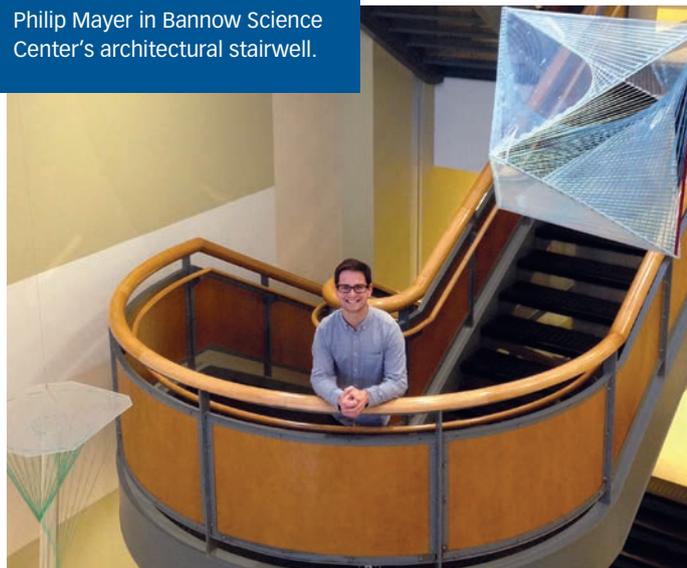
**A.** I took a fantastic web development course with Dr. Amalia Rusu that I greatly enjoyed. We started out learning the basics of web development, and then worked on a semester-long group project collaborating with nonprofit organizations to make websites for them. It was a great opportunity to not only learn but to reach out and make a positive change. Our group worked with The Literacy Volunteers of Bridgeport. I was eager to work with them in order to make a contribution to something that was very important to my family — my oldest sister is a teacher who specializes in literacy.

I also greatly enjoyed a summer research project I completed with Dr. Mark Demers in the Mathematics Department. We studied dynamical systems, which can loosely be equated to mathematical chaos.

**Q.** *What are you plans following graduation?*

**A.** I currently have a full-time job lined up at Gartner, in Stamford, Connecticut. They focus on business intelligence, and I'll be working as a software engineer, probably mostly building up their internal systems. I'm joining a small rotational program in which I'll be able to try out many different roles in the software department, including database management, front-end development, and back-end development. I'll join two Fairfield alumni currently working there. I learned about the position through an alumnus that was a year ahead of me, Dylan Meyer. I'm very excited about the opportunity.

Philip Mayer in Bannow Science Center's architectural stairwell.



# 2015-16 SOE Senior Design Projects

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During 2015-16 academic year, ten senior design projects were successfully executed by 37 interdisciplinary undergraduate students. Funding was provided by industries, government agencies and the School of Engineering. In addition, students submitted proposals and were awarded a total of \$15,139 from Lawrence Scholars Program, Hardiman Scholars Program and NASA CT Space Grant.



## Degree Key

EE: Electrical Engineer

ME: Mechanical Engineer

SE: Software Engineer

### Active and Passive Noise Cancellation Applied to an Ordinary Household Appliance

Advisor: Prof. Denenberg  
Christopher Calitri (EE), Michael LoTurco (ME), Vincenzo Moretti (EE), Tony Phantharangsy (EE)

### Medicine Dispenser

Advisor: Prof. Munden  
Austin Hliboki (ME), Cameron Sayles (EE), Haasim Vahora (ME), Kevin Zwick (ME)

### Design, CFD Modeling, and Development of Compact & Efficient Soil Steam Fumigation

Advisor: Prof. Etemad, Mentors: Dr. Baird and Dr. Weissman (Precision Combustion Inc.)  
Jason Alderisio (ME), Matthew Lazicky (ME), James Ursini (ME), Connor Wallace (ME)

### Automated Alignment of a Laser Welded Medical Device

Advisor: Prof. Zabinski, Mentor: Mr. Rich Rosselli (Northeast Laser & Electropolish)  
Yaroslav Kohut (ME), Steven Shiner (ME), Christian Vrankovic (ME), Austin Wesolowski (ME)

### Retractable Multi-Tool Accessory Prosthetic Attachment

Advisor: Prof. Cavallo  
Christopher Babcock (ME), Thomas Daniello (ME), Thomas Lukacovic (ME), Michael Nagy (ME)

### Wireless System for Monitoring Domestic Appliance Energy Consumption

Advisor: Prof. Balaji  
Blanca Aca-Tecuanhuehue (ME), Luis Antunez (EE), Timothy Dessureau (EE), Egnon Locoh (EE)

### Tabletop Micro Patterning Device

Advisor: Prof. Sundarram  
Ryan Brown (ME), Noel Laflamme (ME), Gabriel Schrier (ME), Michael Valvano (ME)

### Jarvis 2.0: A Software Program for Understanding Stories

Advisor: Prof. Macbeth  
Evan Boliakis (ME), William McDonnell (EE), Duy Nguyen (SE),

### Mobile Application for Optimization of Soccer Match Administration

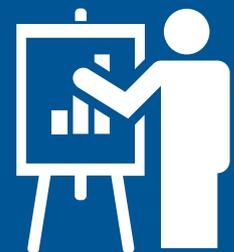
Advisor: Prof. Rusu  
Philip Mayer (SE), Drew Mignosa (SE), Kevin Wilson (EE)

### Differential Thread Adjuster

Advisor: Prof. Judge, Mentor: Dr. Don Stenabaugh (ASML)  
Kevin McCaffrey (ME), Brett Mikolajczyk (ME), Christopher Rutigliano (ME), Brian Herman (EE)

The Senior Design course is a chance for engineering students to shine.

Students work in teams beginning in the fall, to design a tool, vehicle or system that is needed in the marketplace but hasn't been invented yet.



# New 5th-year Option for BS/MS Dual Degree in Management of Technology

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Fairfield University's School of Engineering is offering a new 5th-year option for a BS/MS dual degree in management of technology (MOT), targeted towards engineering students who want to work at the interface of technology and business.

Dr. Harvey Hoffman, professor and director of the Management of Technology program, said, "Most engineers must make business decisions early in their careers. They have to learn to think about engineering and business in order to convince executives of the appropriate direction to take. Entrepreneurship, profit, return on investment, teamwork, strategic planning and managing people should not be foreign words to an engineer. Students receive this background in our program and that will help them quickly advance in their careers."

Fairfield's dual degree MOT track is a multidisciplinary field that integrates all engineering disciplines offered at Fairfield along with technology management, systems and business. Students that enter the program combine any of Fairfield's existing Bachelor of Science in Engineering degree with its Master's in Management of Technology.

Completion of the degree can be done in just five years, saving a year of tuition and time for students that begin the program when they are undergraduates.

The program is designed with special emphasis on the integration of business and management knowledge with an engineering curriculum that prepares students for leadership roles in technology-based organizations. This combination enables students not only to understand engineering, management and business concepts, but also to understand how that intersection distinctively shapes the world and their careers.

Dean Bruce Berdanier said, "We have observed sustained high demand for graduates of the MOT program. Many companies today are looking for students that have the engineering insights that come from the BS engineering degrees coupled with the management and economic insights that come from the MS MOT degree. The two degrees together are a dynamite combination for companies that want to invest in and manage the development of technological innovation."

## Engineering Club Updates

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### **THE SOCIETY OF WOMEN ENGINEERS (SWE):**

Movie Night: SWE members watched Thor, to cheer on Natalie Portman's character, astrophysicist Jane Foster.

Grilled Cheese Fundraiser: Members sold grilled cheese to benefit the Mercy Learning Center, a nonprofit for the literacy of women.

Girls in Science Day: Held at the Discovery Museum in Bridgeport, SWE had a table with information about their school and provided hands-on science activities for attendants.

Girl Scout Event: Members contacted regional Girl Scout clubs to visit Fairfield and attend four sessions: coding, mechanical systems, electrical systems and chromatography

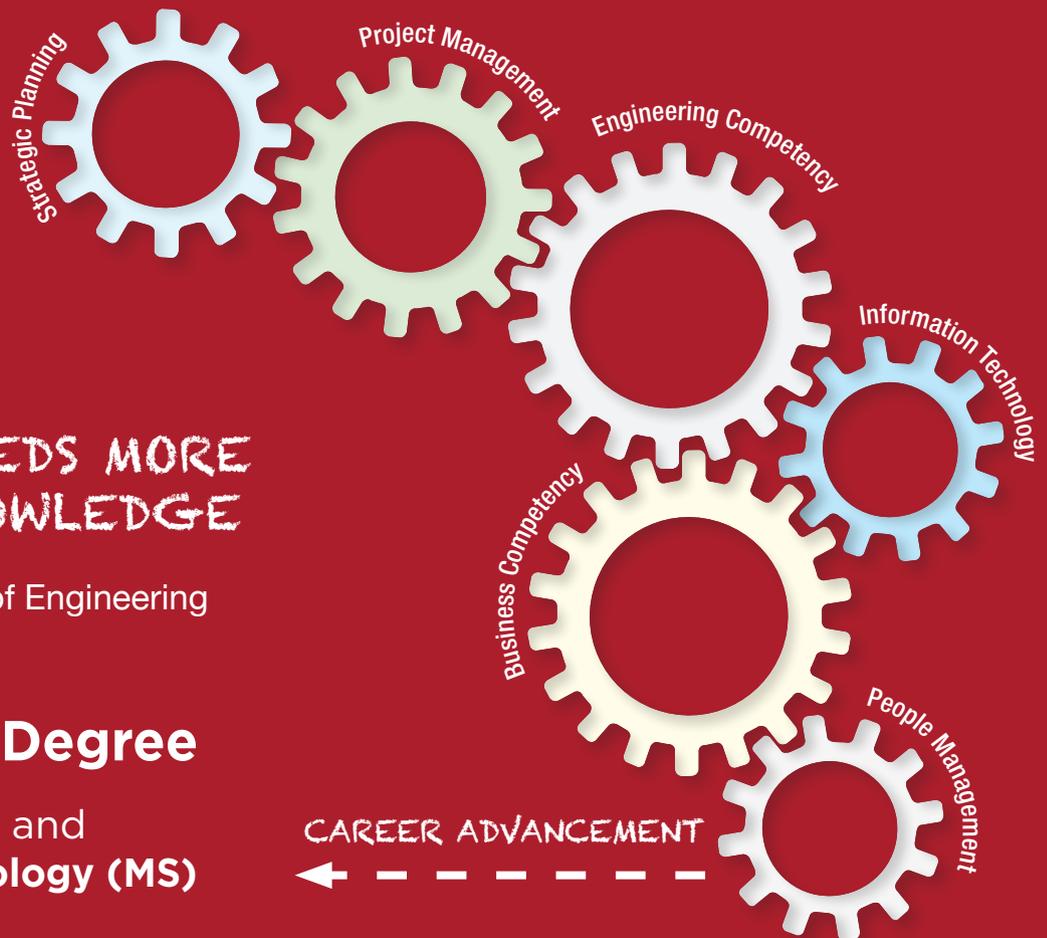
### **ENGINEERS WITHOUT BORDERS (EWB):**

EWB recruiting presentation – JUHAN: Members officially presented EWB to other Schools within the University.

La Source Film: The film was presentation at the library, celebrating Engineers' Week. Dr. Berdanier and George Logan (Director of Environmental Management and Government Relations – Aquarion Water Company) led a short discussion following the film.

EWB Mini Conference at University of Connecticut: Members of EWB attended a regional conference where they met with other universities' EWB chapters. This event was designed to help the students find new resources, learn from other school's projects and network with other engineers working on similar projects

AN ENGINEER NEEDS



AN ENGINEER NEEDS MORE  
THAN DESIGN KNOWLEDGE

Fairfield University's School of Engineering  
presents:

**New 5-year Dual Degree**

**Engineering (BS) and  
Management of Technology (MS)**

Engineering Management is a multidisciplinary field that integrates all engineering disciplines offered by Fairfield University with technology management, systems and business. This program broadens a student's options and permits them to pursue the combination of any existing BS in engineering degree with an MS in Management of Technology and complete it in a five-year time frame. Through it, students not only understand engineering, management and business concepts, but also understand their integration and how the intersection distinctively shapes the world and their careers.

**Contact Dr. Harvey Hoffman [hhoffman@fairfield.edu](mailto:hhoffman@fairfield.edu) for more information.**



Fairfield  
UNIVERSITY

*School of Engineering*

## VISION

As an integral component of a comprehensive Jesuit university, the School of Engineering is committed to providing a student-oriented classroom and laboratory environment enhanced by research that enables graduates to become leaders in the quest to solve society's greatest challenges in service to others.

## MISSION

The Fairfield University School of Engineering is dedicated to providing quality educational opportunities in engineering and computer science to a diverse student population. The School emphasizes whole-person development (*cura personalis*) through its commitment to a unique integration of expertise in innovative technical areas with a strong liberal arts core, preparing graduates for professional practice and graduate education.