SCHOOL OF ENGINEERING UPDATE

FAIRFIELD UNIVERSITY | SPRING 2019
As this is my first message as Dean of Fairfield’s School of Engineering, I thought it would be helpful to provide a brief overview of my academic background. I joined Fairfield in July, 2018, as (interim) dean and professor of engineering. Prior to that, I spent nine years at Embry-Riddle Aeronautical University as an engineering professor and vice president for Academics and Research, and seven years as a professor and dean of Engineering at Manhattan College. Before that, I spent a decade in the University of Rochester on the Chemical Engineering faculty and as associate dean for Graduate Studies.

I am both pleased and proud to join the well-respected engineering faculty at Fairfield. Our School of Engineering (SOE) is relatively young; in fact, this year we are celebrating our 25th anniversary. The program came into being when Fairfield University acquired the Bridgeport Engineering Institute in 1994, and we have come a long way in a short time.

We believe that engineering is a ‘service to humanity’ profession, which means that virtually everything engineers do is designed to help others. Couple this fundamental philosophy with the University’s joint focus on service to others and social justice, and what we provide, in addition to a traditional engineering education, is an individual, character-building experience that encourages leadership development in our students. Thus, in part, why we have a 100% job placement rate for our engineering graduates.

Just as important for our future, we have a growing cadre of applied research-involved faculty with interests in cutting-edge areas such as Artificial Intelligence, machine learning, cybersecurity, nanomaterials and analytics, nanotechnology/materials manufacturing, advanced simulation and analysis, and biomedical sciences, to list a few.

Our growing emphasis on applied research will strengthen our academic reputation and will help bring about a “sea-change” in the SOE over the next decade. My belief is that the number of engineering faculty and students will increase substantially, and that there will be a stand-alone engineering building on the Fairfield campus.

The expansion of SOE as we move into our second quarter century will strengthen STEM awareness on our campus and help develop a “continuum of understanding” that broadens and strengthens the relationship with engineering and all the other academic disciplines.

It is an exciting time to be part of the engineering team here at Fairfield University, and I look forward to our working together to continue to define our path to the future for the School of Engineering.

Sincerely,

Richard H. Heist, PhD
Dean
STUDENT ACCOMPLISHMENTS

NASA CT Space Grant Awardees, Fall 2018
Russell Moore
Katherine Unfried
Jovett Donnari

2018-19 BEI Scholarship
Harel Conway Locke
Jonathan Menz
Mayara Miranda
Carlos Muncia
Jacob Mucho
Mohamed A. Nithyananthan Sukumar
San Pham
Pawel Pisk
Galo Pombar Chico
Eze Vanessa Rajapandi
Ashanti Sajan
Mahitha Thikkavanapu
Brandon Thomas

Society of American Military Engineers (SAME) Scholarship
Davis Doherty

2018-19 Bernadette and John Porter Scholarship
Rahim Kumar Agarwal
Nicholas Carabet
Nimesh Das
Nicholas Delbase
John Deierry
Michael Donofrio
Napa Vydhibb Dumem
Wai Hu
John Knight
Kasper Leaka
Thuy Le
Yihe Li
Serena Lo

Martha Rogers BEI Scholarship
Calvin Thomas
Carlos Urena
Vandana Venkat Raman

Fairfield County ISI Engineering Scholarship
Bhavy Madhani Pavealabees

UNDERGRADUATE PROGRAMS
B.S. in Bioengineering
B.S. in Computer Science
B.S. in Electrical Engineering
B.S. in Mechanical Engineering

STUDENT ORGANIZATIONS AND SOCIETIES
3D Printing Club
American Society of Mechanical Engineers (ASME)
Biomedical Engineering Society (BMES)
Engineers Without Borders (EWB)
Engineering Student Society (ESS)
Institute of Electrical and Electronics Engineers (IEEE)
National Society of Black Engineers (NSBE)
Society of Automotive Engineers (SAE)
Society of Women Engineers (SWE)
Tau Beta Phi (Engineering Honor Society)

GRADUATE PROGRAMS
Applied Data Science
Electrical and Computer Engineering
Management of Technology
Mechanical Engineering
Software Engineering

CERTIFICATE PROGRAMS
Cybersecurity
Data Science and Big Data Technology
Network Technology
Web and Mobile Application Development

STUDY ABROAD FOR ENGINEERS
University of Comillas Pontificia in Madrid, Spain
University of Ireland, Galway*

* The University of Ireland, Galway also offers a 4 + 1 BS/MS biomedical engineering program in conjunction with its study abroad program. Students can earn a BS from Fairfield and MS from University of Ireland, in five years.
With a goal of bringing people from all over the world together for one exciting weekend of creating innovative video games, Global Game Jam is described by its volunteer organizers as “a hackathon focused on game development.” The 2019 nonprofit event took place from January 25 to 27 and broke all previous participation records with 47,000 “jammers” making 9,000 new games at 860 sites in 113 countries.

Now in its 11th year, ten new countries took part for the first time in Global Game Jam 2019, including Azerbaijan, Namibia, and Sri Lanka. The team of grad students from Fairfield’s software engineering program participated at a location closer to home — Stamford, Connecticut.

At the start of the weekend, Game Jam organizers strategically announced this year’s secret theme virtually every time zone in the world: “What Home Means to You.” And then the fun began; inspired by a shared love for survival-style games, the software engineers from Fairfield feverishly took to their keyboards and created a game with a story based on a map design. Grad student Jack Crowley said, “This was my first competition like this, and my favorite part was working with friends to build a fun game that everyone could play.”

“The event was very high energy,” added teammate and fellow grad student Samuel Nguyen, a self-taught video game developer with experience in 3D graphics. “I did meet a lot of new people. It was not all game developers, as people might think. There were musicians, artists, writers, and designers among many others.”

Both Crowley and Nguyen agreed that the hardest part of building the game was the time constraint. Describing the hectic pace of the sleep deprived weekend, Crowley noted, “It was early morning starts all the way through until 9 p.m. Lots of asset designing and even more logic programming.”

At the end of the competition, a half dozen judges with expertise in game development and design individually tested each game created at the Stamford location, and awarded the Fairfield University team “Best in Show.” This honor did not come as a complete surprise to Nguyen, thanks to his team’s use of complex 3D graphics for their characters, assets, and animation, which he shared, “the judges said was very rare once it is difficult to develop.”

“On top of that, even before the judging, many observers came by and asked to us how long we have been doing this and what courses we took,” continued Nguyen. “They were very surprised to find out that we had never taken any specific game design courses.”

In addition to Crowley and Nguyen, the Fairfield University team included classmates Jingfei Zhang, Rajashekar Reddy Nandyala, Mohanapriya Nithiyanantha Sukumar, and Michael Donofrio. Adrian Rusu, PhD, professor and chair of Computer Science and Engineering said that all students in the software engineering graduate program participate in some type of competition during their studies “as part of the unique out-of-classroom preparation and experience we provide to our students.”

The event was very high energy. I did meet a lot of new people. It was not all game developers, as people might think. There were musicians, artists, writers, and designers among many others.”

Samuel Nguyen

World records were broken as six Fairfield graduate student engineers spent an entire weekend collaborating on the design and development of a new video game at the largest Game Jam ever.

FAIRFIELD SOFTWARE ENGINEERS WIN “BEST IN SHOW” AT GLOBAL GAME JAM
The Connecticut Space Grant funding will truly assist our school in preparing the next generation of STEM professionals, by exposing students to scientific research on projects that will include the implementation of cutting-edge learning algorithms on real-world problems,” said Djedjiga Belfadel, PhD, associate professor of electrical and computer engineering.

The research agenda of Dr. Belfadel’s awarded project, “Robust Approach for Space-Based Imaging Sensors Alignment,” is to develop algorithmic and computational models to enhance the tracking quality of a Space Tracking and Surveillance System (STSS).

Support from the NASA Connecticut Space Grant Consortium will assist Dr. Belfadel in the development of a new laboratory built upon her extensive research experience in space-based tracking systems, and her $10,000 grant will go toward providing stipends for multiple students to work on research projects related to space technology and target tracking.

Russell Moore ’19 was awarded a $5,000 undergraduate research fellowship for his research project, “Pixel-Level Image Fusion Algorithms to EO/IR Multi-Sensor System,” which strives to develop an improved algorithm for target tracking, using the fusion of multiple images from electro-optical sources. “Since the Cold War, the United States has relied on reconnaissance satellites for the safety of its citizens,” Moore wrote in his abstract. “Our research will add to this effort.”

Because satellite imaging can capture environmental data inaccessible through other methods, Moore believes that improving this technology will also benefit global efforts to study and monitor our planet.

Katherine Unfried ’19, a bioengineering major with a minor in biochemistry, was awarded a $1,000 grant for her senior design project titled “Lend a Hand (Lightweight, Low Noise, Prosthetic Hand),” which will be developed by a team of engineering classmates. Unfried said that the team’s prototype aims to be myoelectric-controlled, meaning that it will be externally powered by the same neural signals that would control an actual human hand.

“The goal of designing something completely silent,” explained Unfried, “sets us apart from what is typically on the market because it requires us to use unconventional components: no gears, no fans, and none of the typical actuators that control movement in most prosthetic hands.”

Chemistry major Jovelt Dorsainvil ’19, who was granted a $1,000 Student Travel Award, has been conducting research with Jillian Smith-Carpenter, PhD, assistant professor of chemistry and biochemistry, to develop peptides that can self-assemble into larger structures. “Essentially my goal is to add different groups to these peptides in order to create a supramolecular structure that can catalyze certain reactions,” Dorsainvil said.

“I developed the project in the summer; I started the peptide synthesis this fall. I will focus on characterizations of the catalyst during the spring semester and will present the results at the National Meeting of the American Chemical Society in Orlando, Florida in April 2019.”

“SKY’S THE LIMIT FOR NASA CONNECTICUT SPACE GRANT CONSORTIUM Awardees

A Fairfield professor and three students heeded the fall 2018 Call for Proposals and were awarded a total of $17,000 in grant funding.

Djedjiga Belfadel, PhD
School of Engineering Celebrates 25 Years in Stag Country

The year 2019 marks the silver anniversary of the 1994 merger between the Bridgeport Engineering Institute (BEI) and Fairfield University, and plans are underway for a yearlong celebration of reinvention and innovation.

T
he Bridgeport Engineering Institute (BEI) was founded in 1924 to offer evening courses taught by local industry leaders to part-time engineering students—most of whom worked full-time in local factories and businesses. In the 1930s, enrollment peaked at 1,000, BEI President William Krummel, PhD, described these hard-working students as “the future of our industry, with open minds ready to find new solutions in an ever-changing environment.”

As a tuition-driven school, the Institute owned no property and operated out of rented classroom space and borrowed labs until a major merger, when BEI found a permanent home on Fairfield’s campus and the University gained a School of Engineering with a vocation of service to humanity that perfectly complements its Jesuit mission.

In 1994, BEI merged with Engineering, Science, and Management War Training (ESMWT), preparing more than 6,000 students for defense industries from 1941-44. The school’s newest software engineering certificates include specializations in: Cybersecurity, Data Science and Big Data Technologies, Network Technology, and Web and Mobile Application Development.

Undergraduate engineering programs received ABET accreditation.

Software and computer engineering programs accredited by ABET.

First graduate engineering programs introduced.

SDC becomes separate undergraduate program, offering full-time undergraduate programs.

Dr. Bruce Berdanier serves as SDE dean from 1999-2003.

Dr. Evangelos Hadjimichael serves as School of Engineering dean from 1994-2003.

Dr. William J. Owens serves as president 1986-94.

Dr. William Krummel serves as president 1924-70.

Dr. Arthur Keating served as president 1984-86.

Dr. Joseph Resca ‘21 competes in Walk on Water.

Dr. Bruce Berdanier serves as SOE dean from 2010-13.

Dr. Richard Heist is appointed interim SOE dean from 2013-18.

Dr. Joseph Resca ‘21 competes in Walk on Water.

Dr. William J. Owens serves as president 1986-94.

Dr. Richard Heist is formed.

BEI founded in 1924 to offer evening courses taught by local industry leaders to part-time engineering students—most of whom worked full-time in local factories and businesses.

In the 1930s, enrollment peaked at 1,000, BEI President William Krummel, PhD, described these hard-working students as “the future of our industry, with open minds ready to find new solutions in an ever-changing environment.”

As a tuition-driven school, the Institute owned no property and operated out of rented classroom space and borrowed labs until a major merger, when BEI found a permanent home on Fairfield’s campus and the University gained a School of Engineering with a vocation of service to humanity that perfectly complements its Jesuit mission.

In 1994, BEI merged with Engineering, Science, and Management War Training (ESMWT), preparing more than 6,000 students for defense industries from 1941-44. The school’s newest software engineering certificates include specializations in: Cybersecurity, Data Science and Big Data Technologies, Network Technology, and Web and Mobile Application Development.

Undergraduate engineering programs received ABET accreditation.

Software and computer engineering programs accredited by ABET.

First graduate engineering programs introduced.

SDC becomes separate undergraduate program, offering full-time undergraduate programs.

Dr. Bruce Berdanier serves as SDE dean from 1999-2003.

Dr. Evangelos Hadjimichael serves as School of Engineering dean from 1994-2003.

Dr. William J. Owens serves as president 1986-94.

Dr. William Krummel serves as president 1924-70.

Dr. Arthur Keating served as president 1984-86.

Dr. Joseph Resca ‘21 competes in Walk on Water.

Dr. Bruce Berdanier serves as SOE dean from 2010-13.

Dr. Richard Heist is appointed interim SOE dean from 2013-18.

Dr. Joseph Resca ‘21 competes in Walk on Water.

Dr. Richard Heist is formed.

BEI founded in 1924 to offer evening courses taught by local industry leaders to part-time engineering students—most of whom worked full-time in local factories and businesses. In the 1930s, enrollment peaked at 1,000, BEI President William Krummel, PhD, described these hard-working students as “the future of our industry, with open minds ready to find new solutions in an ever-changing environment.”

As a tuition-driven school, the Institute owned no property and operated out of rented classroom space and borrowed labs until a major merger, when BEI found a permanent home on Fairfield’s campus and the University gained a School of Engineering with a vocation of service to humanity that perfectly complements its Jesuit mission.

In 1994, BEI merged with Engineering, Science, and Management War Training (ESMWT), preparing more than 6,000 students for defense industries from 1941-44. The school’s newest software engineering certificates include specializations in: Cybersecurity, Data Science and Big Data Technologies, Network Technology, and Web and Mobile Application Development.

Undergraduate engineering programs received ABET accreditation.

Software and computer engineering programs accredited by ABET.

First graduate engineering programs introduced.

SDC becomes separate undergraduate program, offering full-time undergraduate programs.

Dr. Bruce Berdanier serves as SDE dean from 1999-2003.

Dr. Evangelos Hadjimichael serves as School of Engineering dean from 1994-2003.

Dr. William J. Owens serves as president 1986-94.

Dr. William Krummel serves as president 1924-70.

Dr. Arthur Keating served as president 1984-86.

Dr. Joseph Resca ‘21 competes in Walk on Water.

Dr. Bruce Berdanier serves as SOE dean from 2010-13.

Dr. Richard Heist is appointed interim SOE dean from 2013-18.

Dr. Joseph Resca ‘21 competes in Walk on Water.

Dr. Richard Heist is formed.
Dominic Figueiredo is a man of many talents. “He’s so talented, it’s almost annoying; the guy’s a comedian, he can play guitar, he can make guitars, he can sing, and he’s a nice guy,” said Connecticut on-air radio personality Chaz, during a broadcast of 99.1 PLR’s Chaz and AJ in the Morning program.

This past fall, “Dom Fig,” as DJ Chaz refers to Figueiredo, spent more than 100 hours designing and building a one-of-a-kind, handmade electric guitar to be auctioned off at the WPLR radio station’s holiday toy drive.

Figueiredo described how he crafted the instrument – which went for a winning bid of $1,000 – out of cherry, maple, and rosewood. He laser-engraved the radio show’s logo on the front of the guitar, and created a detailed picture of the on-air WPLR personalities on the back. “It’s actually a three-dimensional image, so it’s blended into the back of the guitar,” said Figueiredo. “That alone took many hours.”

Fitted with dual humbucker pickups, a three-way switch, and volume and tone controls, “This guitar looks bad-ass and sounds tremendous!” noted the WPLR website. “Pictures cannot do this axe justice.”

“I put a lot of love into it,” Figueiredo told Chaz and AJ in the Morning listeners. “Season of giving, man! It’s all about the kids!” The annual toy drive event raised a total of $192,000 for Connecticut non-profits, including the McGivney Center, the Boys & Girls Village, and the Family & Children’s Agency.

Off the air and back on Fairfield’s campus, the “STEM Guitar” instructor described his inspiration for this project, “I have worked with Chaz and AJ for many years on the toy drive and this year instead of offering my services, I thought it would be great to donate something that they could exchange for money to help underprivileged children.”

“I grew up in Bridgeport,” he continued. “My parents were immigrants from the Azores Islands off the coast of Portugal and we never had much money... I saw a guitar in a pawn shop in Bridgeport when I was 8 years old—it was love at first sight. My dad bought it for me for Christmas, and my passion for guitars has remained to this day.”

Figueiredo studied guitar with many great teachers, most notably Connecticut’s legendary Linc Chamberland. He also sang in a band called Essence in Hollywood for a while. These days, he should play guitar much more—he prefers to build them.

Each summer that he teaches “STEM Guitar,” Figueiredo said that he encourages his students “to think outside the box and create something that hasn’t yet been done.” Clearly, these are words he lives by.
Although it remains the top global destination for international study, the Connecticut Post reports that the United States is seeing a decline in the number of students coming from abroad. Recognizing that the international student environment in the U.S. is changing, Fairfield’s School of Engineering has embarked on a multifaceted approach to increase international enrollment.

The first phase of this approach focuses on China, the top origin country for international students in the U.S. In the summer of 2017, Adjunct Professor Xiaojiang (Henry) Wu, PhD, traveled to China with Associate Dean Harvey Hoffman, PhD, to promote Fairfield’s new and existing engineering graduate programs, and to begin development of collaborative relationships with a half dozen Chinese universities.

In August 2018, a delegation from Ganzhou City’s Jiangxi University of Science and Technology visited the School of Engineering at Fairfield University. Jiangxi President Luo Sihai and Fairfield President Mark R. Nemec, PhD, signed a Memorandum of Understanding (MOU), a general agreement of academic cooperation. Drs. Wu and Hoffman returned to China in October 2018, to promote Fairfield’s new Applied Data Science and Information Security graduate programs at Guangzhou Maritime University in Guangzhou and Donghua University in Shanghai.

On this trip, the professors also introduced two new program concepts. The first is a 10-course version of Fairfield’s Management of Technology program, to be co-taught by Fairfield and Chinese university faculty, in China. Targeted at working students and professionals, the program will be taught through a combination of weekend, summer, and online courses. Students and faculty will collaborate using Skype and email, and the students will present their capstone projects at the China location.

The second program concept will enable Chinese students to complete a master’s engineering master’s degree at Fairfield University, as part of their Chinese university graduate studies. The year at Fairfield will replace the internship and research year typically required in a three-year Chinese master’s program. At the end, a student will have earned two master’s degrees – one from the Chinese university and one from Fairfield.

In March 2019, Dr. Wu represented the School of Engineering and Fairfield University at recruiting fairs sponsored by Linden Educational Services in Beijing and Shanghai. Dr. Wu distributed bilingual Management of Technology and Applied Data Science master’s degree brochures, and debuted a new engineering school video with Chinese subtitles.

Fairfield’s School of Engineering has embarked on a multifaceted approach to increase international enrollment.
TEAM 1
Distributed JsonCat
Advisors: Anish Rau and J. Ritchie (Federal Aviation Administration)
Brendan Berkes (E); Peter Coffman (C); David Doherty (S); John Wiley (S).
Working with the FAA, Team 1 is going to improve an existing distributed system that generates test data for air traffic control safety equipment. The new system will be efficient, portable, and reliable while using a master/slave topology to communicate between distributed components.

TEAM 2
Reticle Handler Simulation Package
Advisors: Adrian Rau and E. Loebbecke (ASML)
Brendan Dunne (E); Evan Gormand (B); Benjamin Hendley (C); Will Milanes (S).
Team 2 will create a simulation framework for automated testing capabilities, using Python to design a flexible and easily extendable system, to be integrated into ASML’s current systems.

TEAM 3
Multipurpose Solar Charging Station
Advisor: Dr. Bob
Ryan Avery* (E); Maverick Ruiz (E); Ryan Avery* (E); Patrick Evans (E); Patrick Evans (E).
Team 3 will design a multipurpose solar charging station with the goal of charging a variety of devices using energy that will be efficiently harvested from the sun, using solar tracking.

TEAM 4
Computational and Experimental Development of Harsh/Exhaust Manifolds for a Cylindrical Chemical Reactor
Advisor: Dr. Edmund (E); Dr. Luke (E); Dr. Weikun (M) (Precision Combustion, Inc.)
Cory Good (E); Garrett Lagier* (M).
A ship’s inlet/exhaust manifold structure system, achieving a low-pressure drop and a uniform flow through a cylindrical chemical reactor.

TEAM 5
Lightweight Low Noise Prosthetic Hand
Advisor: Dr. Sivapandian
Nathan O’Donovan* (B), Katherine Unfried (B), Thomas Ryan O’Doherty (M), Katherine Unfried (B).
Team 5 will create a re-configurable robotic platform to receive text-based signals from inventory at a manufacturing business. Simplicity of the robotic platform design will be to achieve safe, reliable, precise movement using readily available and cost-effective automation components.

TEAM 6
Pixel-Level Image Fusion Algorithms for IR/EO Multi-Sensor Optimization
Advisors: Dr. Sundaram and Prof. Bauer (O’Keefe Controls)
Alyssa Martinez (M); Taylor Poosikian (M).
Team 7 will develop an algorithm of equipment to allow an Instron to operate above 10 times its maximum speed. The piece of equipment will still maintain the Instron’s high-speed requirements.

TEAM 7
Optical Speed Gun
Advisor: Dr. Sharon (M); Michael Amerson* (E); Nicholas Delfico (M); Ryan Avery* (E); Patrick Evans (E); Patrick Evans (E).
Team 7 will develop an optical speed gun. User will see an optical scope to visualize the existing system’s model. User will bring a camera to take two images from different perspectives; they will calculate the velocity of a moving object using the difference in the depth between each image.

TEAM 8
Stent Design for Less Invasive Circulatory Assist
Advisor: Dr. S. Niraj
Abdel Rasoul (M); Mohammad Javed (M); Mohammad Rashed (M); Christine Currin* (M).
Team 8 will create a stent-like device for weakened hearts, to hold a circulatory as- sist pump in place. The heart-assist device will be an alternative to invasive and more expensive circulatory assist devices.

TEAM 9
Rate-Dependent Material Testing
Advisors: Prof. McFadden
Camaro* (B), Christopher Costabile (M), Andrew Altamirano (M), Mahammad Longobardi (M), Jeremy Morton* (M).
Team 9 will develop a low-cost, portable, and reliable rate-dependent material testing system. The system will be linear and is photo verified.

TEAM 10
Logistics 2-in-1 Foray into Multi-Tool Optimization
Advisors: Dr. Sundaram and Prof. Bauer (O’Keefe Controls)
Alyssa Martinez (M); Taylor Poosikian (M).
Team 10 will design a novel portable hand tool that can benefit the end user. Focus areas will be ergonomic, weight reduction, and production cost.

TEAM 11
Effective Reticle for Small Companies
Advisors: Dr. Denenberg and J. Butala
Conor Goetz (M); Daniel Hagis* (M); Andrea Gennaro (M); Daniel Hagis* (M).
Working with ASML, Team 11 will design and build a lightweight, low-noise, myoelectric-controlled prosthetic hand. They will program a microprocessor to in- tegrate myoelectric signals from the body and output electrical signals to the prosthetic.

TEAM 12
Logistics 3-in-1 Forestry Multi-Tool
Advisors: Dr. Sundaram and Prof. Bauer (O’Keefe Controls)
Brendan O’Keefe (M); Bryan Sepkowski (E); Daryl Vinluan (M).
Team 11 will develop a new system that releases medication one-by-one and is photo verified. Team 12 will create a safer pill dispenser; use that releases medication one-by-one and a photo verified.

TEAM 13
Pill Identification and Dose Verification
Advisor: Dr. Hunter (ASML)
Jared Buncy (M); Michael Amoroso* (E); Nicholas Delfico (M); Ryan Avery* (E); Patrick Evans (E); Patrick Evans (E).
Team 13 will design a machine that unpacks the charms from the tags and plastic attached without harming the charm.

TEAM 14
Pixel-Level Image Fusion Algorithms for IR/EO Multi-Sensor System
Advisor: Dr. Babcock
Calvary Berke (E); Michael O’Keefe (C); Matthew Williges (S). Working with the FAA, Team 14 will focus research on the tracking algorithms and the associated hardware used to capture images.

TEAM 15
Researching state-of-the-art tracking methods for small companies, and is photo verified.

*Based on responses to Class of 2018 survey

A SAMPLING OF COMPANIES THAT HIRE FAIRFIELD SOE GRADUATES

<table>
<thead>
<tr>
<th>School of Engineering Fast Facts</th>
<th>Undergraduate student-to-professor ratio</th>
<th>Engineering students with two or more internships</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:1</td>
<td>37%</td>
<td>$66,874 Medan starting salary for Fairfield University SOE graduates</td>
</tr>
<tr>
<td>100%</td>
<td>100% Engineering students with at least one internship</td>
<td></td>
</tr>
<tr>
<td>62%</td>
<td>38% full-time graduate program enrollment</td>
<td></td>
</tr>
</tbody>
</table>

FAIRFIELD SOE GRADUATES

TEAM 1
Pill Identification and Dose Verification
Advisor: Dr. Hunter (ASML)
Jared Buncy (M); Michael Amoroso* (E); Nicholas Delfico (M); Ryan Avery* (E); Patrick Evans (E); Patrick Evans (E).
Team 13 will create a safer pill dispenser; use that releases medication one-by-one and a photo verified.

TEAM 4
Logistics 3-in-1 Forestry Multi-Tool
Advisors: Dr. Sundaram and Prof. Bauer (O’Keefe Controls)
Brendan O’Keefe (M); Bryan Sepkowski (E); Daryl Vinluan (M).
Team 11 will develop a new system that releases medication one-by-one and is photo verified. Team 12 will create a safer pill dispenser; use that releases medication one-by-one and a photo verified.
FACULTY DEDICATED TO RESEARCH AND INNOVATION

Uma Balaji
Associate Professor and Chair of Electrical Engineering and Bioengineering (PhD, University of Victoria, B.C. Canada)
debalaji@fairfield.edu

• RF Power Amplifiers
• Microwaves Antennas
• RF and Wireless Systems
• Design for Electromagnetic Compatibility
• Numerical Methods in Electromagnetics
• Microwave Component Design for Satellite Applications

Djedjiga Belfadel
Assistant Professor, Electrical and Computer Engineering (PhD, University of Connecticut)
djedjiga@fairfield.edu

• Machine Learning and Classification
• Signal and Image Processing
• Assembly and C-Programming
• Hardware and Firmware Development
• Sensor Fusion Algorithms
• Design and Development of Multi-DBelfadel@fairfield.edu

PhD, University of Connecticut
Computer Engineering
Assistant Professor, Electrical and

Djedjiga Belfadel
Assistant Professor, Electrical and Computer Engineering (PhD, University of Connecticut)
djedjiga@fairfield.edu

• Machine Learning and Classification
• Signal and Image Processing
• Assembly and C-Programming
• Hardware and Firmware Development
• Sensor Fusion Algorithms
• Design and Development of Multi-DBelfadel@fairfield.edu

PhD, University of Connecticut
Computer Engineering
Assistant Professor, Electrical and

Djedjiga Belfadel
Assistant Professor, Electrical and Computer Engineering (PhD, University of Connecticut)
djedjiga@fairfield.edu

• Machine Learning and Classification
• Signal and Image Processing
• Assembly and C-Programming
• Hardware and Firmware Development
• Sensor Fusion Algorithms
• Design and Development of Multi-DBelfadel@fairfield.edu

PhD, University of Connecticut
Computer Engineering
Assistant Professor, Electrical and

Djedjiga Belfadel
Assistant Professor, Electrical and Computer Engineering (PhD, University of Connecticut)
djedjiga@fairfield.edu

• Machine Learning and Classification
• Signal and Image Processing
• Assembly and C-Programming
• Hardware and Firmware Development
• Sensor Fusion Algorithms
• Design and Development of Multi-DBelfadel@fairfield.edu

PhD, University of Connecticut
Computer Engineering
Assistant Professor, Electrical and

Djedjiga Belfadel
Assistant Professor, Electrical and Computer Engineering (PhD, University of Connecticut)
djedjiga@fairfield.edu

• Machine Learning and Classification
• Signal and Image Processing
• Assembly and C-Programming
• Hardware and Firmware Development
• Sensor Fusion Algorithms
• Design and Development of Multi-DBelfadel@fairfield.edu

PhD, University of Connecticut
Computer Engineering
Assistant Professor, Electrical and

Djedjiga Belfadel
Assistant Professor, Electrical and Computer Engineering (PhD, University of Connecticut)
djedjiga@fairfield.edu

• Machine Learning and Classification
• Signal and Image Processing
• Assembly and C-Programming
• Hardware and Firmware Development
• Sensor Fusion Algorithms
• Design and Development of Multi-DBelfadel@fairfield.edu

PhD, University of Connecticut
Computer Engineering
Assistant Professor, Electrical and

Djedjiga Belfadel
Assistant Professor, Electrical and Computer Engineering (PhD, University of Connecticut)
djedjiga@fairfield.edu

• Machine Learning and Classification
• Signal and Image Processing
• Assembly and C-Programming
• Hardware and Firmware Development
• Sensor Fusion Algorithms
• Design and Development of Multi-DBelfadel@fairfield.edu

PhD, University of Connecticut
Computer Engineering
Assistant Professor, Electrical and

Djedjiga Belfadel
Assistant Professor, Electrical and Computer Engineering (PhD, University of Connecticut)
djedjiga@fairfield.edu

• Machine Learning and Classification
• Signal and Image Processing
• Assembly and C-Programming
• Hardware and Firmware Development
• Sensor Fusion Algorithms
• Design and Development of Multi-DBelfadel@fairfield.edu

PhD, University of Connecticut
Computer Engineering
Assistant Professor, Electrical and