ABE UPDATE

SPRING 2018

UF | IFAS
UNIVERSITY of FLORIDA

AGRICULTURAL & BIOLOGICAL
ENGINEERING

ABEUPDATE

Spring 2018

UF/IFAS Department of Agricultural and Biological Engineering

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ON THE COVER

Dr. Ray Bucklin works with with student Holly Kichinko observing greenhouse plant production. Dr. Bucklin retired from the Agricultural and Biological Engineering department in March 2018 after 36 years of service. Turn to Page 8 to read about Dr. Bucklin's career in UF ABE.

MEET THE EDITOR

Raychel Rabon started as the Marketing and Communications Specialist in November 2017. As marketing and communications specialist, Raychel creates and coordinates informational and promotional efforts for the department. Raychel gradated from the University of Florida with her master's and bachelor's degree from the Department of Agricultural Education and Communication with a specialization in Agricultural Communications.

Letter from the Department Chair

Dear UF/ABE family,

As the 2018 Spring semester closes, we have witnessed great things and now contemplate big changes in the UF/ABE horizon. First, I want to thank Dr. Dorota Haman, our past Chair for the last 11 years (and UF/ABE faculty for 33 years), for her transformative leadership that raised UF/ABE to one of the top departments in the nation (#4 in graduate and #6 in undergraduate programs, 2018 US N&W). Our department was incredibly fortunate to have Dorota's vision and caring spirit all these years. As we move forward in our national search for a new UF/ABE Chair, Dorota represents an indelible reminder of what great administrators should be: passionate about people and institution, visionary, caring, great listeners, proactive seekers of advice and counterargument, and effective managers. Building on Dorota's legacy, our department is poised to reach even higher in this new period ahead. This is an excellent moment to reflect carefully on what we have done well, and what are the new opportunities and challenges for UF/ABE in the next years.

ABEngineers are charged to provide engineering analysis and solutions to ensure the sustainable supply of quality food, fiber, energy and water in the context of change. This puts us at the center of the action in some of the most difficult problems our world faces and we will continue to rise to the challenge. As engineers, we focus on integrated systems (biological, agricultural, urban, natural), made of interacting components at many scales (from molecule, cell, organism, field, landscape, watershed, regional and global). UF/ABE boasts internationally recognized expertise in many cutting-edge areas (nanotechnology, biosensors, bioproducts, biofuels, crop modeling, machine learning, big data, agrometereology and climate, smart irrigation, robotics, machine vision, near and far remote sensing, drones, dynamic systems analysis, networks, uncertainty and risk analysis, biocomplexity engineering, environmental modeling, packaging and food engineering and more).

To ensure our critical role in finding solutions to these problems we must continue to secure resources in an increasingly difficult funding environment. For this, it is imperative that our profession effectively communicates to the general public what we do. Conscious of this challenge, UF/ABE recently hired our new full-time Marketing and Communications specialist, Raychel Rabon, and embarked on an effort to modernize our communications strategy through social media and a new web presence. I encourage each of you to go out and explain to those unfamiliar with ABE what ABE has done in the past to ensure the wealth and stability of the nations around the world, and what we will continue doing in the future!

Rafael Muñoz-Carpena, Professor and Interim Chair

This newsletter provides but a brief snapshot of what makes our UF/ABE department great: its people. I am very proud of all the faculty, staff and student achievements this last semester. We will sorely miss the great faculty and staff that retired this year and our students parting.

In closing, I want to highlight the new Ken and Cindy Campbell Graduate Student Travel Fellowship in Water Resources. This competition is a first product of a generous endowment by Professor Campbell that over the next years will mature into a full Doctoral Fellowship in Water Resources. Endowments are a sign of the greatest departments and institutions. I encourage our UF/ABE Alumni and friends to donate to this or create new UF/ABE endowments!

I hope you enjoy this newsletter and celebrate with me our UF/ABE family. Go Gators!

Rafael Muñoz-Carpena
Professor and Interim Chair

MEET OUR

NEW FACULTY IN ABE

YIANNIS AMPATZIDIS

Dr. Yiannis Ampatzidis began as an Assistant Professor in 2017 and leads a research and extension precision agriculture engineering program in the Southwest Florida Research and Education Center (SWFREC) in Immokalee, Florida. Dr. Ampatzidis received his B.S. in Agriculture Science in 2002 from the Aristotle University of Thessaloniki (AUTH) in Thessaloniki, Greece, with a major in row crops and ecology. After completing his bachelor's degree, Dr. Ampatzidis enrolled in the Agricultural Engineering department and completed his M.S. in 2005 with an emphasis in precision agriculture and robotics. At the same time, he completed his second bachelor's degree in Hydraulics, Soil Science and Agricultural Engineering in 2008 (AUTH). He received his Ph.D. in Agricultural Engineering from AUTH in 2010 with an emphasis on precision agriculture and automation for specialty crops.

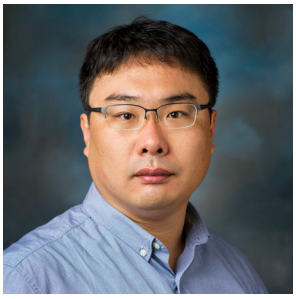
Dr. Ampatzidis works in the area of mechanization and automation of specialty crop production. He focuses on the design, development and testing of sensors and control systems for optimal management of inputs, resources and products. Dr. Ampatzidis' current research focuses on mechanical harvest of specialty crops, mechatronics, artificial intelligence, machine vision, precision agriculture, precision irrigation, smart machines, UAVs and machine systems. Dr. Ampatzidis has a special interest in development, implementation and evaluation of agricultural machines and control systems for high value crops (precision agriculture applications, remote sensing, embedded systems developing and programming, UAVs-drones, GIS applications). ■

EBAN BEAN

Dr. Eban Bean began as an Assistant Professor and Extension Specialist of Urban Water Re-sources Engineering in 2016 and is a faculty member in Sustainable Human and Ecological Development group that is part of the Program for Resource Efficient Communities and the Center for Landscape Conservation and Ecology. Dr. Bean received his B.S. and M.S. degrees from North Carolina State University in 2003 and 2005, respectively. In 2010, he received his Ph.D. from the University of Florida in Agricultural and Biological Engineering.

Dr. Bean has been working in water resources and water quality for the past 15 years, with a focus on design and evaluation of stormwater control measures for pollutant retention and removal. Prior to his current position, he was employed with Geosyntec Consultants and was an Assistant Professor of Environmental Engineering at East Carolina University where his research focused on development impacts to urban streams and evaluation of stormwater retrofits. Dr. Bean is recognized as an expert in stormwater management, in particular the performance and maintenance of permeable pavement systems and has delivered workshops and online courses on the design, construction and maintenance of various stormwater controls at local, state and international conferences and meetings.

Dr. Bean is currently researching the effect of organic amendments on the hydrologic and water quality properties of soils in newly developed residential landscapes. The focus of this work is to improve soil characteristics to increase water and nutrient availability to landscape vegetation while reducing runoff volumes and pollutant loadings. He is also evaluating a new in-stream treatment and erosion control practice for incised urban streams, known as regenerative stormwater conveyance, which is the first application of its kind in Florida. ■



YOUNG GU HER

Dr. Young Gu Her began as a hydrologist and agricultural engineer working as an Assistant Professor in 2016 at the Tropical Research and Education Center in Homestead, Florida. He earned B.S. and M.S. degrees in Agricultural Civil Engineering from Seoul National University in 2000 and 2002, respectively. In 2011, he received his Ph.D. from Virginia Tech with a major in Biological Systems Engineering specializing in hydrological modeling.

His recent research includes (1) evaluating the effectiveness of conservation practices such as no-till, filter strip, crop rotation, cover crop, and fertilizer management practices in reducing sediment and nutrient loadings, (2) developing a model to simulate low impact development practices including a green roof, rain garden, cistern, and porous pavement, (3) developing computational techniques for improved efficiency of hydrologic simulation, and (4) assessing climate change impacts on hydrological processes and water resources. He also has been involved in simulating the flood discharge and volume of stormwater for detention basin design and monitoring the hydrological processes of agricultural watersheds, including streamflow, groundwater, and water quality parameters.

Dr. Her's current research is focusing on developing a simulation tool capable of providing a holistic view of climate change and sea level rise impacts on South Florida's agriculture and water resources. His long-term research interests lie in enhancing our ability to manage agricultural crop production and natural resources in sustainable ways by (1) developing unified fine-resolution large-scale (U.F.L.) simulation tools that facilitate integrated hydrological modeling and spatially consistent decision making and (2) creating new scientific knowledge that helps us better understand hydrological processes under projected changes in climate and sea level. ■

CHERYL PALM

Dr. Cheryl Palm began work as a Research Professor in Agricultural and Biological Engineering in 2016 and a core faculty of the Institute for Sustainable Food Systems at the University of Florida in 2016. Palm received her Ph.D. in soil science from North Carolina State University after completing her bachelor's and master's degrees in Zoology at the University of California, Davis. She has served as Senior Research Scientist at The Earth Institute, Columbia University (2003-2016), and Principal Research Scientist of the Tropical Soil Biology and Fertility Program in Nairobi, Kenya (1991-2001). She has served on the faculties of North Carolina State University and Colorado State. Palm is a Fellow of the American Society of Agronomists and served as chair of the International Nitrogen Initiative (INI) from 2008 to 2011.

As a biogeochemist and tropical ecosystem ecologist, Dr. Palm's research focuses on land use change, degradation and rehabilitation, and ecosystem processes in tropical agricultural landscapes. She led a major effort quantifying carbon stocks, losses and net greenhouse gas emissions following slash and burn and alternative land use systems in the humid tropics in the Brazilian and Peruvian Amazon, Indonesia and the Congo Basin. She has spent much of the past 20 years investigating soil nutrient dynamics in farming systems of Africa, including options for soil and land rehabilitation. Her most recent work investigates the trade offs and synergies among agricultural intensification strategies, the environment, and rural livelihoods, including nutrition and income generation. She has conducted this research across diverse agricultural ecologies and farming systems in SubSaharan through the Millennium Villages Project and Vital Signs Africa at the Earth Institute of Columbia University. Dr. Palm is currently working on indicators and methods for assessing and monitoring the sustainability of agricultural intensification. ■

ADITYA SINGH

Dr. Aditya Singh began as an Assistant Professor of Remote Sensing in the Department of Agricultural and Biological Engineering at the University of Florida in 2017. Previously, Dr. Singh obtained his Ph.D. in Forestry from the University of Wisconsin-Madison and a M.S. from the Wildlife Ecology and Conservation Department of the University of Florida.

A major part of Dr. Singh's research involves developing tools and techniques for utilizing measurements obtained from combinations of contact (leaf-level), proximal (canopy-scale) and landscape-scale satellite and imaging spectroscopy data to assess plant nutrient status, health and functioning. In combination with climate data, he uses remotely sensed data to assess the effects of water, thermal and pest-induced stresses on functioning of forest trees and agricultural crops, with the aim of increasing realism in mechanistic ecosystem process models. He is also involved in a multi-institutional project aimed at developing next-generation spatial data products for the NEON Airborne Observatory Platform and is leading a project focused on assessing how environmental, demographic and socio-economic changes influences issues of food security and land use change in India. ■

J. ADAM WATSON

Dr. J. Adam Watson began as an Assistant Professor of Agricultural Operations Management in 2017. In 2010, Dr. Watson received his Bachelor of Science from the University of Florida with a major in Food and Resource Economics specializing in marketing and management. He also completed his M.S. in the Food and Resource Economics Department in 2012 at UF. After completing his master's degree, Dr. Watson enrolled in the Department of Agricultural and Biological Engineering Agricultural Operations Management Ph.D. program and minored in Horticultural Science where he completed his degree in August 2016.

As a doctoral student, Dr. Watson conducted multidisciplinary research on expanding Farm to School (F2S) efforts throughout the state of Florida. His dissertation topic focused on identifying opportunities to expand local food procurement and creating distribution networks for farmers to engage with public schools.

Dr. Watson's specialization areas include agribusiness, supply chain management, food systems, and postharvest technologies for specialty crops. His synergistic efforts include collaborating with teams of researchers involved with the Florida Farm to School Program, the Family Nutrition Program (FNP), and the Florida Department of Agriculture and Consumer Services (FDACS). Dr. Watson also works with researchers at Florida's Tropical Aquaculture Laboratory on energy efficiency and with researchers in Environmental Horticulture on the economics of controlled environment agriculture.

Dr. Watson is currently teaching courses in agri-food systems innovation, agricultural operations and systems and professional practices. He is currently developing courses in environmental systems for agricultural structures as well as material for a course in geospatial analysis for food systems. ■

BY RAYCHEL RABON

REGIONAL 3MT

From left to right: Shannon Noble, Thiago Onofre and Emilia Hodge at the regional Three Minute Thesis competition in Fayetteville, Arkansas.

University of Florida's Agricultural and Biological Engineering doctoral student Thiago Onofre was a finalist in the top eight students at the regional Three Minute Thesis (3MT) competition at the 47th Annual Meeting of the Conference of Southern Graduate Schools (CSGS) in Fayetteville, Arkansas on February 24, 2018.

The 3MT competition is a research communication contest that challenges students to discuss their thesis topic in a three-minute presentation. This contest was created to help students gain experience in academic presentation and research communications skills. This contest also helps students relate and discuss their research with non-academic audiences.

"I think that the mission of the 3MT is to help students to improve communication skills and to disseminate knowledge and build a bridge between graduate school and society," Onofre said.

Onofre placed first in the ABE deparmental Three Minute Thesis competition before moving on to the campus-wide contest at UF where he placed first overall. After his first-place win at the university-level, he moved on to the regional competition at CSGS.

"I am extremely proud to represent the AgroClimate research group in the Agricultural and Biological Department and the University of Florida at the regional 3MT competition," Onofre said. "It was the first time a candidate from our school went to the finals and I did my best."

Onofre's presentation, titled A *Wireless Sensor Network for a Strawberry Disease Warning System*, focuses on using WiFi networks along with agricultural sensors and disease algorithms to instantaneously observe weather conditions, which helps farmers make more informed decisions while also contributing to environmental sustainability.

This technology allows sensors to collect weather data in real time, send this data over the Internet, combine the data with the disease risk algorithms, and provide these results to an advisory system that notifies farmers when disease risk is too high. This helps farmers to know precisely when to apply disease preventions efforts and avoid unnecessary chemical spraying.

The Conference of Southern Graduate Schools is an organization of over 200 graduate schools of fifteen states of the Southern region of the United States. Forty-seven different universities across the South sent their students to the regional 3MT competition.

"During the CSGS meeting, I had the chance to attend to several talks and to meet deans from different universities. I am amazed with the deans' leadership skills as well as their welcoming and warm personalities," Onofre said.

Onofre presented his 3MT presentation again in competition at the first Conference of Florida Graduate Schools that was held at Florida State University on April 20, 2018.

For more information on the *Wireless Sensor Network for a Strawberry Disease Warning System, visit www.* agroclimate.org/projects/wireless-sensor-network/ ■

BY RAYCHEL RABON

CELEBRATING DR. RAY BUCKLIN

Professor Ray Bucklin has been with the University of Florida Agricultural and Biological Engineering department since 1982, a total of 36 years. During this time, he has been a part of many aspects of this department and has contributed immensely to its growth and success, serving as a faculty member as well as graduate coordinator. Bucklin has been involved in many areas of specialization during his career including agricultural structures, livestock housing and heat stress relief, grain drying and storage, structures for plant production and space agriculture and biology.

Bucklin began his time in ABE working on an Extension and Research faculty appointment with large focus of his work coming from his position as an Extension specialist for agricultural structures, which was in charge of developing plans for agricultural structures.

Throughout the 1980s, Bucklin began to focus on interior environment of livestock structures, specifically looking into livestock comfort, particularly heat-stress. He began to develop systems and facilities to be used for dairy industry that sought to provide proper ways to ventilate and cool livestock structures.

Bucklin's work caught hold in the Florida's dairy industry and it radically changed how the industry operated. For over 20 years, he worked with Florida's dairy producers to solve problems and become more profitable and competitive. During this time, dairy producers were needing a way to account for manure production, but this was difficult with the industry standard in Florida being predominately pasture facilities. As producers moved cattle into barns, a need for proper ventilation and cooling arose. Bucklin helped to design proper agricultural structures that served the livestock as well as the producers.

"The need to have concentrated areas where manure was collected caused producers to start putting up structures that they didn't have before," Bucklin said. "Once they started doing that, we found that when these structures were properly ventilated and cooled producers got higher production than they were getting previously on pasture."

Bucklin's original training was in grain handling and storage and he has maintained contacts in this industry throughout his career. As a part of committees concerning grain storage structures, he and his colleagues

studied ways in which grain structures are built and the forces that grain imposes on those structures. This work allowed him to contribute to the industry standards for grain storage designs used throughout the country.

Bucklin has also worked in the field of space agriculture and biology. While working on a NASA effort with a past student beginning in the mid to late 90s, he and his team started to explore how to incorporate plant growth into long-term space missions.

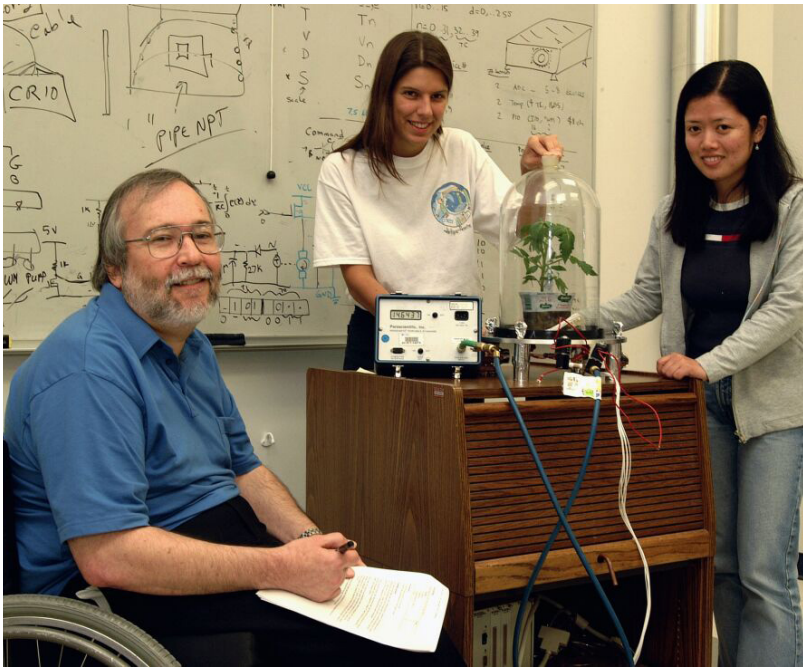
"Right now, even on the International Space Station, everything they consume is launched from the earth and some of it is also sent back. We can use plants to supply a lot of that," Bucklin said. "In addition, they also have to regenerate the air and they have chemical methods of purifying the air and recycling it, well that's what plants do for a living and essentially the same thing with water. So, for the same reasons that plants are part of our ecosystem here, essentially, we could put plants into that type of system and not have to keep shipping up supplies."

Since starting in this department 36 years ago, Bucklin has seen it evolve over time. When he started at UF, Bucklin remembers the broad subject areas the department found in. He also recalls the water programs reaching maturity and strength that still holds true today. As the department's goals developed, research began to gain importance. Over time, this research emphasis encouraged a growth in the department's graduate student program.

"So, the research grew more important and the graduate program has responded to that increase in research," Bucklin said. "When I came here, we may have had around 20 graduate students and a brand-new Ph.D. program. The number of graduate students we've had has really grown over the time I've been here."

As he closes out his time in ABE, Bucklin will remain active in the department while he works with his remaining four graduate students finishing their programs. He also hopes to return to his roots within the grain and storage industry, doing work and consulting with past student contacts within the industry. ■

Dr. Ray Bucklin
bucklin@ufl.edu



Left Photo: Dr. Ray Bucklin working with PhD students Yang Mu and Inka Hublitz on a low pressure plant growth chamber for NASA Mars Greenhouse project. Right Photo: Dr. Ray Bucklin receives Rural Builder Hall of Fame 2008 Fellow from American Society of Agricultural and Biological Engineers.

FROST SCHOLARSHIP PROGRAMME

Land and Water Resource Engineering student Rachel Lo has been selected for the 2018 Frost Scholarship Programme at the University of Oxford, U.K. This program funds students of the State University System of Florida and University of Miami to study full-time for one year in Master of Science courses in science, technology, engineering and mathematics.

Rachel will be using her time at Oxford to complete a coursework-only Master of Science degree in Biodiversity, Conservation, and Management. This degree program aims to provide understanding of biodiversity science along with socio-economic, political, cultural and institutional environments of management and policy.

By integrating her engineering background and the social sciences management training she will receive, Rachel's goal is to work in environmental conservation in the future. After attending Oxford, Rachel plans on pursing a Ph.D. program, possibly in Environmental Engineering and Policy. ■

NSF GRADUATE RESEARCH FELLOWSHIP

Land and Water Resource Engineering student Sharmin Siddiqui was selected for the National Science Foundation (NSF) Graduate Research Fellowship. This program recognizes outstanding students in NSF-supported science, technology, engineering, and mathematics disciplines.

A group of 2,000 students were selected for the NSF Graduate Research Fellowship Program from over 12,000 applicants. These selected students will have opportunities for international research and professional development, along with the freedom to conduct their own research.

Sharmin graduated from ABE in May with her bachelor's degree. Siddiqui will continue her graduate studies at the University of Florida where she will pursue her Ph.D. in Environmental Engineering.

Her graduate project will focus on the impact of dams on the Amazon and work to determine management strategies that will support the conservation of the Amazon River. ■

UF PRESIDENT WITH ABEGSO

By Thiago Onofre

UF President Kent Fuchs joined the ABE Graduate Student Organization to present a professional development discussion on his leadership style and the experiences that brought him to the University of Florida.

Dr. Fuchs spoke about his focus of servant leadership and his goals for the growth and well-being of the UF community. Through this servant leader approach, Dr. Fuchs aims to put the needs of others first and strives to help people develop and preform at their highest ability by creating opportunities for their growth and development for departments across UF. This leadership method has proved to be a success as Dr. Fuchs recently lead UF to a position on the top 10 list of best public universities.

When reflecting on his past experiences, Dr. Fuchs encouraged the students to be open to new opportunities, work hard, communicate effectively, and to love and respect one another.

After presenting to the graduate students, Dr. Fuchs toured ABE laboratories shown by Department Chair, Dr. Dorota Haman. ■

CLUB UPDATES

AOM Club

By Valentino Collazo, Club President
Advisor: Dr. J. Adam Watson

After 3 years, the AOM club was reformed this semester. We began the spring semester by touring one of Gainesville's most prominent breweries, Swamphead Brewery. In March, along with the UF ASABE, the ABE Graduate Student Organization, and the UF Packaging Club, we raised over $3000 in a joint fundraiser cleaning chairs in Frazier Rogers Hall. The AOM club also hosted guest speaker UF alumnus Kyle Freimuth from HM Clause, the 2nd largest vegetable seed company in the world. UF students, including AOM Club member Valentino Collazo, were awarded the Andrew and Walter Young YMCA Scholarship to attend the AgLanta 2018 Conference on urban and controlled environment agriculture. The AOM Club also toured Alliance Dairies, the largest free-stall dairy in the state and one of the few dairies that produce onsite renewable energy. ■

ASABE

By Charles Buckley, Club President
Advisor: Dr. Richard Scholtz

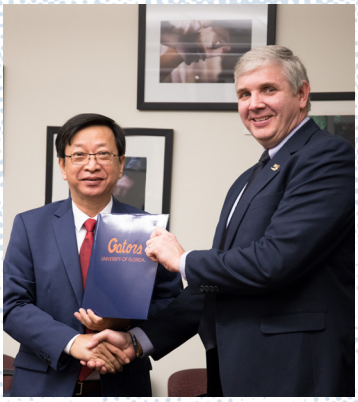
This year, ASABE hosted speakers from industry, research fields, and from UF on topics ranging from fractal research to engineering design. ASABE spent a large portion of the academic year building relationships with UF programs and prospective students. Through a partnership with the Field and Fork Farm, UF ABE students helped build transparent vermiculture bins, allowing Gainesville middle school students to learn about composting. ASABE also represented UF at the Southeast Regional Rally in April, highlighting the school's prominence in ABE fields and will be traveling to compete in the ASABE sponsored Fountain Wars and Robotics competitions in Detroit this year. The combination of these - with social, intramural, recruitment events, and a dedicated and driven officer team - ASABE was awarded the Benton Engineering Council's "Most Outstanding Small Society Award". Having elected an outstanding new officer board, ASABE is excited for the next year! ■

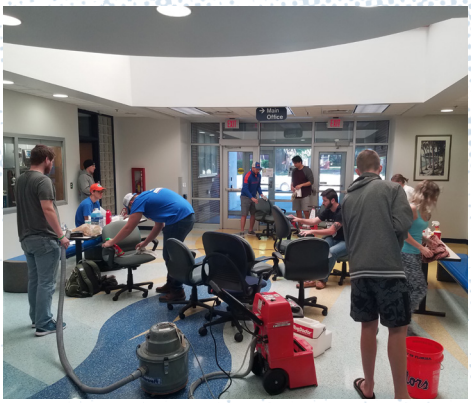
Packaging Club

By Gregory Aumann, Club President
Advisors: Dr. William Pelletier and
Dr. Bruce Welt

The Packaging Club is pleased to have participated in many events this year. The Packaging Club was able to send a delegation to the PackExpo in Las Vegas to showcase our talents among the best Packaging programs in the nation. We also had a six-student team travel to Atlanta to represent us at the first Industrial PackExpo, which included hundreds of companies across the industry. We are also pleased to have two extremely talented design teams assembled this year. Our 48-hour RePack team created a brand-new design for sparkling juice beverages made from more biodegradable materials than an aluminum can. They also produced a small advertisement and a prototype all within 48 hours. Currently, our Paperboard Packaging Alliance design team is hard at work making a new take on the external and internal packaging for subscription boxes such as Blue Apron and Hello Fresh. ■

SEMESTER IN REVIEW





(Top to Bottom, Left to Right) ABE's new graduate student office space was opened in Frazier Rogers Hall. Vitoria Morgan wins 2018 ABE Poster Symposium. Dr. Dorota Haman, ABE Professor and Chair, retires after 33 years. Dr. Wendell Porter, Daniel Preston and Shannon Noble win UF/IFAS Superior Accomplishment Awards (Photo by Tyler Jones). Dr. Vo Van Thang, the Rector of An Giang University, signs a memorandum of understanding with Dr. Allen Wysocki, Associate Dean of the UF College of Agricultural and Life Sciences. ABE students at Spring 2018 commencement with Dr. James Leary (Photo by Madison Keller). UF President Kent Fuchs joins ABE Graduate Student Organization for lunch and professional development. ABE Clubs raise money through department chair cleaning fundrasier (Photo by Dr. J. Adam Watson).

CONGRATULATIONS TO OUR

GRADUATING STUDENTS

SPRING 2018

YONGMIN CHUNG

Doctor of Philosophy
Agricultural Machinery
Advisor: Dr. Tom Burks

HUNTER MERRILL

Doctor of Philosophy
Statistics
Advisor: Dr. Nikolay Bliznyuk

NA WU

Doctor of Philosophy
Lifecycle Analysis of Biofuels
Advisor: Dr. Pratap Pullammanappalli

JAMES CANTER

Master of Science
Biological Engineering
Advisor: Dr. Bruce Welt

Alexandra Allegeyer, B.S.
Agricultural Operations Management

Katlin Arizpe, B.S.
Biological Engineering

Danielle Bartholet, B.S.
Biological Engineering

Jacob Belisle, B.S.
Agricultural Operations Management

Michael Bonaiuto, B.S.
Biological Engineering

Charles Buckley, B.S.
Biological Engineering

Leah Culkar, B.S.
Biological Engineering

Barry Fleming, B.S.
Agricultural Operations Management

Kelsey Gunthorp, B.S.
Agricultural Operations Management

Chad Hentsler, B.S.
Biological Engineering

Robert Hjort, B.S.
Biological Engineering

Jessica Holmes, B.S.
Biological Engineering

Natasha Joseph, B.S.
Biological Engineering

Madison Keller, B.S.
Biological Engineering

Rachel Lo, B.S.
Biological Engineering

Kathryn Mabee, B.S.
Biological Engineering

Vishal Maharaj, B.S.
Agricultural Operations Management

Alexander Maser, B.S.
Biological Engineering

Janess Mederos, B.S.
Agricultural Operations Management

Lindsey Olson, B.S.
Biological Engineering

Arianna Partow, B.S.
Biological Engineering

Jordan Rivers, B.S.
Agricultural Operations Management

John Roddenberry, B.S.
Biological Engineering

Hannah Schmidt, B.S.
Biological Engineering

Sharmin Siddiqui, B.S.
Biological Engineering

Tyler Simpson, B.S.
Agricultural Operations Management

Treay Stinson, B.S.
Agricultural Operations Management

Treay Stinson, B.S.
Agricultural Operations Management

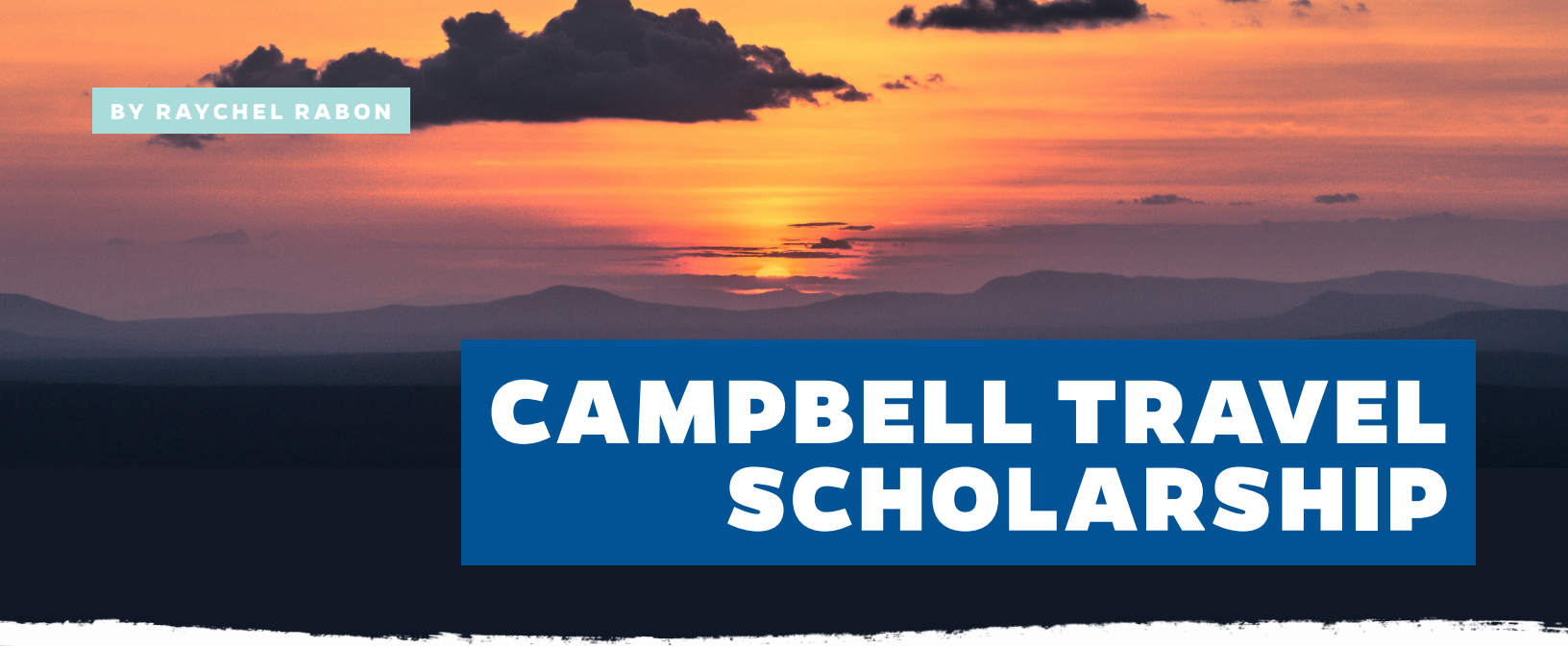
Joseph Thomas, B.S.
Agricultural Operations Management

Kelly Thomas, B.S.
Biological Engineering

Taylor Wear, B.S.
Agricultural Operations Management

Robert “Max” Werling, B.S.
Agricultural Operations Management

Sarah Zybell, B.S.
Biological Engineering



BY RAYCHEL RABON

CAMPBELL TRAVEL SCHOLARSHIP

Three Agricultural and Biological Engineering students have been awarded the Ken and Cindy Campbell Graduate Student Travel Scholarship to support their travel, conference and field research efforts in water resources.

The Ken and Cindy Campbell Graduate Fellowship was created in 2015 to support graduate students researching water-related issues in the ABE department at the University of Florida/IFAS. This travel scholarship is created from endowment funds to further support graduate students. Ken Campbell is a Professor Emeritus in the UF ABE department where he served on the faculty for 35 years. His research on water pollution and the reduction of agriculture's impact on water quality degradation has been critical to the adoption of soil and water management practices in Florida.

2018 scholarship winners **Enrique Orozco-López**, **Marco Pazmiño-Hernández**, and **Kathleen Vazquez** are Land and Water Resources Ph.D. students in UF ABE. Each of these students have been awarded $1000 to be used for various aspects of their field projects in water resources.

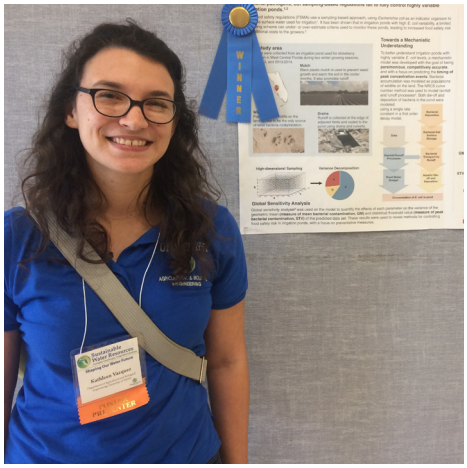
Enrique Orozco-López's project will evaluate land-use impacts on water quality and mitigation practices in the quickly developing Sub-Saharian region of Kenya's Ewaso Ng'iro North drainage basin. The scholarship funds will contribute to Enrique's travel expenses while living in Kenya and carrying out research with a team at the Mpala Research Centre. Team members on this project, from both ABE department and Soil and Water Sciences department, will study the current situation and potential mitigation techniques like riparian buffers of this highly polluted ecosystem.

Marco Pazmiño-Hernández will be serving as a teaching assistant for the Tropical Conservation and Sustainable Development Law, Policy and Professional Practice course in Costa Rica this summer. During this course, Marco will be involved in a workshop facilitated by both local stakeholders and the UF Water Institute Graduate Fellow Program (WIGF) to focus on scenario planning for future water management in the Tempisque-Bebedero watershed. This course includes a multidisciplinary group from UF Law and UF WIGF program. Marco will contribute to the enrichment of the group's relationship with the local water institutions and improve the multidisciplinary research approaches that are needed to better manage the Tempisque-Bebedero watershed.

Kathleen Vazquez's project focuses on social-ecological systems modeling in the Tempisque-Bebedero basin in Costa Rica. Her scholarship will be used for Kathleen's travel to Costa Rica for study of the Tempisque-Bebedero basin, stakeholder engagement through scenario planning and an environmental policy course with a focus on hydrologic connections within the basin. Kathleen's site visit and stakeholder engagement using scenario planning will help to develop policies for the large uncertainties within the system involving the Tempisque-Bebedero basin in cooperation with the Organization for Tropical Studies. ■

Enrique Orozco-López receives Best Graduate Poster Award at the 2018 UF Water Institute Symposium, presented by Dr. Wendy Graham.

Marco Pazmiño-Hernández in Costa Rica where he will serve as a teaching assistant for the Tropical Conservation and Sustainable Development Law, Policy and Professional Practice course this summer..



Kathleen Vazquez presents an award-winning poster at the 2018 UF Water Institute Symposium.

AGRICULTURAL AND BIOLOGICAL ENGINEERING ENDOWED SCHOLARSHIPS

Allen G. Smajstrla Scholarship
2017 Recipient: Victoria Steinnecker
Scholarship for undergraduate Agricultural and Biological Engineering or Agricultural Operations Management students interested in water resources.

Bob and Virginia Peart Scholarship
Supports scholarships to Agricultural Operations Management students.

Florida Section ASABE Scholarship
2018 Recipient: Zhonglin Lai
Supports scholarships for students in Agricultural and Biological Engineering department.

Giles and Martha Van Duyne Scholarship
2017 Recipient: Mackenzie Shepard
Supports scholarships for students in Agricultural and Biological Engineering.

John B. Boy/US Sugar in Agricultural Engineering Scholarship
2018 Recipients: Rachel Lo and Ryan Richardson
Support annual scholarships in Agricultural Engineering for students who are U.S. and Florida residents. Recipients will be offered opportunities for cooperative employment during Fall or Spring semester and employment after graduation.

Ken and Cindy Campbell Graduate Scholarship
2018 Recipients: Enrique Orozco-López, Marco Pazmiño- Hernández and Kathleen Vazquez
Supports graduate students researching water-related issues in the Agricultural and Biological Engineering department at UF/IFAS. Upon the completion of the endowments funding, the endowment will be used to support graduate fellowships.

McNair Bostick Scholarship
2018 Recipient: Kirsten Paff
Supports award to Ph.D. student in Agricultural and Biological Engineering who is working on modeling and analysis of agricultural systems and natural resources; recipients of this scholarship should be selected on the basis of 1) scholarship, 2) leadership in the university/ community, 3) dedication to his/her career, 4) high quality research related to sustainable management of agricultural and natural resources.

Michael V. Thomas Student Enrichment Scholarship
Supports awards to upper division undergraduate and graduate students in Agricultural and Biological Engineering for international learning in environmentally sound agriculture: 1) study abroad, 2) study tour, and/or 3) travel awards.

Rush Choate Endowed Scholarship
Support scholarship for students pursuing degree in Agriculture, Forest Resources & Conservation or Agricultural Engineering.

Sun-Fu "Tony" Shih Scholarship
2018 Recipient: Bonita Trinter
Support scholarships to Agricultural and Biological Engineering students at UF.

AWARDS & ACCOMPLISHMENTS

- **Dr. Kati Migliaccio** and **Dr. Sanjay Shukla** received the *2018 UF Research Foundation Professors Award* for their distinguished current record of research and a strong research agenda.
- **Three ABE staff members** received the *UF/IFAS Superior Accomplishment Award* for their work serving the department: **Dr. Wendell Porter** (Community Service Category), **Shannon Noble** (Administrative and Professional Category), and **Daniel Preston** (Scientific and Technical Category)
- **Dr. Natalie Nelson**, ABE Alumna and NC State Assistant Professor, and **Dr. Rafael Muñoz-Carpena**, Nelson's Advisory Committee Chair, received 2018 *UF/IFAS Best Doctoral Dissertation*.
- **Raminder Kaur** was selected as one of nine recipients from the University of Florida to be awarded the *Trellis Fund grant*.
- **Enrique Orozco-López** and **Kathleen Vazquez** were award recipients for posters presented at the UF Water Institute conference. Orozco-López won the Water Institute Student Poster contest. Vazquez's poster was judged to be one of the four top-scoring winners in the student-poster competition.
- **Kira Hansen** and **Miles Medina** placed first and second, respectively, in the poster competition at the Southwest Florida Water Resources Conference.
- **Mary Szoka** won the Urban Landscape Summit Poster Competition.

DEPARTMENTAL NOTES

- **Dr. Dorota Haman** retired in May after 33 years in the department (11 as department chair). She has been awarded *professor emeritus* status.
- **Dr. Ray Bucklin** retired in March after 36 years in the department. He has been awarded *professor emeritus* status.
- **Dr. Fedro Zazueta** was inducted as the *president of the International Academy of Agricultural and Biological Engineering* at the CIGR 2018 meeting.
- **Dr. Michael Dukes** was elected to the *Irrigation Association Board of Directors*.
- **Dr. Senthold Asseng** was named to the global leadership panel for the *Agricultural Model Intercomparison and Improvement Program (AgMIP)*.
- **Max Williams** received his *Master of Agribusiness* degree from the UF Department of Food and Resource Economics.

RECENT MAJOR GRANTS

TOWARDS A MULTI-SCALE THEORY OF COUPLED HUMAN MOBILITY AND ENVIRONMENT CHANGE ($5.1M)

The aim of this project is to develop a modeling framework that integrates existing migration theories and use it to further develop an integrative theory of the interplay between human migration and environmental changes. It will use a mixed-methods approach, including dynamical system modeling, multilayer network approaches, and Bayesian inference. The team consists of researchers from the University of Florida, Columbia University, and East Carolina University. The project is funded for five years by a grant from the Department of Defense -MURI program. ABE researchers involved in this project include **Dr. Rachata Muneepeerakul** and **Dr. Rafael Muñoz-Carpena**.

A MOBILE, SELF-CONTAINED, PILOT ANAEROBIC DIGESTER FACILITY FOR CONVERSION OF NON-AGRICULTURAL RESIDUES IN MINNESOTA TO ELECTRICITY ($1.1M)

The aim of project will be to construct a mobile, self-contained, flexible design, pilot scale digester that will be used to demonstrate biogasification of organic wastes from commercial food and biofuel processing facilities in Minnesota. The mobile pilot scale unit will have the capability of handling both solid and liquid waste streams and the design can be tweaked to suit the feedstock. At each site the unit will be operated for a year to subject it to seasonal variations in feedstock quality and characteristics. Demonstration at industrial sites will complement laboratory research and together will evaluate appropriate anaerobic digester designs for industrial wastes that can be potentially biogasified. The project is funded for three years by a grant from the Renewable Development Fund of Xcel Energy Inc. ABE researcher **Dr. Pratap Pullammanappallil** will lead this project.

ABEUPDATE

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