Biomedical Engineering TRANSCRIPT

FALL 2017

UNIVERSITY OF DELAWARE | COLLEGE OF ENGINEERING

CLIMBING THE CHARTS

SEVEN YEARS & GROWING

STUDENTS LEAD THE WAY

INNOVATION & ENTREPRENEURSHIP

GRANT CHAMPIONS

STELLAR FACULTY RECOGNIZED

UNIVERSITY OF DELAWARE

bme.udel.edu

CHAIR'S MESSAGE

FRIENDS,

This has been a great year for the Department of Biomedical Engineering at the University of Delaware. Our well-rounded students continued their legacy of winning awards for research and entrepreneurship. Our faculty received the most grant funding in the department's history, including many awards from NIH. As usual, our faculty members published multiple papers in high-quality journals. Our recent alumni are working for major industry players or continuing their education at top universities.

I am also pleased to announce that I have been elected to serve as the next president of the Biomedical Engineering Society (BMES), a role I will assume at the organization's annual meeting in 2018. I am honored to represent our profession in this capacity and work with other leaders in the field.

On the pages that follow, you will learn more about what makes the biomedical engineering department at the University of Delaware special. We apply our engineering expertise to a wide range of human health challenges, from studying how rotator cuff injuries heal (page 12) to improving drug delivery for cancer treatment (page 17). We challenge our undergraduate students to devise solutions to real-world problems, as you will see on page 8, where we are highlighting a student group that adapted a kayak for a teenager with cerebral palsy. We prepare our graduate students to be future leaders in the field, as you will see with our Whitaker Fellowship winners on page 10.

I am proud to lead this department as it continues to grow and thrive. I hope you will connect with us on Linkedin and follow our latest news at bme.udel.edu.

Best wishes,

Dawn Elliott

Blue & Gold Distinguished Professor and Chair
University of Delaware Department of Biomedical Engineering

Connect with us on LinkedIn
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Fall 2017

BME

Biomedical Engineering is published by the Office of Communications in the College of Engineering for the alumni, friends and peers of the College of Engineering.

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Biomedical Engineering TRANSCRIPT

UNIVERSITY OF DELAWARE

Climbing the Charts

In just seven years, we've built a top-quality department

UD's Department of Biomedical Engineering has grown from a small program to a thriving department over the past seven years. Beginning in 2010 as an undergraduate program, it achieved departmental status and received national accreditation in 2015. In 2016, it debuted in the U.S. News and World Report ranking in the upper 50 percent of programs across the country and this year rose to the top 40%.

The department's faculty and staff are engaged, committed and on a trajectory for success. Currently there are 15 core faculty and over 50 affiliates. The highly talented faculty are performing high-quality research and publishing in prestigious journals. They are also winning grant funding that has tripled in the last 2 years, coming primarily from large NIH faculty grants. In the 2016-17 academic year, new grant funding for the department totaled $5.8 million.

UD BME's educational programs are flourishing. Its undergraduate program remains filled to capacity with high achieving students. Over 40% are enrolled in the UD Honors Program, and over 60% are involved in research or industry internships. Many undergraduate students are also involved in entrepreneurial endeavors, winning recognition at various local and national competitions. In addition, BME boasts several highly accomplished student athletes who have received awards in tennis, field hockey and track.

UD BME's doctoral program was added in 2012 and has grown rapidly to 50 students in 4 years. Over that time, many of these students have received recognition, with 36% attaining various departmental, university, national and international fellowships and awards.

During its short life, UD BME has fostered extensive collaborations with members of the Delaware Health Sciences Alliance and other clinical organizations and has formed connections with partners in industry. In the upcoming years, UD BME plans to continue strengthening these ties with clinicians, expanding its industry connections, diversifying its research portfolio, increasing its community and global outreach and fostering more entrepreneurial activity.

Opposite page: BME graduate student Justin Hollenbeck scaling a rock face at Red Rock Canyon Open Space in Colorado Springs, CO.

FEATURE

Fostering Innovation and Entrepreneurship

UD BME students are strongly encouraged to connect with industry and to design novel inventions. Many student teams have won recognition this year for their entrepreneurial accomplishments.

Brad and Jennifer Bono Award

BME senior Erica Comber was awarded the Brad and Jennifer Bono Award from the Horn Program in Entrepreneurship for her entrepreneurial leadership and social impact. Comber will receive a Venture Development Center credit to further her entrepreneurial education through startup activity.

GeoSwap and Vibrating Therapeutic Apparel both place first at Hen Hatch

At this year's Hen Hatch, UD's premier start up funding competition hosted by the Horn Program in Entrepreneurship, two teams founded by BME students placed first. GeoSwap, whose founder and CEO is BME senior Jason Bamford, placed first in the student track, taking home $21,000 to further grow its venture. GeoSwap is a social networking app that lets users tap into the pulse of their city and provides businesses with real engagement with their customers. The team also won fourth place at the local College Pitch Philly competition. On a larger scale, it placed sixth at e-Fest, one of the largest undergraduate-only entrepreneurship competitions in the nation, and took third place in the e-Fest Innovation Challenge, being recognized nationally as one of the top 25 university undergraduate startups in the U.S.

Vibrating Therapeutic Apparel (VTA), whose founder is BME alumnus Amira Idris, was awarded a first place prize of $17,500 in the alumni, faculty and staff track at Hen Hatch. This invention began as an idea to solve a clinical problem that Ms. Idris encountered in the Clinical Immersion course she took as a junior in BME. VTA, which includes current BME students Srinivasa Gajjala, Matt Ballman, and Claire Paddock, offers wearable, therapeutic products that use vibration technology to help alleviate pain for amputees. This team also placed first at the College Pitch Philly competition.

First Step Grand Challenges

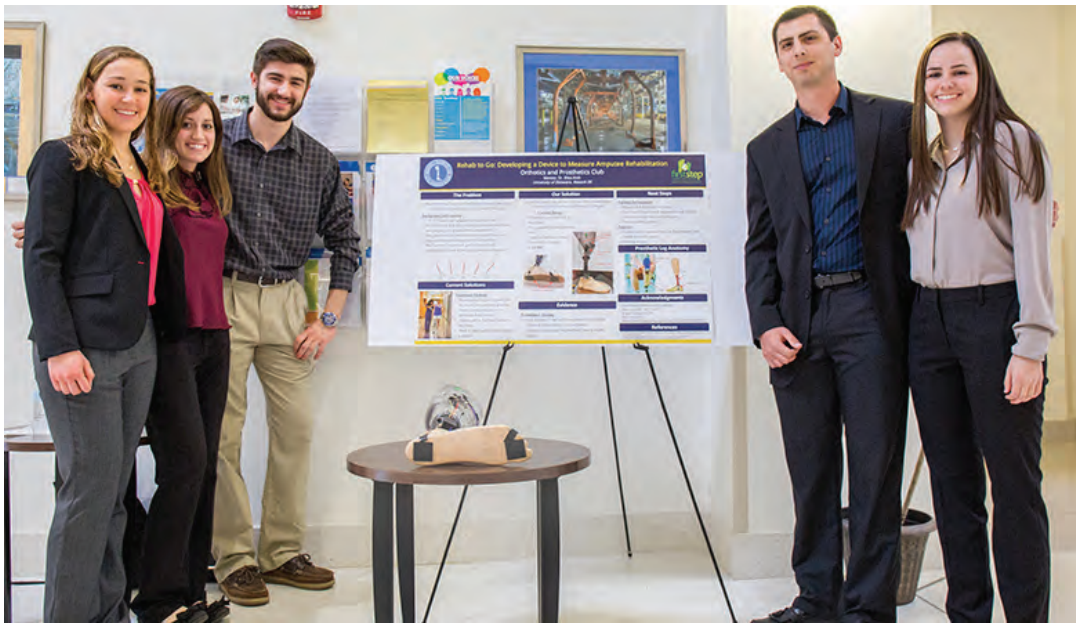
BME junior Brianna Hulbert and sophomore Michael Raccuglia are part of the Rehab to Go team that was awarded at this year's First Step Grand Challenges innovation competition. This yearlong competition, spearheaded by the College of Health Sciences and the Horn Program, invites undergraduate students from all disciplines to develop novel solutions to societal and environmental challenges. Rehab to Go won both the first place award of $5,000 and an innovation award of $1,500. This device is used outside physical therapy sessions to provide live assessments of walking patterns of amputees so bad gait habits and potential injuries can be avoided.
The Grand Challenges competition also awarded $500 to a team from Assistive Medical Technologies (AMT), a student group advised by BME assistant professor Sarah Rooney and dedicated to designing, building, and distributing cost-effective models of assistive medical devices to enable non-discriminatory access and availability to various groups of people. This team led by BME senior and AMT president Erica Comber adapted a kayak for a teen with cerebral palsy, creating an attachment mechanism for the oars that prevented them from falling into the water.

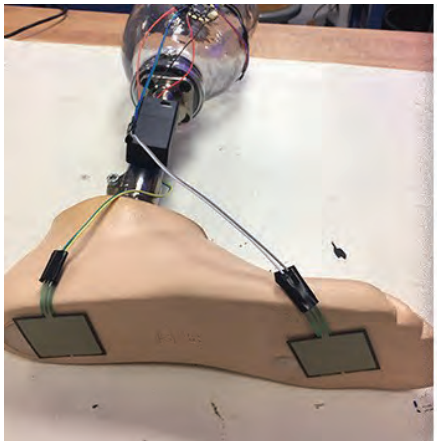
NSF I-Corps Sites Program awards senior design groups

Two senior design teams received awards from the NSF I-Corps Sites program. This program provides mini grants of $3,000 and specialized training to support team-based customer discovery research that investigates the commercial viability of a technology. One team with BME seniors Sarah Peden and Marjelle Scheffers invented an affordable and portable cardio training device so manual wheelchair users could train anywhere. This team also placed third at SB3C, a national design competition. Another team with BME seniors Brooke Catalfamo, Erica Comber, Jeff Janofsky, Julia Scali and David Shoemaker created an endoscopy tool to remove esophageal meat impactions, thus decreasing procedure time and cost. This design has been submitted for a provisional patent. The team also received $250 from UD's VentureOn program to further grow their business. Other BME students participating on various NSF I-Corps Sites teams were Srinivasa Gajjalla, Claire Paddock, Matt Ballman, Destiny Neumann, Juliana Gullotta, Sam Scheid, and Dan Owens.

BME junior design students connect with industry

A local clinic, Independence Prosthetics-Orthotics, sponsored 13 teams of BME students in their junior design course to develop a hands-free unlocking mechanism for a prosthetic knee used by amputees. At the end of the semester, the clinic offered 3 juniors – Andrew Dirks, Claire Paddock, and Thang Dao – summer internships to continue developing the most viable design.

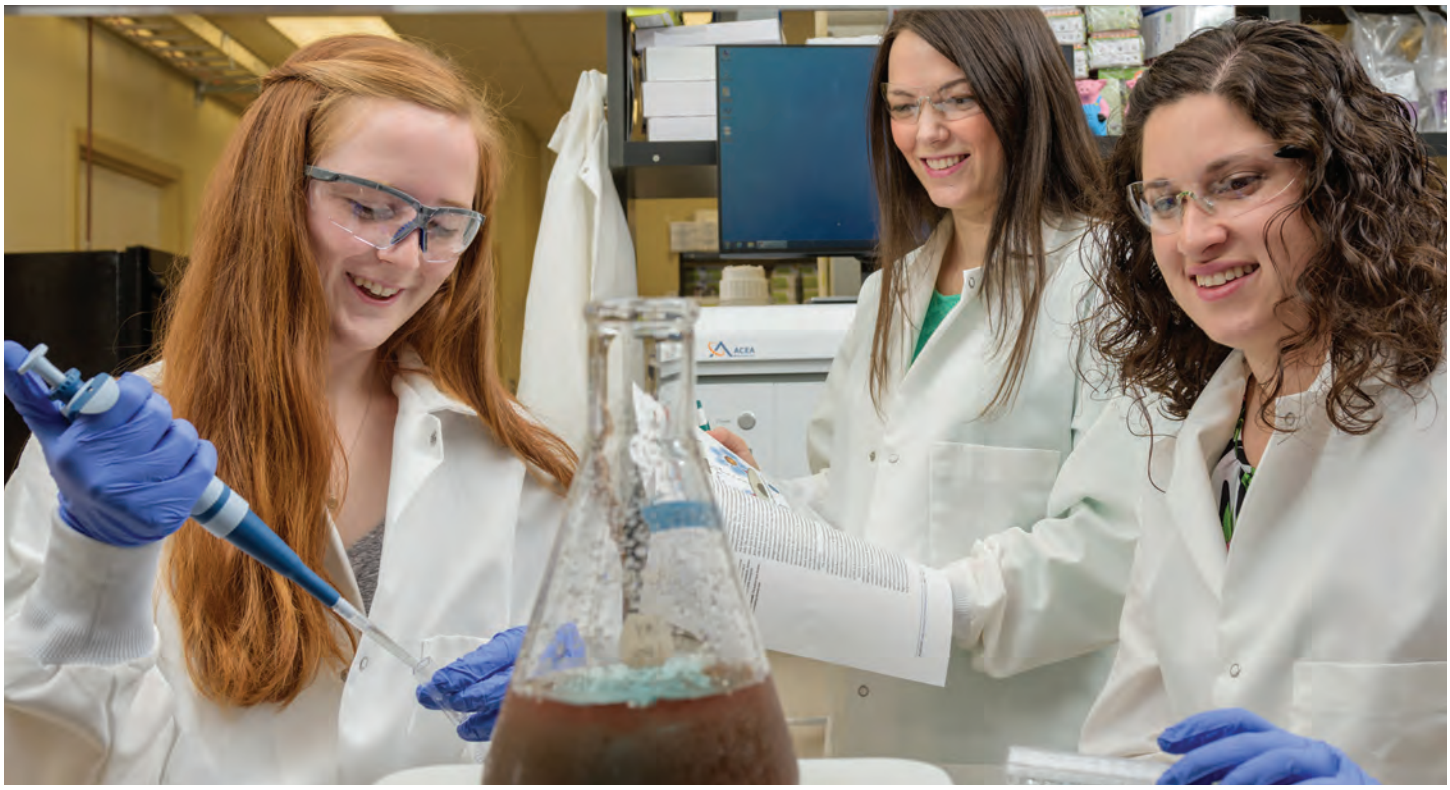




Clockwise from top left:

BME Senior, Jason Bamford; BME Alumnus Amira Idris; Orthotics & Prosthetics Club: (L to R) Madison Ciccaglione, Brianna Hulbert, Mike Raccuglia, Cory Cacciola, and Kristen Reilly; Rehab to Go: Instrumented prosthetic that helps amputees learn to walk properly by providing vibration feedback to their residual limb.

UNDERGRADUATE STUDENT NEWS



Left to right: BME junior Margaret Billingsley, Faculty Dr. Emily Day, and doctoral student Rachel Riley.

Improving cancer detection

BME junior Margaret Billingsley is the lead author on a paper published in PLOS One that investigates a strategy to improve the sensitivity of ELISA-based detection methods, the most common technique used to detect disease-associated biomarkers. ELISA typically involves incubating primary antibodies with biological samples containing the biomarker of interest, and then binding detectable antibodies to these primary antibodies. However, while ELISAs can analyze samples with high biomarker content, they lack the sensitivity required to analyze those with low content. To increase the signal and improve detection, Billingsley has worked in Emily Day's lab with BME graduate student Rachel Riley to investigate using ELISA with nanoparticles that are decorated with antibodies specific to epidermal growth factor receptor, an important biomarker in a number of diseases. Their research has successfully demonstrated that this approach improves detection of breast cancer cells relative to traditional ELISAs. Future work will study other antibodies and nanoparticles and use this technology to detect diseased cells in complex solutions, such as urine and whole blood.

Research experiences for undergrads

The first year of UD's Dare to BE FIRST Research Experiences for Undergraduates (REU), funded for 5 years, was a resounding success. Led by Drs. Jill Higginson and Lucas Lu, the program is housed within UD's Center for Biomechanical Engineering Research (CBER) and aims to create independent research experiences in biomechanical engineering for undergraduate students with diverse backgrounds. Research advisers include UD BME faculty and student majors include BME, with project topics ranging from cellular-level tissue mechanics to 3-D printing and characterization of a unique material that has potential applications in athletic shoe insoles.

Truman Scholar Finalist

BME junior Zachary Sexton has received honorable mention for the Goldwater Scholarship and has been named a Truman Scholar finalist. Truman scholarships are awarded to juniors who have outstanding leadership potential, plan to pursue careers in public service and plan to attend graduate school.

BMEs who graduated with Honors Degree with Distinction

Christopher Bresette

Erica Comber

Neil Mathur

Lacey Perdue

Peter Sariano

Undergraduate Student Honors

BME Chairperson's Award

Pete Sariano
Erica Comber

BME Distinguished Junior Award

Margaret Billingsley
Zachary Sexton

BME Distinguished Senior Award

Christopher Bresette
Rebecca Kowalski

BME Distinguished Sophomore Award

Branden Bateman
Abigail Dela Paz

Matthew Maguire Celebration of Life Memorial Award

ALUMNI NEWS

NSF Graduate Research Fellowships

Two UD BME students have won National Science Foundation Graduate Research Fellowships as the prestigious competition marks its 65th year. The awards – that received more than 13,000 applicants this year – include three years of funding plus cost-of-education allowances to the school for study leading to a master's or doctoral degree in science and engineering. Ian Berke (BS'2016) who worked in Chris Price's lab as an undergrad is now pursuing a PhD in biomedical engineering at Washington University. Senior Peter Sariano who worked in Jason Gleghorn's lab will be attending UC Davis for his PhD in Fall 2017.

Peter Sariano

Ian Berke & Dr. Chris Price

Our Alumni can be found at these companies and institutions

GRADUATE STUDENT NEWS

Laird Fellow

Charlotte Chaze has received UD's prestigious Laird Fellowship that recognizes students who engage in broadening intellectual pursuits.

Before arriving at UD, Chaze had already co-authored six journal publications as well as 15 posters and presentations on work carried out at the Mind Research Network in Albuquerque, the Max Planck Institute in Germany, and Towson University in Maryland, where she earned her undergraduate degree. At UD, her doctoral research with assistant professor Curtis Johnson focuses on using a technique called magnetic resonance elastography to quantify the viscous and elastic properties of the brain when undergoing deformation, because changes in these properties can be associated with disease and changes in brain function. Aside from her scientific accomplishments, Chaze has hiked in the Adirondacks, kayaked on Lake Louise, motorbiked through Vietnam, played the guitar, refereed for Lego League, repaired a MacBook and built a motorbike. "Charlotte is a Renaissance woman, with curiosity and intellectual depth that epitomizes the goals of the Laird Fellowship and also the kind of student we want in our doctoral program," said department chair and professor Dawn Elliott. "We are all very proud of her."

Chaze is the fourth biomedical engineering student to win the Laird Fellowship over the past five years. The others were Axel Moore (2013), Keely (Heintz) Keller (2015), and Danielle Valcourt (2016).

Whitaker Fellowships

Axel Moore has won a prestigious Whitaker International Fellowship that sends young biomedical engineers abroad for a year to complete academic or scientific research, coursework, or internships. Moore will join the research group of Dr. Molly Stevens, professor of biomedical materials and regenerative medicine and the research director for biomedical material sciences in the Institute of Biomedical Engineering at Imperial College London.

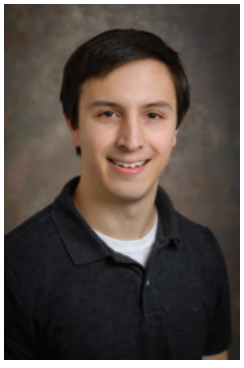
"This experience will provide me with unparalleled resources and further training and mentorship," Moore says. "My career goal is to develop a leading research group in the fields of soft tissue mechanics and functional tissue engineering. I want to focus on understanding how tissues withstand mechanical stresses and how various mechanical stresses drive tissue organization."

At UD, Moore's doctoral research with associate professor in mechanical engineering David Burris focuses on the mechanics of human joint lubrication. He already has a strong research track record, with 23 national and international podium presentations and eight peer-reviewed papers. He has also mentored 17 undergraduate researchers and participated in K-12 engineering outreach.

Another Whitaker International Fellow, Laura Lane, is a graduate student in assistant professor Curtis Johnson's lab. She is currently performing research in Chile at the Pontificia Universidad Católica where she is designing acquisition schemes for fast magnetic resonance imaging of the ankle using compressed sensing. Lane will return to UD in 2018 to use these techniques to advance her PhD research in magnetic resonance elastography.

University TA award

Aditya Jagarapu won one of four University Excellence in Graduate Student Teaching Awards administered by the Faculty Senate. "It was truly a rewarding experience whenever I tried to help them out in understanding a particular concept. It also helped me explore the other side of graduate life. This experience gave me opportunity to understand my strengths and weaknesses in communicating and conveying information to others through teaching," said Jagarapu.



BME DEPARTMENTAL AWARDS

Chair's Fellowship
Charlotte Chaze, Margot Farnham, Andria Farrens, and John Sperduto

Graduate Student Rising Star Award
Rachel Gilbert and Danielle Valcourt

Best Paper Award
Keely (Heintz) Keller

Best Doctoral Thesis Award
Ashutosh Khandha

Distinguished Graduate Scholar Award
Axel Moore

Graduate Student Seminar Series Best Presentation
Rachel Riley

Gore Fellowship
John Sperduto

Outstanding Graduate Student Service Award
Charlotte Chaze

FELLOWSHIPS

University Doctoral Fellowship
Keely (Heintz) Keller

AAUW (American Association of University Women) Dissertation Fellowship
Rachel Riley

NSF IGERT Fellow
John Sperduto

Opposite page: Charlotte Chaze

This page from top, left to right: Laura Lane; Aditya Jagarapu pictured with other recipients of the Excellence in Graduate Student Teaching Award; Fellowship winners (left to right): Keely (Heintz) Keller, Rachel Riley, and John Sperduto

FACULTY RESEARCH & ACCOMPLISHMENTS

DAWN ELLIOTT

Blue and Gold Distinguished Professor

Dawn Elliott, professor and chair of BME, has been named Blue and Gold Distinguished Professor of Biomedical Engineering. Elliott joined UD in 2011 as the founding director and sole primary faculty member of the BME program.

"Under Dawn's leadership, biomedical engineering at the University of Delaware has grown from a small program to a thriving department with a team of very talented young faculty who are winning grants and publishing in high-quality journals," says Babatunde Ogunnaike, dean of the College of Engineering. "She is well respected in the community at large both for her scholarship and for her leadership. I can't think of anyone who is more deserving of this honor than Dawn."

MEGAN KILLIAN

Megan Killian, assistant professor of BME, uses translational approaches, including in vivo injury models and transgenic organisms, to understand the development, structure, and function of connective tissue attachments. She was recently selected as a scholar for the Interdisciplinary Rehabilitation Engineering Career Development Program (IREK12) in Movement and Rehabilitation Sciences, an NIH program supported by the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD). With this two-year award, Killian will investigate rotator cuff tears and study the development of the native cuff to determine potential biological factors that drive the formation, maturation, and regeneration of the tendon-bone attachment.

Killian has also received a UDRF grant to identify the role of growth factors in the development of the tendon-bone attachment, an NIH COBRE Pilot grant through the Delaware Rehabilitation Institute to study the effects of tendon loading on the development of joint contractures, and a DelCAT Applied Research Collaborations grant in collaboration with LiteCure, LLC, to study photobiomodulation of tendon during growth and healing.

CURTIS JOHNSON

Curtis Johnson, assistant professor of BME, focuses on developing techniques for magnetic resonance elastography (MRE) in order to noninvasively measure the mechanical properties of the brain for applications in neuroscience, neurology, and neurosurgery. He has received an NIH-INBRE Pilot project award to develop high-resolution brain MRE to study children with cerebral palsy. This project will measure tissue viscoelasticity to explore how cerebral palsy affects the structural health of the brain. This sensitive assessment of brain health will elucidate the neurological basis of disability in cerebral palsy, and will potentially lead to better design and monitoring of effective rehabilitative therapies.

Johnson has also received a UDRF grant to develop accelerated MRE of the brain, an (NIH) DE-CTR ACCEL Shovel-Ready Grant to study MRE of the hippocampus in epilepsy, and an Office of Naval Research grant to develop high-resolution, multi-excitation MRE of the brain.

SARAH ROONEY

Last year Sarah Rooney, assistant professor in BME, worked with BME students in their senior design course to collaborate with Nemours Alfred I. duPont Hospital for Children and build a chair for babies with Brittle Bone Disease. These babies are prone to spontaneous bone fractures and must be handled more carefully than other infants. So the BME student team of Ryan Barlow, Caroline Koriakin, Hannah Heuschneider and Kenny Ope created a chair that protects their fragile skeletons while allowing them to do development-building tasks that other babies do, like playing with toys and eating. Nemours and UD initially partnered on this project in fall 2016 and built a prototype of the chair. In spring 2017 they worked on a second-generation prototype and developed a survey for patients and families to understand the needs of these infants.

Rooney is the BME Undergraduate education director and the leader of the department's ABET accreditation process.

Science That Could Save Lives

UD BME has been awarded two large

NIH faculty grants for Day and Gleghorn Labs

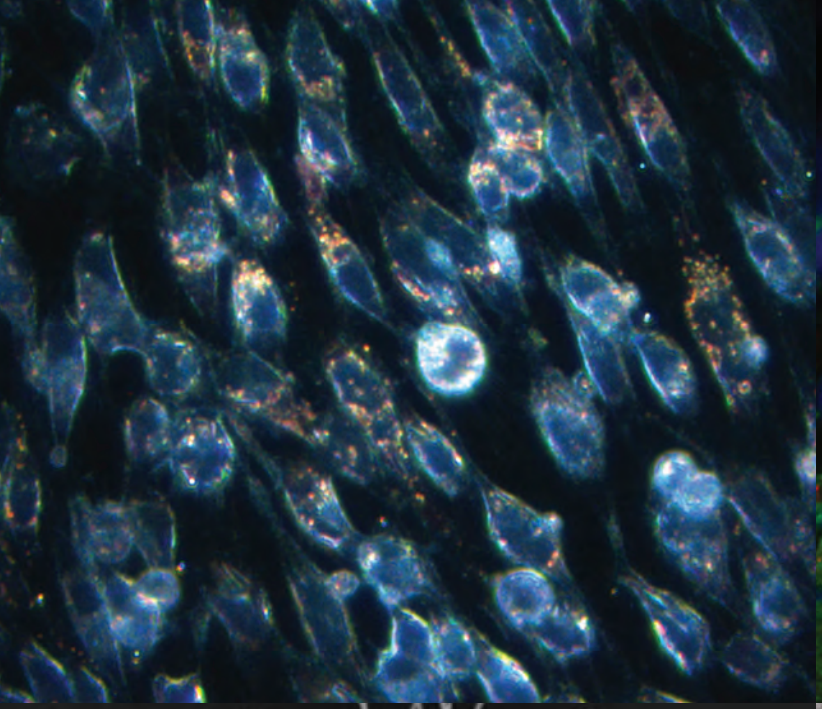
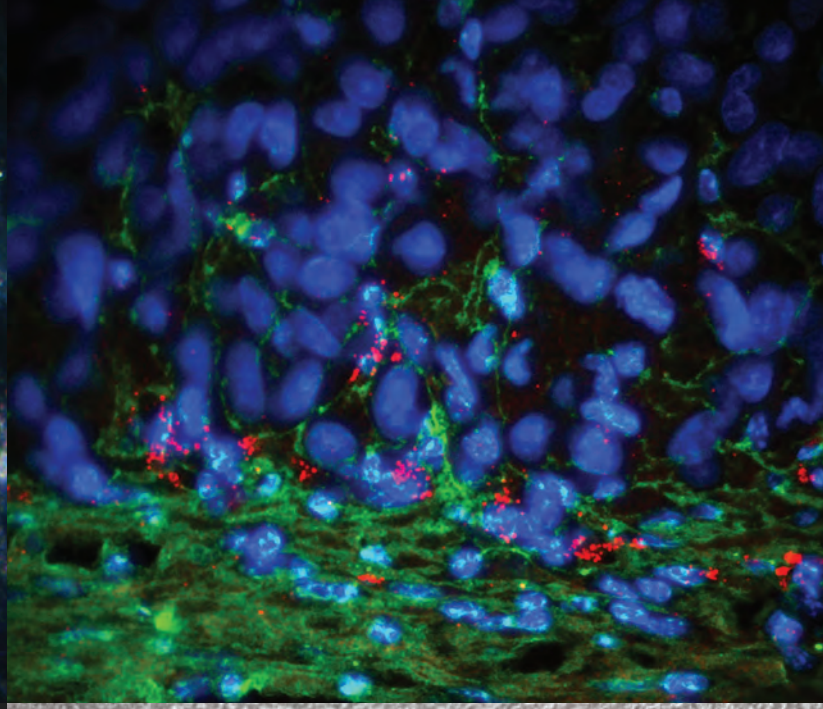
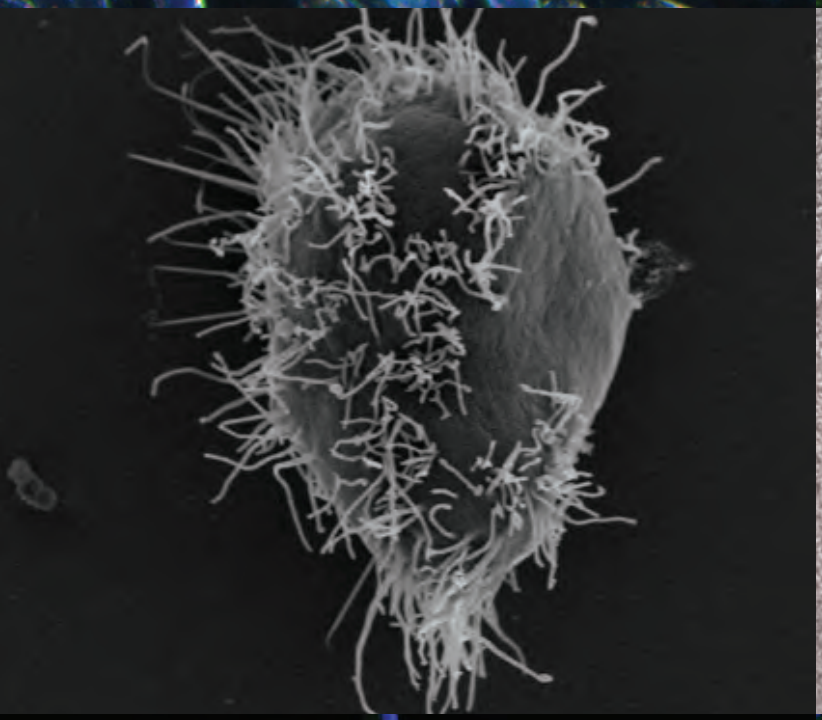
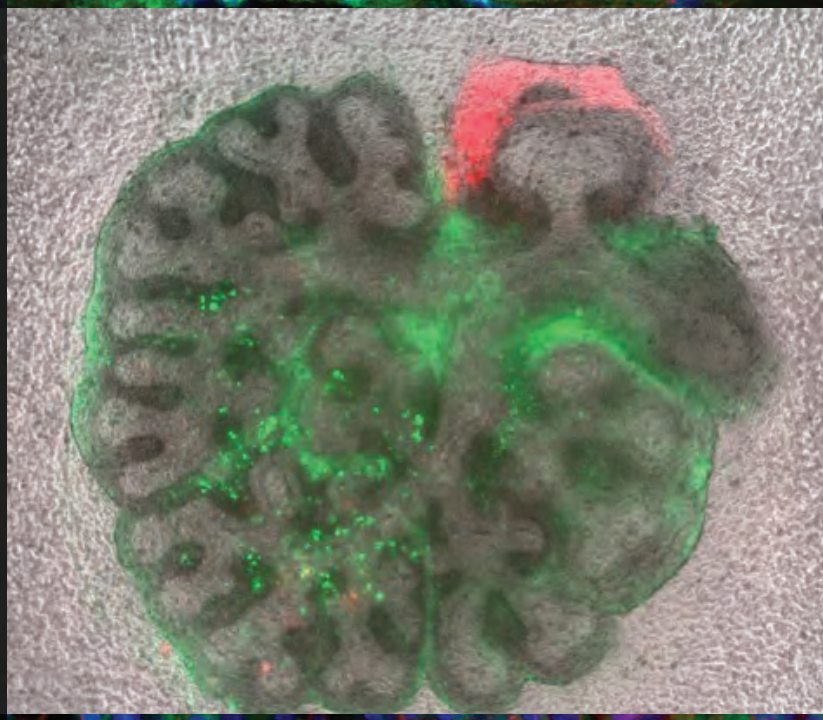
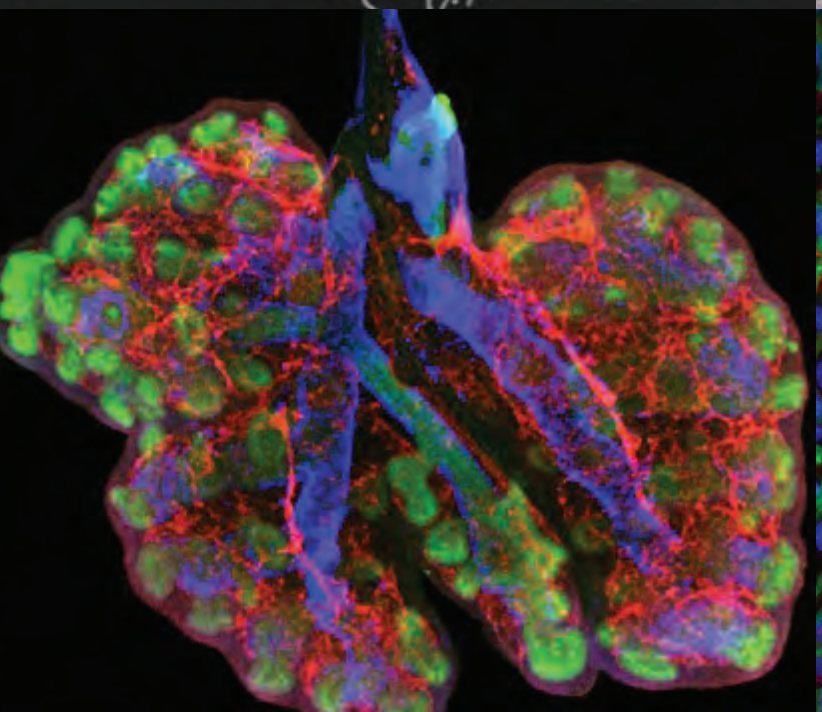
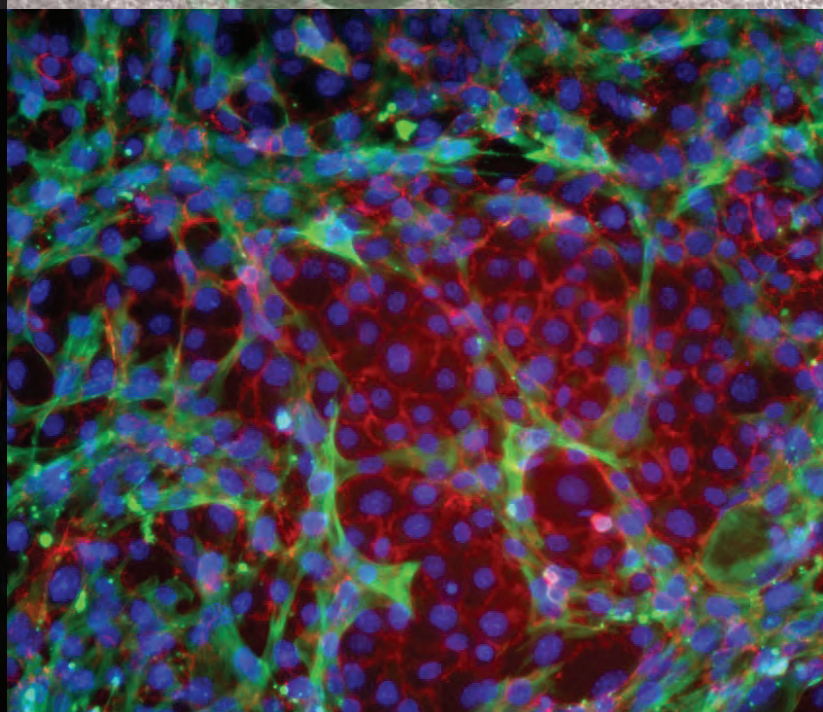
Nanocarrier design

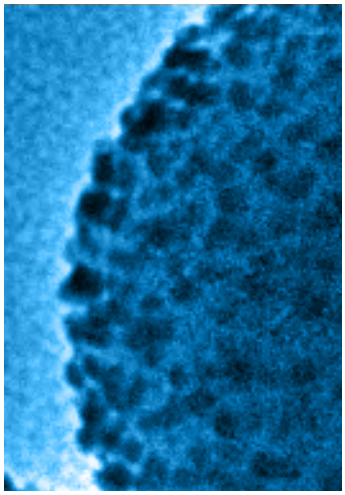
Assistant Professor Emily Day has received a 5-year $1.9M grant to maximize the delivery and efficacy of microRNA (miRNA) therapeutics. MiRNAs, small molecules that suppress the expression of specific genes in cells that drive disease progression, can be incorporated into nanoparticle-based carriers (nanocarriers) to facilitate their delivery to desired locations and cells within the body. Day plans to elucidate how the physical and chemical properties of these miRNA nanocarriers influence outcomes related to the challenges of delivering miRNAs in a precise manner. Understanding these relationships will allow particular carriers to be matched to individual diseases, such as breast cancer and osteoporosis.

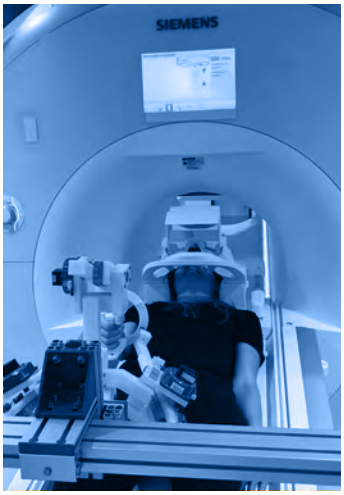
Elucidating lung development

Assistant Professor Jason Gleghorn has been awarded a 5-year $1.9M grant to investigate pressure in lung development and congenital diaphragmatic hernia (CDH). In this devastating birth defect, the diaphragm fails to completely close, allowing abdominal organs to move into the chest cavity and compress the developing lungs, often leading to death. Treating this defect requires understanding how lung pressure produces the lung growth and branching that occurs during normal lung development. The Gleghorn lab has shown that the timing of this branching is directly regulated by airway pressure. Gleghorn will now focus on elucidating the molecular pathways that link pressure to three distinct aspects of lung growth and development, hoping to provide a framework for future studies to identify signaling pathways that can be targeted for treatment of CDH.

Oppostie page, top: Silica core/gold shell nanoparticles are taken up by cancer cells (left) and within the tumor vasculature (green) in a mouse glioblastoma model (right). Middle: Scanning electron microscope image of a megakaryocyte cell (left) and a brightfield microscopy image of a developing mouse lung with cells expressing two different fluorescent markers (right). Bottom: Embryonic mouse lung immunostained to show the airways (green), blood vessels (red) and airway smooth muscle (blue) (left) and isolated airway cells (red) and airway smooth muscle cells (green) from a mouse lung (right).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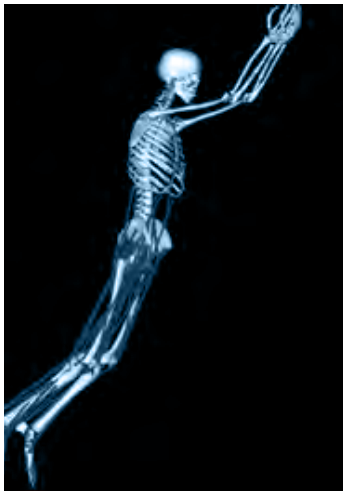

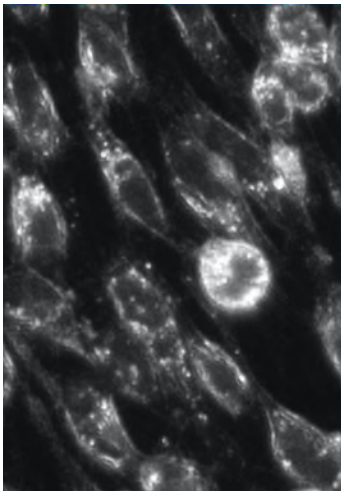


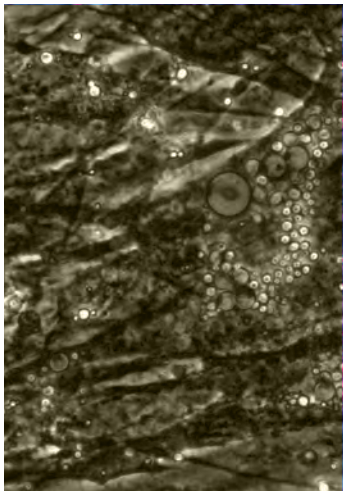

Accolades Abound

Congratulations to our stellar faculty

Thomas Buchanan

George W. Laird Professor of Mechanical Engineering and director of the Delaware Rehabilitation Institute who served as BME acting chair in spring 2017:

- NIH grant with Lynn Snyder-Mackler, Alumni Distinguished Professor of Physical Therapy, to investigate the connection between anterior cruciate ligament surgery and osteoarthritis

Emily Day

Assistant professor of BME

- UDRF-SI grant with Joel Rosenthal, associate professor of chemistry and biochemistry, to develop innovative nanoparticles that can combat triple-negative breast cancer tumors
- DelCAT (Delaware Bioscience Center for Advanced Technology) EPoC grant (with Eleftherios Papoutsakis, Eugene Dupont Chair of Chemical Engineering) to develop a new hybrid technology to better target stem cells for drug delivery
- Paper published in top multidisciplinary journal Small that successfully demonstrates a more effective approach for inhibiting the tumor-causing cell signaling in the Wnt pathway, thus better targeting triple negative breast cancer cells

Jason Gleghorn

Assistant professor of BME

- Rising Star Award from the Biomedical Engineering Society (BMES), awarded to only ten researchers in the nation, for his work in cellular and molecular bioengineering
- Burroughs Welcome Fund award to study the role of transmural pressure in lung development with collaborators at UCSD Medical School Department of Pediatrics
- NIH DE-CTR ACCEL pilot grant to develop 3D biomimetic in vitro models of desmoplastic pancreatic cancer

Megan Killian

Assistant professor of BME

- NIH K12 Career Development Award in Interdisciplinary Rehabilitation Engineering
- 2016 Young Investigator Travel Award from AAOS/ORS

Christopher Price

Assistant professor of BME

- DE-CTR ACCEL pilot grant to study prevention of post traumatic osteoarthritis
- NIH R21 (with Kristi Kiick, professor of Materials Science and Engineering) to research better targeting of osteoarthritis drugs
- NSF-CMMI grant (with David Burris, associate professor of mechanical engineering) to develop new insights into joint mechanics

John Slater

Assistant professor of BME

- NIH NCI IMAT (Innovative Molecular Analysis Technologies) grant to develop a tissue-engineered, microfluidic device to mimic organ-specific breast cancer metastasis patterns.
- UDRF-SI grant (with Kelvin Lee, Gore Professor of Chemical & Biomolecular Engineering) to develop a tissue-engineered microfluidic model to investigate micro strokes that cause tiny areas of the brain to die, potentially leading to dementia.
- Paper published in Advanced Healthcare Materials that was selected as a frontispiece article and describes a new fabrication method for generating 3D, hydrogel-embedded, microfluidic networks that closely mimic the vascular systems in our body, enabling the development of life-like platforms for disease modeling and drug development.

Fabrizio Sergi

Assistant professor of BME

- American Heart Association (AHA) Scientist Development Grant to study the neural correlates of motor learning using haptics and functional Magnetic Resonance Imaging, and applications in motor recovery after stroke
- CBBI seed grant to study the effects of split-belt treadmill training on brain functional connectivity in post-stroke individuals
- 2016 Best Paper Award in IEEE/ASME Transactions on Mechatronics for work on controlling soft actuators to display virtual environments via the sense of touch

2016–17 BME ADVISORY COUNCIL

The BME External Advisory Council held its annual meeting in November 2014. From left: Lynda Myrick, Jack Kramer, Bruce Robertson, Michael Axe, Helen Stimson, John Flynn, Dawn Elliott, Michele Marcolongo. Not pictured: Devon Bond

Helen Stimson
Chair
President, Delaware BioScience Association

Retired VP, Agilent Technologies, Inc.

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Adjunct professor in Physical Therapy, University of Delaware
Board-certified orthopaedic surgeon and partner
First State Orthopaedics

Devon Bond
University of Delaware | BME15
Engineer, Terumo Cardiovascular Systems

John V. Flynn, Jr., PhD
University of Delaware | ChE64
Retired CEO, Healthcare Resource Solutions

John T. (Jack) Kramer
University of Delaware | ChE82
Global technology leader, W.L. Gore and Associates

Michele Marcolongo, PhD
University of Delaware | ME86
Senior associate vice provost, Translational research, Drexel University

Linda J. Myrick, MBA
University of Delaware | ChE77
Biomarkets Program Director, Air Liquide

Bruce C. Robertson, PhD
University of Delaware ChE89
Managing director, H.I.G. Bioventures

Congratulations!

THE COLLEGE OF ENGINEERING
congratulates Dawn Elliott on being named president-elect of the Biomedical Engineering Society (BMES), the premier national society for the biomedical engineering profession.

Dawn Elliott is a professor and founding chair of Biomedical Engineering at the University of Delaware. Prior to joining the University of Delaware in 2011, she spent 12 years in the University of Pennsylvania's Departments of Orthopaedic Surgery and Bioengineering, where she was promoted to full professor. Elliott earned a doctoral degree in biomedical engineering from Duke University and a bachelor's degree in mechanical engineering from the University of Michigan. Elliott is a leader in the field of musculoskeletal tissue biomechanics. In 2015 she was awarded the American Society of Mechanical Engineers (ASME) Van C. Mow Medal for significant contributions to the field of bioengineering. Elliott has been an outstanding teacher, mentor, and contributor to the professions of biomedical engineering and orthopaedics. In 2015 she was awarded the inaugural Outstanding Achievement in Mentoring Award from the Orthopaedic Research Society. Elliott is a Fellow of the American Institute for Medical and Biological Engineering (AIMBE) and of ASME. She has also served on the executive boards of the International Society for the Study of Lumbar Spine, the Council of Chairs of Biomedical Engineering, the Bioengineering Division of ASME, and the Orthopaedic Research Society. Dawn was a member of the NIH Study Section Musculoskeletal Tissue Engineering and has served on numerous NIH and other review panels.

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Undergraduate BME students building microfluidic devices to experimentally model the human cardiovascular system