J. CRAYTON PRUITT FAMILY

DEPARTMENT OF

BIOMEDICAL

ENGINEERING

AT THE UNIVERSITY OF FLORIDA
Welcome to the J. Crayton Pruitt Family Department of Biomedical Engineering at the University of Florida! These are exciting times both in the field and our department. I see more innovative and exciting research from BME than ever before. Combined with the growth our department has achieved over the past several years, we truly are broadening the impact of biomedical engineering activities locally, nationally and internationally.

Rankings and awards don’t define our department, but they do highlight our year-to-year upward momentum. Since 2012, UF BME has climbed 18 spots to No. 15 among U.S. News and World Reports Best Graduate School Rankings. This reflects the extraordinary work of our faculty, students and staff over the department’s history.

There is little doubt that the tremendous advances in medicine over the past few decades can be attributed to the exciting achievement and growth in the field of biomedical engineering. At BME, our dedicated faculty of educators/researchers are preparing students to be leaders of this movement. Our rigorous and comprehensive curriculum educates students with an eye toward solving problems at the intersection of engineering and health sciences.

UF BME is located in Gainesville, Florida, a distinct fusion of multiculturalism that provides numerous opportunities for diverse networking and industry partnerships. Research, clinical immersion and entrepreneurship permeate our academic curriculum and form the foundation for success. Our department consists of talented faculty and students focused on excellence.

The collaborative spirit of engineering includes you — alumni, students, industry partners, donors, faculty, staff, colleagues and friends. Please stay in touch and let’s find a way to work together.

Sincerely,

Christine Schmidt
Christine E. Schmidt, Ph.D.
Pruitt Family Professor & Chair
The J. Crayton Pruitt Family Department of Biomedical Engineering at the University of Florida is the newest department in the Herbert Wertheim College of Engineering. Established in 2002, it grew out of a program made possible by a grant from the Whitaker Foundation.

In 2006 the department received a $10 million donation from Dr. J. Crayton Pruitt and his family foundation. It was matched with funds from the state of Florida Major Gift Trust Fund, yielding a $20 million endowment. Pruitt’s gift is among the largest cash gifts received by UF. As a result of the gift, University officials named the department in honor of the Pruitt family, making it the first-ever named department at UF.

Pruitt was a thoracic and cardiovascular surgeon and was considered a pioneer in the world of biomedical engineering, working in the field before scientists and educators had a name for it. He’s well-known for co-inventing the Pruitt-Inahara Carotid Shunt, a device used to carry blood to a patient’s brain while a surgeon clears clogged arteries. After suffering a heart attack in 1995 and undergoing a transplant at UF Health Shands Hospital, Pruitt showed his gratitude by donating millions to the department. Although he passed away in 2011, his legacy continues and is formally honored every year during Pruitt Research Day.
The University of Florida is a major public research university. The state’s oldest and most comprehensive university, UF is among the nation’s most academically diverse public universities. As a land-, sea- and space-grant institution, UF is dedicated to serving the interests of society and is an economic powerhouse behind Florida’s economy.

UF is one of fewer than ten universities to be designated as a comprehensive campus. This means UF is distinct in that it has a medical school, veterinary school, dental school and main academic campus with a college of engineering co-localized on the same, contiguous campus.

The Herbert Wertheim College of Engineering at the University of Florida houses one of the largest and most dynamic engineering programs in the nation. Curriculum offered across nine departments, 15 degree programs, and more than 20 centers and institutes produces leaders and problem-solvers who take a multidisciplinary approach to innovative and human-centered solutions. Students, faculty and alumni are hailed as New Engineers who aim to transform the way we live, work and play. The college produces inventions at twice the national average — and startups at five times the national average — for every research dollar spent. Engineering is the largest professional school, the second largest college, and one of the top three research units at UF. Established in 1910, the college was named after Distinguished Alumnus Dr. Herbert Wertheim in 2015.

The J. Crayton Pruitt Family Department of Biomedical Engineering at UF is dedicated to developing innovative and clinically translatable biomedical technologies, educating future generations of biomedical engineers, and cultivating leaders, by nurturing the integration of engineering, science, and healthcare in a collaborative and dynamic educational and research environment. BME is uniquely positioned to create a bridge between engineering and health sciences.

TRANSFORMING THE FUTURE

With a $50 million catalyst gift from Dr. Herbert & Nicole Wertheim and the Dr. Herbert & Nicole Wertheim Family Foundation, the college has embarked on a $300 million public-private partnership that will leverage support from the state, the university and private donors, resulting in the biggest transformation in our 105-year history.
The academic vision of the J. Crayton Pruitt Family Department of Biomedical Engineering is to prepare future biomedical engineering leaders for the academic, industrial and government sectors, by providing an engaging academic experience in contemporary interdisciplinary research, clinical immersion and the unique ethical and industrial challenges of the field. With exposure to clinical, engineering and industrial mentorship, our students can create a custom, discovery-centered educational and research experience.

In addition, BME fosters:

- **Entrepreneurship and Innovation** through opportunities for industrial partnerships, internships and certification programs
- **Leadership and Ambassadorship** through engagement in international, national and university-based professional societies and communities
- **Global Awareness** through leadership seminars, interdisciplinary symposia, networking events, exchange programs and community outreach

**GRADUATE PROGRAM**

The J. Crayton Pruitt Family Department of Biomedical Engineering is currently home to over 160 diverse and dynamic graduate students, including a number of NSF and NIH fellows, specializing in four distinct research areas: Neural Engineering, Imaging & Medical Physics, Biomaterials & Regenerative Medicine and Biomedical Data Science. Since its inception in 2002, the department continues to grow exponentially in its contributions to the field. Graduate students in our department are immersed in both clinical and engineering research through coursework and direct academic mentorship with the close proximity to top ranked medical, veterinary and dental schools. In addition, the department has access to research institutes and facilities in engineering and science, facilitating collision and collaboration.

Degree programs offered by the department include:

- Master of Engineering (M.E.)
- Master of Science (M.S.)
- Doctorate of Philosophy (Ph.D.)
- Doctorate of Medicine and Philosophy (M.D./Ph.D.)
UNDERGRADUATE PROGRAM

The undergraduate program in the J. Crayton Pruitt Family Department of Biomedical Engineering was initiated in 2012 and graduated its first students in 2014. This highly competitive, limited-access program formally admits undergraduate students in their sophomore year. With a unique focus on the interface of engineering and medicine, hands-on training, clinical immersion and entrepreneurship, graduates from this program have the breadth and depth of skills needed for a variety of career paths, from industrial, governmental and regulatory positions, to medical and graduate programs. Capstone projects can vary from research- to entrepreneurship-focused, with the opportunity to work in multi-disciplinary teams in dynamic research laboratories or with industrial partners.

Degree programs offered by the department include:

- Bachelors of Science (B.S.)
- Bachelors of Science (B.S.) / Masters of Science (M.S.) (4 + 1-year program)

OUTREACH

BME faculty and students, through the departments student organizations and clubs, serve as ambassadors to the profession, bringing their resources and knowledge to the community through advocacy and outreach activities that include industry extension, K-12 education programs, economic initiatives, recruitment and training. These opportunities serve to not only benefit the community and encourage the next generation of engineers, but also to develop communication and leadership skills in BME students.
UF BME PROGRAM’S MISSION

is to be a recognized leader in translational biomedical research, to provide hands-on education focused on solving real world biomedical problems, and to foster innovation and entrepreneurship in the service of clinical solutions.

UF BME stands for the cross-disciplinary promotion of innovation and progress to foster a community of entrepreneurship through shared knowledge and support. WE CONNECT STUDENTS TO THE LOCAL COMMUNITY AND MEMBERS OF INDUSTRY.
The J. Crayton Family Department of Biomedical Engineering’s Industry Partners Program was established in 2014. The department works closely with industry and business to help improve products and techniques and build relationships for future BME graduates who will be leading the biomedical engineering field in the years to come.

This program provides strategic connections between BME students, faculty and industry partners through several meaningful interactions, such as

- Senior design projects
- BME student internships & recruiting
- Research collaborations
- Technology licensing & commercialization
- Participation of industry members in guest lectures and seminar series

UF BME’s goal for this program is to develop long-term, mutually beneficial relationships with industry partners that will expose companies to scholars, commercialization and research opportunities, while supporting the student success initiatives and goals of the BME department.
UF BME is one of only a few departments in the nation to be co-localized with a top-ranked medical school, veterinary school, dental school and a university hospital system.
The J. Crayton Pruitt Family Department of Biomedical Engineering’s faculty are engaged in a broad range of efforts to improve human health through research.

The department’s proximity to the UF College of Medicine has fostered a highly interdisciplinary approach to research, with engineers working closely with both biological scientists and physicians. This breadth of expertise is reflected in all our research programs, as we work to translate fundamental advances across the molecular, cellular and organ scales into new developments for improved diagnosis and treatment of disease.

RESEARCH FOCUS AREAS

NEURAL ENGINEERING
Use of engineering techniques to understand, repair, replace or enhance cells and tissues in the central and peripheral nervous systems.

IMAGING & MEDICAL PHYSICS
Imaging for diagnosis, treatment and study of disease including biomedical optics, tomography, diagnostic radiology and PET and SPECT imaging.

BIOMATERIALS & REGENERATIVE MEDICINE
Materials development for micro and nano-particles, microfabricated devices, controlled release systems, vaccines and tissue regeneration scaffolds.

BIOMEDICAL DATA SCIENCE
Computational approaches, algorithm, and information technology to process and analyze biological and medical data at all scales, including imaging informatics, clinical informatics, health informatics and bioinformatics.
Kyle D. Allen, Ph.D.
Assistant Professor & Associate Chair for Undergraduate Studies
Ph.D., Rice University

Dr. Allen’s research seeks to improve the evaluation of preclinical osteoarthritis models and enhance the preclinical-to-clinical translation of emerging diagnostics and therapeutics for joint diseases. Within this goal, his lab is currently developing new behavioral assays that examine symptomology in rodent models of joint disease, novel methods to collect and analyze joint-level molecular changes using magnetic nanoparticles, and innovative replacements of tissue function using tissue engineering and cell therapy.

HONORS AND AWARDS
- Chair of the Young Investigator Subcommittee for the Osteoarthritis Research Society International, 2016
- K99/R00 Pathways to Independence Award from the NIH, 2014
- F32 Ruth L. Kirschstein National Research Service Award, 2008-2009
- T32 Ruth L. Kirschstein National Research Service Award, 2006-2008

Stephen H. Arce, Ph.D.
Lecturer & ABET Coordinator
Ph.D., University of Florida

Dr. Arce has taken a leading role in providing capstone design projects to undergraduate seniors by working with clinicians and graduate students in the Clinical Preceptorship course. His primary goals are to guide students in achieving academic success as well as to help them develop into confident, young professionals who will exceed in their chosen fields.

HONORS AND AWARDS
- McKnight Doctoral Fellow, 2014
Mingzhou Ding, Ph.D.  
Pruitt Family Professor  
UFRF Professorship  
Ph.D., University of  
Maryland

Dr. Ding’s research focuses on applying engineering approaches to understand the neural basis of cognitive functions and their impairments by neurological and psychiatric disorders. Specific areas of interest include, 1) multimodal neuroimaging (single unit, multiunit, LFP, EEG, ECOG and MRI), 2) Granger causality and other novel methods of brain signal analysis, 3) neuronal oscillations, 4) large-scale brain networks, 5) cognitive aging, 6) pain processing, and 7) cognitive impairments in Parkinson’s disease and other disorders.

Wesley E. Bolch, Ph.D.  
Professor & Associate  
Dean for Academic Affairs  
Ph.D., University of Florida

Dr. Bolch’s research seeks to develop rapid and clinically accessible computational tools for use by radiologists and radiation oncologists to assess radiation organ dose and associated secondary cancer risks to patients following diagnostic imaging or radiation therapy. The Bolch laboratory has used computer animation software and real patient imaging data to create a 350-member library of pediatric and adult males and females that covers a broad range of subject heights, weights and body shapes. These anatomic models are now being used in all three areas of medical imaging: interventional fluoroscopy, nuclear medicine and computed tomography. Therapy applications of the UF patient phantom series include assessment of secondary cancer risks in proton versus photon cancer radiotherapy, and the use of kilovoltage stereotactic radiotherapy for halting the progression of age-related macular degeneration.

HONORS AND AWARDS

• Distinguished Scientific Achievement Award, Health Physics Society, 2014
• Fellow, Health Physics Society (HPS), 2012
• Fellow, American Association of Physicists in Medicine, 2012

HONORS AND AWARDS

• University of Florida Research Foundation Professor, 2013-2016
• J. Crayton Pruitt Family Professor, 2008-present
• Fellow, American Institute for Medical and Biological Engineering (AIMBE), 1998
Jon P. Dobson, Ph.D.
Professor
Ph.D., Swiss Federal Institute of Technology, ETH-Zurich

Dr. Dobson’s research focuses on biomedical applications of magnetic micro- and nanoparticles. His group has developed novel technologies and biomedical devices for 1) magnetic targeting and remote activation of cell signaling pathways for cell engineering and stem cell therapy, 2) magnetic nanoparticle-based gene transfection and delivery, and 3) magnetic targeting of modified cell carriers for cancer therapy and regenerative medicine. In addition, he has led a multi-national research program developing novel imaging and characterization techniques to quantify, characterize and map iron compounds related to neurodegenerative diseases such as Alzheimer’s and Parkinson’s.

HONORS AND AWARDS
- Fellow, American Association for the Advancement of Science (AAAS), 2015
- Fellow, American Institute for Medical and Biological Engineering (AIMBE), 2015
- Royal Society of London - Wolfson Research Merit Fellow, 2004
- Fellow, Society of Biology (UK), 2012
- Fellow, Royal Society of Medicine (UK), 2007
- Fellow, Institute of Nanotechnology (UK), 2007

David R. Gilland, Ph.D.
Associate Professor & Undergraduate Coordinator
Ph.D., University of North Carolina

Dr. Gilland’s research focuses on the development of novel instrumentation and image processing algorithms for molecular imaging applications, specifically, positron emission tomography (PET) and single photon emission computed tomography (SPECT). Recent work has involved the development of a new gamma camera for 3D molecular imaging of breast cancer. The ultimate goal of this research is to improve the accuracy of screening methods for breast cancer.
Dr. Hintenlang’s research focuses on developing and characterizing clinical medical physics applications of radiation imaging and dosimetry. His lab has developed techniques to accurately quantify and minimize pediatric, computed tomography (CT) and mammography doses and optimization of image quality. Research areas include image quality, tomographic phantom design and development for radiation dosimetry, and applications of non-ionizing radiation in biomedical engineering.

HONORS AND AWARDS
- Fellow, American Association of Physicists in Medicine, 2015
- Fellow, American College of Medical Physics, 2015
- American Association of Physicists in Medicine Distinguished Service Award, 2013
- Vice Chancellor, American College of Medical Physics, 2011

Aysegul Gunduz, Ph.D.
Assistant Professor
Ph.D., University of Florida

Dr. Gunduz’s research is focused on finding precursors to behavior and after effects of stimulation in neural networks through electrophysiology and bioimaging. Her lab aims to translate this knowledge into clinical diagnostic and therapeutic systems to improve quality of life of those suffering from neurological disorders. To this end, Dr. Gunduz works with many clinical populations, such as neurosurgical patients with epilepsy and movement disorders (Tourette’s syndrome, Parkinson’s disease), as well as stroke patients undergoing neurorehabilitation.

HONORS AND AWARDS
- NSF CAREER Award, 2016
- International Academy of Medical and Biological Engineering Early Career Award, 2015
- UF Clinical and Translational Science Institute KL2 Scholar, 2015

David E. Hintenlang, Ph.D.
Associate Professor & Director, Medical Physics Program
Ph.D., Brown University

Research areas include image quality, tomographic phantom design and development for radiation dosimetry, and applications of non-ionizing radiation in biomedical engineering.

HONORS AND AWARDS
- Fellow, American Association of Physicists in Medicine, 2015
- Fellow, American College of Medical Physics, 2015
- American Association of Physicists in Medicine Distinguished Service Award, 2013
- Vice Chancellor, American College of Medical Physics, 2011
Dr. Hudalla’s research creates functional materials for therapeutic or diagnostic applications via molecular self-assembly. Dr. Hudalla develops synthetic peptides that can assemble into a desired nano-scale architecture, and then use these peptides as “tags” to organize biologically active molecules into functional materials. This creates glycosylated materials to modulate the activity of carbohydrate-binding proteins by attaching carbohydrates to peptides that self-assemble into elongated nanofibers. In another project, peptides were created to co-assemble into prescribed nanofibers or globular coiled-coils only upon mixing, which when expressed as recombinant fusions with functional proteins of interest, direct the self-assembly of different proteins into multi-functional nanomaterials. Dr. Hudalla’s long-term goals are to create biomaterials that can modulate immune responses for treatment of autoimmune diseases, or create biomaterials that interfere with molecular-level events central to metastasis and viral infection.

HONORS AND AWARDS
- NSF CAREER Award, 2015
- Faculty Teaching Excellence Award, University of Florida Department of Biomedical Engineering, 2015
- National Science Foundation (NSF) Travel Award, Regenerative Medicine Workshop at Hilton Head, 2015
- Outstanding Contribution, Cellular and Molecular Bioengineering Journal, 2015

Huabei Jiang, Ph.D.
Pruitt Family Professor Ph.D., Dartmouth College

Dr. Jiang’s research is focused on discovering and developing fundamentally new optical-based imaging technologies for in vivo visualization of tissue at both the macroscopic and microscopic scales. He often uniquely combines optics with sophisticated computational approaches to create novel imaging tools that can be used to detect cancers, map brain activities, probe inflammations, or guide cancer therapies in both animals and humans.

HONORS AND AWARDS
- Technology Innovator Award, UF Office of Technology Licensing, 2015
- Fellow, American Institute for Medical and Biological Engineering (AIMBE), 2008
- Fellow, International Society for Optical Engineering (SPIE), 2008
- Fellow, Optical Society of America (OSA), 2006
Dr. McFetridge’s primary research objective is to engineer viable “living” tissue and organs for the repair and regeneration of diseased tissues. His group’s research encompasses angiogenesis and arterial regeneration, articular cartilage development and the effects on primary and stem cell phenotype driven by mechanical and nutrient variation in the ECM microenvironment.

HONORS AND AWARDS

- Tim Brahm Term Professorship, 2015
- Lectureship Award: TOIN Biomedical Engineering, Yokohama, Japan, 2006-2015
- UF International Educator Award, Junior Faculty, 2011
- The Journal Record Innovator of the Year, On the Brink Award, 2007
Dr. Ormerod’s research focuses on understanding how to use transplantable or endogenous neural stem cells to repair neural circuits in the diseased or injured brain and how changes in levels of hippocampal neurogenesis across lifespan impact cognition. Projects seek to 1) identify pro-geronic factors that impact hippocampal neurogenesis and memory and develop detection assays and strategies to modulate them, 2) identify inflammatory and neuroinflammatory factors that regulate neural stem cell behavior and cognition and develop strategies to modulate them, and 3) identify the functional impact of neuronal addition to diseased or damaged neural circuits. Multidisciplinary projects employ rodents or culture systems that integrate numerous techniques that include behavioral testing, protein quantification using multiplex technology, MEA-monitoring of neuronal activity, and the quantification of cultured and endogenous cell behavior with advanced immunohistochemical and histological techniques, among others.

**HONORS AND AWARDS**
- Ruth K. Broad Biomedical Research Foundation Extramural Investigator, 2008-2010
- Fellow, Michael J. Fox Foundation Postdoctoral, 2003-2006
- Fellow, Natural Sciences and Engineering Research Council of Canada Postdoctoral, 2004-2006

Kevin J. Otto, Ph.D.
Associate Professor
Ph.D., Arizona State University

Dr. Otto’s research is focused on engineering neural interfaces for both research purposes as well as treatment options in neurological injuries or disease. In particular, his research focuses on multi-channel implantable microdevices in both the central and peripheral nervous systems. These interfaces are being investigated for many applications: sensory replacement, cognitive functional therapy, and neuromodulation for autonomic therapies.

**HONORS AND AWARDS**
- Faculty Service Award, Weldon School of Biomedical Engineering, Purdue University, 2012
- Seed for Success, Purdue University, 2011
- Outstanding Faculty Award, Weldon School of Biomedical Engineering Graduate Student Association, Purdue University, 2009
Parisa Rashidi, Ph.D.
Assistant Professor
Ph.D., Washington State University

Dr. Rashidi’s research is focused on developing context-aware assistive and therapeutic intelligent solutions using ambient and mobile sensor technology, with the underlying theme of data mining and machine learning. Her research methodology is to develop scalable data analysis techniques to tackle challenging problems that arise in the context of smart and connected health systems. Some of the projects in Dr. Rashidi’s lab include developing an intelligent mental health therapy tool using natural language processing and machine learning techniques, ambient monitoring of patients in the hospital using video and motion analysis, identifying and recommending ideal team structures in the hospitals, and monitoring older adults in the community using mobile sensors.

HONORS AND AWARDS
• BMES Innovation & Career Development Award, 2015
• Invited Participant, Microsoft Faculty Summit Participant, 2015

Carlos Rinaldi, Ph.D.
Charles A. Stokes Term Professor & Senior Associate Chair
Ph.D., Massachusetts Institute of Technology

Dr. Rinaldi’s research is focused on advancing the understanding and biomedical applications of suspensions of magnetic nanoparticles. Of particular interest are situations where the particles respond to magnetic fields by rotating, exerting forces/torques on biological structures, or dissipating the energy of the magnetic field in the form of heat. Work in Dr. Rinaldi’s lab spans theoretical and simulation investigation of magnetic nanoparticle response to magnetic fields, nanoparticle synthesis and modification, characterization of nanoparticle physical, chemical and magnetic properties, and testing the interactions of magnetic nanoparticles with cells and tissues.

HONORS AND AWARDS
• Associate Editor, International Journal of Nanomedicine, 2015-present
• International Journal of Nanomedicine Early Career Award, 2012
• Presidential Early Career Award for Scientists and Engineers (PECASE), 2006
• National Science Foundation CAREER Award, 2006
Blanka Sharma, Ph.D.
Assistant Professor
Ph.D., Johns Hopkins University

Dr. Sharma's research is focused on understanding the fundamental interactions between stem cells and diseased/injured tissues, and developing biomaterials to better control stem cell behavior in the body. This includes engineering of nanoparticle-based targeted drug/gene delivery systems and tissue engineering scaffolds to direct the therapeutic function of stem cells. Ultimately, the goal is to translate this research into better ways to treat traumatic injuries, cancer and degenerative diseases.

HONORS AND AWARDS

- Invited Mentee, U.S. Bone and Joint Initiative Young Investigator Program, 2015
- Featured as “20 Under 40” outstanding young faculty by the American Society for Engineering Education, 2014
- Natural Sciences and Engineering Research Council (NSERC) of Canada Postgraduate Fellow, 2002-2004

Christine E. Schmidt, Ph.D.
Pruitt Family Professor & Department Chair
Ph.D., University of Illinois

Dr. Schmidt’s research is focused on engineering novel materials and therapeutic systems to stimulate damaged peripheral and spinal neurons to regenerate. Taking a unique approach to this problem, she uses electrically conducting polymers and natural-based materials (e.g., hyaluronic acid-based biomaterials, decellularized tissues) to create therapies that can electrically, chemically, biologically and mechanically trigger neurons, at both the macroscopic and nanometer-scales.

HONORS AND AWARDS

- Fellow, American Society for the Advancement of Science (AAAS), 2013
- Fellow, Biomaterials Science and Engineering (FBSE), International Union of Societies of Biomaterials Science and Engineering, 2012
- Deputy Editor-in-Chief, Journal of Materials Chemistry B, 2012-present
- Fellow, Biomedical Engineering Society (BMES), 2010
- Fellow, American Institute for Medical and Biological Engineering (AIMBE), 2009
Dr. Stabler’s research centers on engineering translational biomaterial platforms for cell-based therapies, particularly Type 1 diabetes. Specifically, her research seeks to develop bioactive materials capable of protecting cells from immunological attacks, providing 3-D support of the transplanted cells; presenting cues for guiding positive host cell remodeling and releasing therapeutic agents. Through the fabrication of novel biomaterials capable of actively interfacing with the host, she seeks to optimize the graft environment to favor the long-term survival and function of the implanted cells.

**HONORS AND AWARDS**

- University of Miami, College of Engineering, Johnson A. Edosomwan Researcher of the Year, 2011
- University of Miami, College of Engineering, Eliahu I. Jury Early Career Research Award, 2009
- National Institutes of Health NIDDK Type 1 Diabetes Pathfinder Award, 2008

Dr. van Oostrom’s research is focused on the mathematical modeling of human physiology. These models are the heart of the Human Patient Simulator™ (HPS) used in all medical schools to train clinicians. Dr. van Oostrom works on improving models and implementations for the HPS. In addition, these models can be used as a basis to improve clinical measurements, allowing clinicians to better determine the state of their patients.

**HONORS AND AWARDS**

- University of Florida Faculty Adviser/Mentor of the Year, 2014-2015

Dr. Yang is the founder of the Biomedical Image Computing and Imaging Informatics (BICI2) lab. His major research interests are focus on biomedical image analysis and imaging informatics, computer vision, biomedical informatics and machine learning. He also is working on high-performance computing and computed-aided health care and information technology using big data for personalized/precise medicine.

**HONORS AND AWARDS**

- MICCAI Young Scientist Best Paper Award, 2015
- Young Investigator Paper and Travel Award in the Sixth North America Neuroendocrine Tumor Society (NANETS) Conference, 2014
- Young Investigator Paper and Travel Award in the European Neuroendocrine Tumor Society (ENETS) Conference as the selected representatives of NANETS (one of only three representatives for North America), 2014
- NIH Young Investigator Paper and Travel Award in the International Symposium on Biomedical Imaging (ISBI), 2008
FACILITIES & RESOURCES

BME at UF partners with many local research centers and institutes that enrich the academic and collaborative environment for teaching and research. In addition, the department leverages the University of Florida’s reputation as a leader in entrepreneurial and commercialization activities with resources such as the Florida Innovation Hub and the top-ranked Sid Martin Biotechnology Incubator.
THE FLORIDA INNOVATION HUB AT UF

The Florida Innovation Hub, UF’s newest incubator, is located just a few blocks from the main campus. The Florida Innovation Hub was created to serve as a catalyst for startup companies whose technologies emanated from laboratories at UF and throughout the state. Its mission is to provide them with the infrastructure, logistics and resources needed to run effectively and efficiently.

The 48,000-square-foot facility provides a unique innovation ecosystem that houses not only startup companies, but also service providers, including accountants, attorneys, venture capitalists and product designers that sponsor events, host educational workshops and donate time each month to the startup tenants.

Located halfway between campus and downtown Gainesville, the Innovation Hub houses the UF Office of Technology Licensing; the UF Development Corp., which handles developing Innovation Square; and other partner organizations that nurture high-tech companies, such as UF Tech Connect and the Florida Institute for the Commercialization of Public Research. Companies located in the Innovation Hub created close to a hundred jobs and secured $7.2 million in private investment during its first year in operation. The Innovation Hub is one of the only incubators in the nation to house a leading university technology transfer office in addition to a comprehensive group of service providers.

SID MARTIN BIOTECHNOLOGY INCUBATOR

The Sid Martin Biotechnology Incubator was recently ranked “World’s Best University Biotechnology Incubator” based on an analysis of 150 incubators in 22 countries. Built in 1995, the 40,000-square-foot bioscience complex was also recognized as the National Business Incubation Association’s 2013 Incubator of the Year. Its companies and graduates have attracted more than $1 billion in equity investment, contracts and grants. In a recent seven-year period the program had an estimated economic impact of $100 million a year in Alachua County, creating 1,460 direct and indirect jobs. The incubator offers business development guidance, a lab/office complex with 22 wet labs, $1 million of shared equipment, small and large animal facilities, and climate-controlled greenhouses.

ENGINEERING INNOVATION INSTITUTE

The Mission of the University of Florida Engineering Innovation Institute is to foster a culture of innovation among faculty, students and staff of the Herbert Wertheim College of Engineering. The Institute serves as a nexus of engineering innovation education and experiential programs.
extending across the spectrum of creative discovery and invention, to the transition of UF engineering technologies and innovative students to the marketplace. The Institute produces leaders with engineering and innovation skills to attack the world’s most daunting problems and change the world.

HIGH-PERFORMANCE COMPUTING CENTER

The High-Performance Computing Center (HPC) is a faculty-directed facility with the single mission of providing high-performance and high-throughput computing and research data storage resources and experts to support to the faculty whose research depends on computing.

The HPC Center operates clusters with more than 23,000 CPU cores and 5 Petabytes of research data. These systems are spread over four machine rooms in three buildings. The machine rooms are connected by the 200 gigabits-a-second Campus Research Network (CRN). The CRN then connects to the Florida Lambda Rail at 100 gigabits-a-second and the Internet2 Innovation Platform backbone of the nation. These resources provide a top-tier infrastructure for researchers to carry out collaborative research on campus, across the state and the nation and around the world.
NANOSCIENCE INSTITUTE FOR MEDICAL AND ENGINEERING TECHNOLOGY

The Nanoscience Institute for Medical and Engineering Technology (NIMET) serves to focus and coordinate research and educational activities at UF in nanoscale science and nanotechnology. Research in nanoscience, nanotechnology and related fields involves faculty and staff in physics, chemistry, biology, medicine, engineering, materials science, food science, agriculture and more. NIMET is housed at the Nanoscale Research Facility (NRF) which offers the largest academic clean room in the State of Florida, along with nanofabrication, nanoimaging and nanocharacterization equipment and supporting laboratories. The mission of NIMET is to foster leading-edge, multidisciplinary nanoscience research and education; provide world-class facilities and technical support for research; train students in the use of nanoscience techniques and equipment; create an open environment for research with universities, industry and national labs; and pursue major funding opportunities.

CLINICAL AND TRANSLATIONAL SCIENCE INSTITUTE

The Clinical and Translational Science Institute (CTSI) was founded in 2008 to speed the translation of scientific discoveries into improved health by strengthening the university’s ability to conduct clinical and translational research. To prepare and nurture future health researchers, the CTSI offers multidisciplinary training programs. The CTSI undertakes transformational initiatives and provides services and resources to facilitate health research in any disease area and to advance knowledge across the translational spectrum — from laboratories to health-care settings to the public health and policy arenas, and back again. As a catalyst and hub connecting resources, people and ideas, the CTSI expands collaboration and advances science across UF’s 16 colleges, the state of Florida and the national Clinical and Translational Science Award consortium.

MCKNIGHT BRAIN INSTITUTE

The McKnight Brain Institute (MBI) is one of the nation’s most comprehensive and technologically advanced centers devoted to discovering how the normal brain operates, and how we can repair the brain following injury, disease or aging. Created in 1992, MBI’s guiding principle is to harness and expand the enormous research and educational capacity of the university to understand and develop new therapies for nervous system afflictions. The MBI is composed of more than 300 faculty from 51 academic departments and ten colleges, and is unique in the breadth and magnitude of multidisciplinary talent focused on brain and spinal cord injury, neurodegeneration, brain tumors, addiction and age-related memory loss.
NATIONAL HIGH MAGNETIC FIELD LABORATORY

The National High Magnetic Field Laboratory (NHMFL) is the largest and highest-powered magnet laboratory in the world, with facilities at the University of Florida, Florida State University and Los Alamos National Laboratory. The Advanced Magnetic Resonance Imaging and Spectroscopy (AMRIS) and High B/T (magnetic field/temperature) facilities are internationally recognized NHMFL programs established at UF. AMRIS supports and develops state-of-the-art instrumentation for high field NMR/MRI research of both in vitro and in vivo biological systems. The High B/T program operates world-unique, ultra-low-temperature capabilities for experiments requiring high magnetic fields and low temperatures simultaneously.

UF HEALTH CANCER CENTER

The UF Health Cancer Center consists of more than 250 researchers and clinicians who conduct research on the prevention, early diagnosis and treatment of cancer. The center’s collaborative multidisciplinary research model encourages the translation of basic laboratory findings to novel curative and preventive therapies. Researchers are drawn from throughout UF.

The center is dedicated to providing state-of-the-art cancer treatment, prevention, control and education; conducting original scientific research aimed at discovery; fostering collaboration to turn research findings into new therapies; and, ultimately, offering hope in the face of a daunting diagnosis.
INSTITUTE ON AGING

The mission of the Institute on Aging is to improve the health, independence and quality of life of older adults through interdisciplinary research, education and health care. The Institute on Aging is the home of faculty members from diverse disciplines who wish to pursue a career primarily focused on research and education on aging. The Institute is dedicated to high-quality interdisciplinary and translational research and training focused on the health and independence of older adults, with a continuing goal to be at the forefront of research, education and career development in the area of aging; and to make significant contributions to the preservation of independence and prevention and rehabilitation.

GENETICS INSTITUTE

The Genetics Institute seeks to discover how genetic blueprints function and to use this knowledge to improve the health and quality of life. Its mission is to promote and enhance interactive genetics research across the UF campus in such diverse fields as medicine, agriculture, chemistry and engineering. Specific aims of the institute include developing platforms and techniques for functional genomics and proteomics research; establishing shared bioinformatics resources for the analysis of genetic information and experimental data from genetic research; and fostering translational research aimed at putting genetic discoveries into practical use in microbial, plant, animal and human applications.

INTERDISCIPLINARY CENTER FOR BIOTECHNOLOGY RESEARCH

The Interdisciplinary Center for Biotechnology Research (ICBR) provides world-class core laboratories focused on the tools of biotechnology to the UF community. ICBR’s core laboratories represent a diverse biotechnology landscape and are organized into four scientific divisions: Bioinformatics, Cellomics, Genomics and Proteomics. ICBR provides more than 400 different services ranging from custom and high-throughput DNA sequencing to electron microscopy and antibody development and production. ICBR’s mission is to enable, strengthen and energize all aspects of molecular life science research at UF by teaching theory, techniques and applications of modern molecular research. Most of the core service laboratories are located centrally in the Cancer and Genetics Research Complex.

Every living organism on the planet carries its own genetic blueprint with instructions for how it will look and function, and, at times, even how it will behave.
GAINESVILLE IS A HUB OF EDUCATION AND CULTURE.

While Gainesville is widely recognized as the home of the Gators, it is quickly becoming known as a center for innovation and a place with a lifestyle that’s comfortable for families, yet attractive for young professionals. In 2013, the financial website NerdWallet deemed it the #1 fastest growing city in the U.S.

Gainesville is the headquarters for the Sid Martin Incubator, the world’s #1 ranked biotechnology incubator and MindTree, a global IT product engineering company. Also calling Gainesville home are the fast-growing medical tech firms, Exactech and Axogen, both the result of technology developed on campus. Add in the many startup companies formed thanks to the breakthroughs discovered by UF researchers, and Gainesville, much like UF, is a community on the rise.

Conveniently located in north central Florida, Gainesville is within easy reach of main highways and several international airports and driving distance to many of the state’s major metropolitan areas. Gainesville is also a quick trip away from the beach, being halfway between the Atlantic Ocean and the Gulf of Mexico.

With great year-round weather, Gainesville has a variety of one-of-a-kind outdoor adventures. From the lush acres of Kanapaha Botanical Gardens to the savannah of Paynes Prairie Preserve State Park, to the crystal-clear freshwater springs — Gainesville is well-known for its beautiful landscape.

Whether you prefer pedaling or paddling, hiking or cave diving, you’ll find it here. Gainesville is also a vibrant center for arts and culture. The town boasts a variety of professional theater and dance companies, a world-class art museum and cultural festivals throughout the year. The culinary scene in Gainesville is as diverse as its population with many restaurants making use of local farms in their food. Gainesville also offers a variety of distinct shopping areas and farmers markets.
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The 21st century is teaching us how interdependent we are and what we can accomplish by working together. In a world where technology and innovation are critical to almost every human endeavor, engineers must serve as leaders, driving solutions for healthcare, security and sustainability.
THE NEW ENGINEER IS

A LEADER

INNOVATIVE

INTERDISCIPLINARY

ENTREPRENEURIAL