

College of ENGINEERING & COMPUTING

Department of Biomedical Engineering

RESEARCH

The Department of Biomedical Engineering (BME), endowed by the Wallace H. Coulter Foundation, is home to world-class faculty and pioneering research laboratories. Research conducted by members of the department is clustered into three areas – basic research in engineering tissue model systems, diagnostic bioimaging and sensor systems, and therapeutic and reparative neurotechnology. Research and entrepreneurship permeate our academic curriculum and are among the department's keys to success. FIU BME is ranked among the top 50 schools providing the best value to students. Students in biomedical engineering gain valuable interdisciplinary experience in clinical and industrial environments, making them top choices for employment with local industry partners.

FACULTY

Ranu Jung's neural investigational implant device received FDA approval for first-in-human trials and DARPA funding to restore sensation to amputees. Jung, as P.I., receives up to \$1.8 million in support of this trial. In biophotonics, Shuliang Jiao's biophotonic devices for retinal degenerative disorders secured \$2 million from the NIH. Jessica Ramella-Roman and Anuradha Godavarty have biophotonic devices in clinical trials, Ramella-Roman for pre-mature labor and cervical cancer, and Godavarty for wound care. Zachary Danziger obtained Nielsen Foundation funding for understanding bladder control after spinal cord injury, and Jacob McPherson received NIH funding to develop new treatments for neuropathic pain after spinal cord injury. Joshua Hutcheson received AHA funding for understanding cardiac disease mechanisms.

PARTNERSHIPS

The Department of Biomedical Engineering is involved in a number of multi-university and industrial partnerships, among them, are two National Science Foundation (NSF) Engineering Research Centers (ERC). The NSF ERCs are the Precise Advanced Technologies and Health Systems for Underserved Populations (PATHS-UP) and the Nanosystems Engineering Research Center for Cellular Metamaterials (CELL-MET). Other research projects receive funding from NIH, DARPA/ARO, AHA and others. BME also counts numerous industrial partnerships with local companies such as Entopsis, Stryker, and OrthoPro, and collaborations with hospitals including Nicklaus Children's Hospital and Baptist Health South Florida. Close to 90 percent of BME's senior design projects are sponsored by industry partners.

GRADUATE DEGREES OFFERED

- M.S. Biomedical Engineering
- M.S. Biomedical Engineering: Orthotics and Prosthetics
- Ph.D. Biomedical Engineering
- Five-year combined (B.S./M.S.) Biomedical Engineering

RESEARCH HIGHLIGHTS

- 60+ patents
- Translational research
- Bedside to Bench to Bedside
- Over 70 percent of faculty collaborating directly with clinical partners on research projects

GRADUATE RESEARCH OPPORTUNITIES

15 research active faculty, each with their own labs

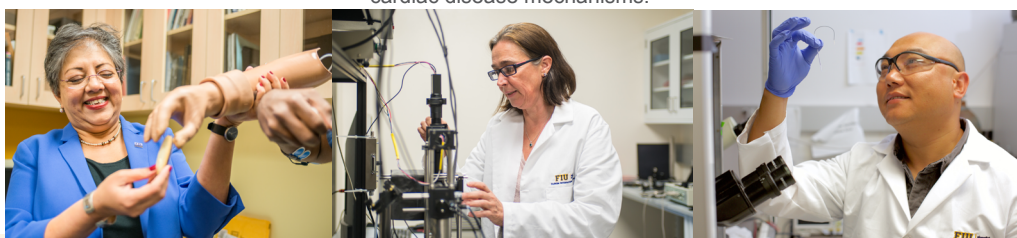
- Engineering tissue model systems
- Diagnostic bioimaging and sensor systems
- Therapeutic and reparative neurotechnology

FACILITIES

Cell Culture and Molecular Biology Core Facility: Equipment for sterile cell culture, isolation and analysis of nucleic acids and proteins, gene expression studies, creation of bacterial and viral vectors, and cellular cryopreservation and storage; mycoplasma testing services for all cell lines

Optical Microscopy Core Facility: Raman microscopy, fluorescence microscopy, and confocal microscopy

Neurotechnology Labs: Pre-clinical assessments for novel device development



POINTS OF PRIDE

1

NAI Fellow

1

AIMBE Fellow

2

AHA Fellows



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