Stony Brook University | Biomedical Engineering

FALL 2022 NEWSLETTER

YI-XIAN QIN
Professor and Chair

CHAIR'S MESSAGE

Greeting from **Stony Brook University BME**! It is an exciting time for Biomedical Engineering research and education. Stony Brook University was named as a SUNY Flagship University this year. New areas of development are opening daily, from nano-based engineering of tissues to making the exploration of outer space safe for mankind. With outstanding and diversified faculty and enthusiastic students working in advanced biomedical engineering disciplinary areas, such as multi-scale medical imaging (the birthplace of MRI), nanotechnology and biomaterials, brain research for psychological disorders and Alzheimer's disease, and tissue engineering and regeneration, it is an excellent time to pursue research and academic careers and studies here at Stony Brook University. In 2023, we have two new faculty positions: Assistant Professor in Biomaterials, Tissue Engineering/Regeneration and Biomedical Engineering and SUNY Empire Innovation Associate Professor in Nanomedicine/Nanotechnology!

SBU Ranking

US News and World Report

#31 in Public Universities
#1 in New York Public Universities
#77 in combined Private and Public Universities

BME by the Numbers

$ 400K
Research Expenditure per Faculty in FY 2021

$ 7M
Research Expenditures in FY 2021

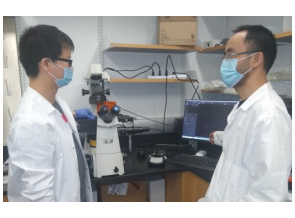
$ 76M
Engineering-Driven Medicine Building in Construction Planning

43%
Students are Women

1/3
Faculty Members are Women

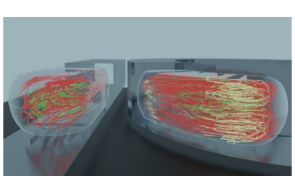
18.9:1
Student:Faculty Ratio

RESEARCH NEWS



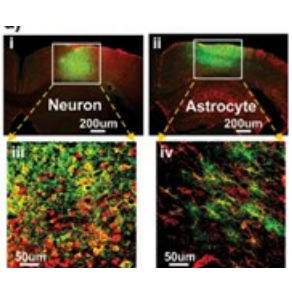
CycMIST functional protein measurement technology could advance drug discovery research

JUN WANG and the Multiplex Biotechnology Laboratory developed a microchip assay – the single-cell cyclic multiplex in situ tagging (CycMIST) – to enable measurement of hundreds of functional proteins in single cells and provide insights into cell machinery. The method, published in Nature Communications, may help to advance fields such as molecular diagnostics and drug discovery. More>



Tracking particles in 3D microfluidic flow using open source and accessible technology

ERIC BROUZE's group, led by author **EVAN LAMMERTSE**, demonstrated that a defocusing approach based on simple brightfield microscopy, coupled with open source software and deep learning, performed 3D particle tracing velocimetry to map microflows with high temporal and submicron resolution. Published in Microsystems & Nanoengineering, it may support the development of novel microfluidic structures and fluid control at the micron scale. More>



Astrocytes mediate cocaine-induced vasoconstriction

CONGWU DU's and **YINGTIAN PAN**'s labs, led by author **YANZUO LIU**, demonstrated that neurons and astrocytes play different roles in mediating neurovascular coupling in the brain while responding to cocaine. The results, published in Communications Biology, will support treatment strategies to reduce cerebrovascular pathology in triggered by cocaine-use disorders. More>

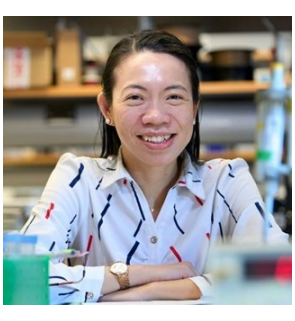
FACULTY NEWS

Sunar joins BME Department as SUNY Empire Innovation Associate Professor

ULAS SUNAR joined Stony Brook University from Wright State University. An expert in diffuse optical imaging, Dr. Sunar focuses on functional and molecular optical imaging techniques for early disease detection and image-guided intervention in preclinical and clinical settings. As an Empire Innovation Associate Professor, Dr. Sunar contributes to SUNY's research mission through cutting-edge research. More>

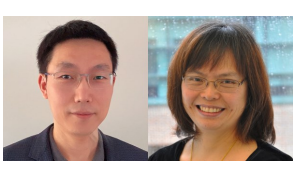
Mujica-Parodi receives $3.2 million Baszucki Brain Research Fund grant

LILIANNE MUJICA-PARODI, together with colleagues from MIT and Dartmouth College, were awarded a 3-year award, entitled "NEUROBLOX: a Data-Driven Platform for Computational Psychiatry." This grant will allow the development of a computational psychiatry platform using control circuits and artificial intelligence.



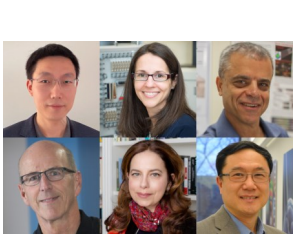
Chan wins Presidential Mini-Grant for Diversity Initiatives

MEI LIN (ETE) CHAN received a Presidential Mini-Grant for Diversity Initiatives for her proposal entitled "Integration of Arts: Inclusive Bioengineering Education." Chan and her collaborators Nobuho Nagasawa (Art) and Blanche Leeman (Occupational Therapy) will leverage the synergy between art and science to expand educational, research, healthcare and other opportunities to enable Stony Brook students to thrive as global citizens in a diverse society.



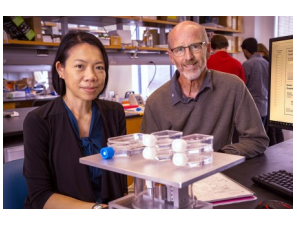
Zhu and Du elected as Fellows to the American Institute for Medical and Biological Engineering

DONGHUI (DON) ZHU and **CONGWU DU** were elected to AIMBE's Class of 2023 Fellows. AIMBE Fellows represent the top 2% of medical and biological engineers in academia, industry, education, clinical practice, and government. Zhu's and Du's induction increases the number of departmental Fellows to five.



BME Faculty win CEAS Millionaire Elite Club Awards

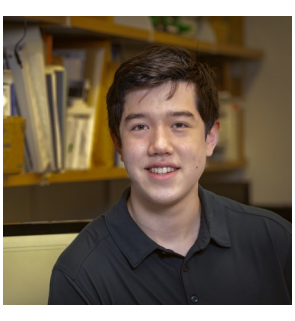
DONGHUI ZHU, CHRISTINE DELORENZO, DANNY BLUESTEIN and **CLINTON RUBIN** joined the new SBU College of Engineering and Applied Sciences (CEAS) Millionaire Elite Club, which recognizes research expenditures exceeding $1 million in 2022. In addition, **LILIANNE MUJICA-PARODI, YI-XIAN QIN,** and **DONGHUI ZHU** received CEAS Millionaire Awards.



Chan and Rubin receive 2022 SUNY Technology Accelerator Fund Award

MEI LIN (ETE) CHAN and **CLINTON RUBIN** received the State University of New York's Technology Accelerator Fund (TAF) Award for their proposal, "Low Intensity Vibration to Accelerate T-Cell Proliferation in Autologous Therapy." This project aims to test the effectiveness of low-intensity in increasing efficiency of CAR-T immunotherapy. More>

STUDENT/ALUMNI NEWS



Moore receives URECA Researcher of the Month honors

CHRISTOPHER MOORE '24 was named as the Undergraduate Research & Creative Activities (URECA) Researcher of the Month for June 2022 for his work on Field Programmable Gate Arrays for optical biomedical applications. He recently published his work in ***Biosensors***. Christopher is mentored by Wei Lin. More>

Ali awarded AAUW American Fellowship

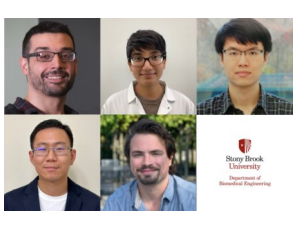
FARZANA ALI, M.D. received a 2022-2023 American Fellowship from the American Association of University Women (AAUW). This prestigious award will support Farzana to complete her dissertation work on using data from wearable sensors to personalize treatment for mental health care. She aims to be a leader in academic radiology and a healthcare technology entrepreneur. Farzana is advised by Christine DeLorenzo. More>

Ashdown receives Snyder Scholars Program award

CHRISTOPHER ASHDOWN, an MD/PhD student advised by Clinton Rubin, was awarded a Snyder Scholars Program award for his work on T cell sensitivity to low intensity vibration. The award will help further understanding of cell mechanosensitivity, with a long term objective of developing non-invasive and non-pharmacologic techniques to enhance effective manufacturing of CAR-T therapy. More>

Maloney's Stony Brook journey highlighted in SBU News

LAUREN MALONEY, M.D. (BME '12, Medicine '16) was highlighted for her multiple healthcare provider roles since graduating from Stony Brook University. She has translated her interdisciplinary BME and patient interaction skills to excelling at her roles as an attending emergency medicine physician, medical director for SBU's paramedic program, adjunct BME professor, and University Police Department surgeon. More>



Graduate students awarded on SBU BME Research Day

Several students received honors at the **2022 Graduate Program Research Day** on August 19th. **EVAN LAMMERTSE** (advisor: Eric Brouzes) and **SAI SREENIVASAMURTHY** (advisor: Donghui Zhu) received **Student Choice Awards** for best oral presentation and poster, respectively. **HAILING HUANG** (advisor: Wei Zhao) and **PEINENG WANG** (advisor: Danny Bluestein) shared **Faculty Choice Awards** for best oral presentations, and **JOSHUA AZUKAS** (advisor: Helmut Strey) received the **Faculty Choice Award** for best poster. More>

Advance your career potential with a Graduate Degree in Biomedical Engineering at Stony Brook University

About our Graduate Programs

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About Stony Brook BME

The Department of Biomedical Engineering was founded in December 2000, jointly established by the College of Engineering and Applied Sciences (CEAS) and the Renaissance School of Medicine (RSOM) at Stony Brook University. The BME department currently has 22 core and approximately 50 program faculty members. The mission of the Department is to fully integrate the cutting edge of engineering and physical sciences with the state-of-the-art biology to advance human health. The ABET-accredited undergraduate program serves approximately 500 BME majors. The Graduate Program in BME has approximately 100 MS and doctoral students. The BME Department enjoys close collaboration with the facilities and faculty at the newly established Institute for Engineering-Driven Medicine (IEDM), Center for Biotechnology, Brookhaven National Laboratory (BNL), and Cold Spring Harbor Labs (CSHL).

More about Stony Brook BME:

BME core faculty
Program faculty
Research areas
Undergraduate program
Ph.D. & M.S. program
Affiliated labs and Facilities

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