



## BME Department Highlights



### NIH BRAIN Initiative Award to Anna Devor and Colleagues

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With the NIH grant, the team will conduct a multi-year, multi-institution effort combining parallel human and animal studies, as well as computational modeling.

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Associate Professor **Anna Devor** and her team will develop a method for extracting information about neuronal circuit activity from functional magnetic resonance imaging (fMRI) scans. The BU team also includes colleagues at UC San Diego, MGH and UIC.

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#9  
BME Undergrad

BEST  
COLLEGES

& WORLD REPORT  
U.S. News

RANKINGS

## Undergrad Program Moves up to #9 in US News Rankings

BU's Department of Biomedical Engineering has moved up to #9 in the nation's top undergraduate programs for biomedical / bioengineering degrees, according to the US News Best College Rankings. The grad program also maintains its position in the top 10.

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## Faculty News



## Lewis Honored with a McKnight Award

The McKnight Endowment Fund for Neuroscience has selected Assistant Professor **Laura Lewis** for a 2021 **McKnight Scholar Award**, to study the effects of sleep on neural computation and physiology. The McKnight awards recognize innovative young scientists.

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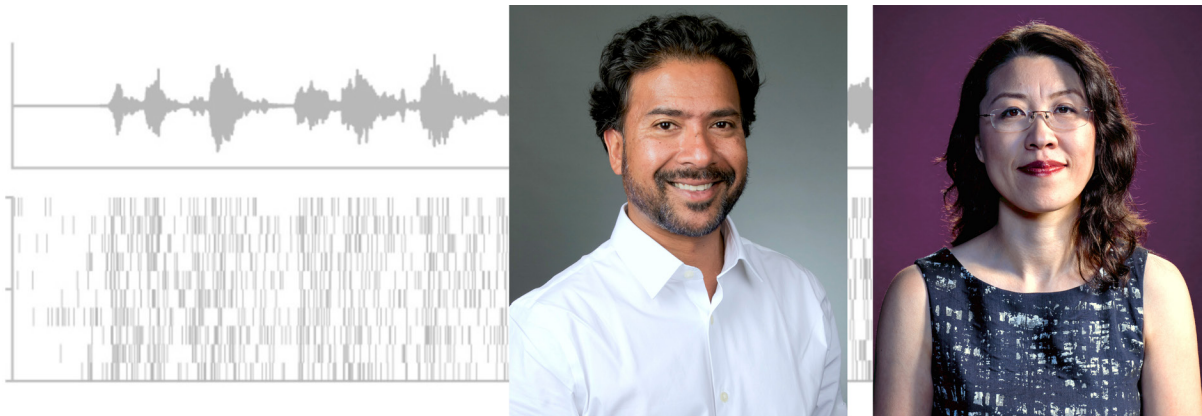


## BU's Neural Interface Proposal Receives Facebook Grant

The BU team's winning project explores "The Effect of Hair Type and Skin Pigmentation on fNIRS Signal Quality". Facebook launched **Engineering Approaches to Responsible Neural Interface Design** awards to promote ethical development of neurotechnology.

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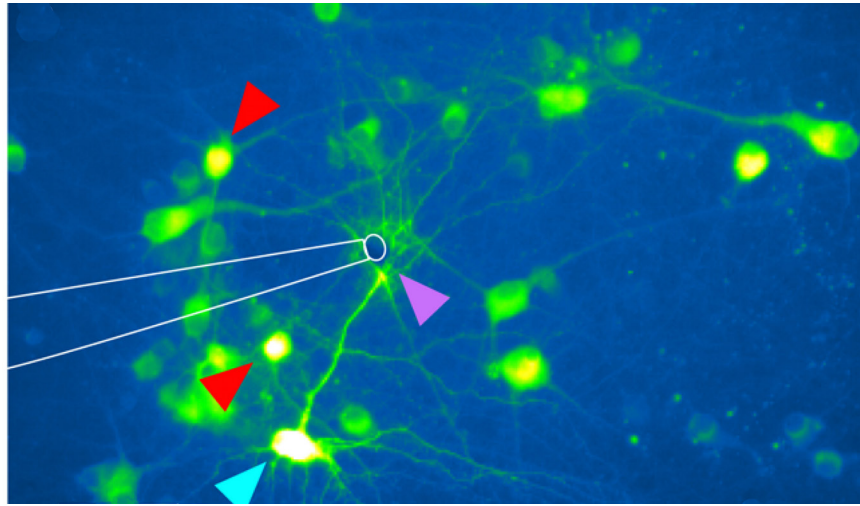


## Shedding New Light on a Mystery of Sensory Processing

Associate Professors **Kamal Sen** and **Xue Han** have pinpointed a neuron type that helps distinguish a target sound from background noise. Their findings on singling out a sound might someday be used to improve hearing aids and other assistive technology.

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## Photoacoustic Stimulation with Single-Neuron Precision

Research developed by a BU team entitled “Non-genetic Photoacoustic Stimulation of Single Neurons” will be featured in the **Nature** journal *Light: Science & Applications*. The team has collaborated to research and develop a tapered fiber optoacoustic emitter.

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## BME's Laura Lewis in SCIENCE

Assistant Professor **Laura Lewis** is included in special issue of **Science**, devoted to the essential physiological process of sleep. Her **article** discusses how sleep maintains the health of the brain through interconnected systems of neuronal activity and fluid flow.

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## Selected Publications

**Ji-Xin Cheng, John White et al -  
LIGHT: SCIENCE AND APPLICATIONS**

*Non-genetic photoacoustic stimulation of single neurons by a tapered fiber optoacoustic emitter*

[ARTICLE](#)

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**Hadi Nia et al - NATURE BIOMEDICAL ENGINEERING**

*Solid stress impairs lymphocyte infiltration into lymph-node metastases*

[ARTICLE](#)

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**Laura Lewis - SCIENCE**

*The interconnected causes and consequences of sleep in the brain*

[ARTICLE](#)

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**Laura Lewis - PROGRESS IN NEUROBIOLOGY**

*How pushing the spatiotemporal resolution of fMRI can advance neuroscience*

[ARTICLE](#)

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**Anna Devor - CURRENT OPINION IN BIOMEDICAL ENGINEERING**

*A suite of neurophotonic tools to underpin the contribution of internal brain states in fMRI*

[ARTICLE](#)

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**Anderson Chen et al - NATURE METHODS**

*An adaptive optics module for deep tissue multiphoton imaging in vivo*

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**Muhammad Zaman - PROJECT SYNDICATE**

*Learning from COVID to Fight Drug-Resistant Disease*

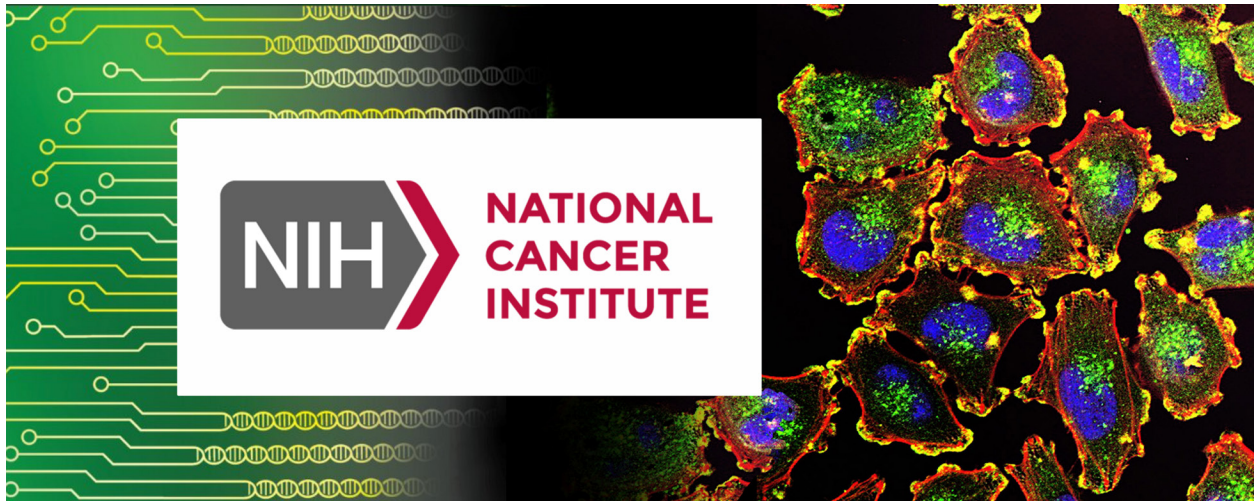
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**Oded Ghitza - eNEURO**

*Acoustically Driven Cortical Delta Oscillations Underpin Prosodic Chunking*

[ARTICLE](#)



### National Cancer Institute Awards Grinstaff, Wong, Colson

BME Profs. **Mark Grinstaff**, **Wilson Wong** and MGH's **Yolonda Colson** were selected by the National Cancer Institute and NBIB for an award supporting engineering biology for cancer applications. The team will study precise tumor targeting with logic CAR circuits.

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### Jump-starting Biotech Careers for High School Students

A new \$2.3 million outreach program, led by BU Professor **Douglas Densmore** and funded by the Department of Defense, will introduce hundreds of underserved high school students to STEM careers and the emerging field of synthetic biology.

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*The latest iteration of Prof. David Boas' wearable brain imaging system tracks blood flow in the brain, thereby learning what neurons are activated during different activities.*

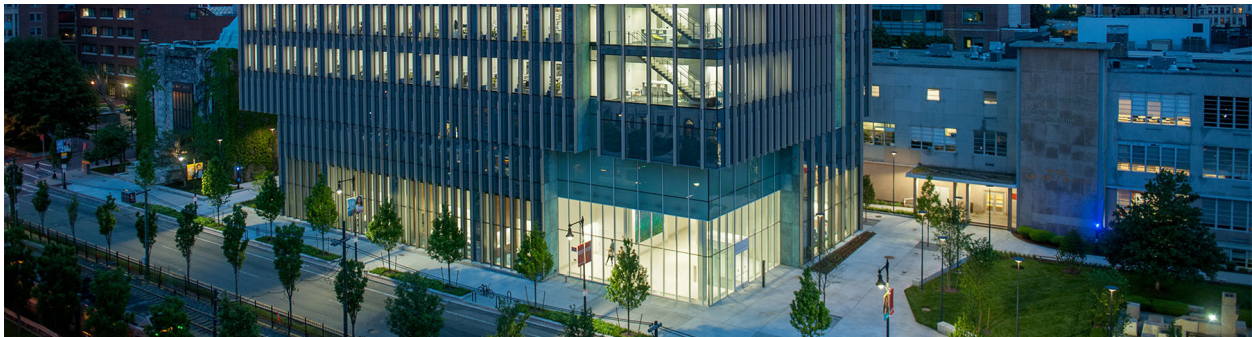


## Imaging Projects Span Engineering Disciplines

Research teams from across BU's College of Engineering are sharing expertise in biomedicine, optics, and data science to explore new imaging technologies. Faculty are joining forces to produce images and insights into how neurons and other cells work.

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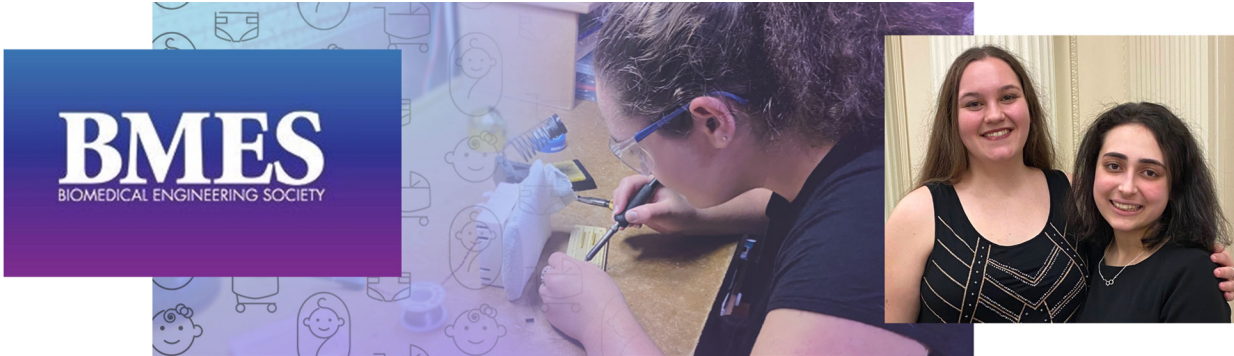
## Five Studies Pushing the Limits of Science

BME faculty starred in this year's **Kilachand fund awards**, which will support pioneering research across engineering and life sciences. The interdisciplinary teams will develop innovations in artificial intelligence, treatment for neurodegenerative disorders, medical imaging technology, protein sequencing, and microRNA research.

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## Student Honors



### BU Duo's Wearable Wins BMES Design Award

Two recent BME grads, **Meghan Griffin** and **Leen Arnaout**, won a top award in the 2021 Biomedical Engineers Society (BMES) Medtronic Design Competition. Their novel device would treat **Apnea of Prematurity**, which affects more than 85% of premature infants.

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**Boston University** College of Engineering  
Department of Biomedical Engineering

**The Biomedical Engineering Department** at Boston University is among the largest of its kind in the US and is home to award-winning faculty, exceptional students, and numerous research centers and laboratories engaged in an array of interdisciplinary biomedical activities. Founded in 1966, today we offer a full suite of undergraduate and graduate degrees, and are consistently ranked among the top BME departments in the nation by *U.S. News & World Report*.

[bu.edu/bme](http://bu.edu/bme)