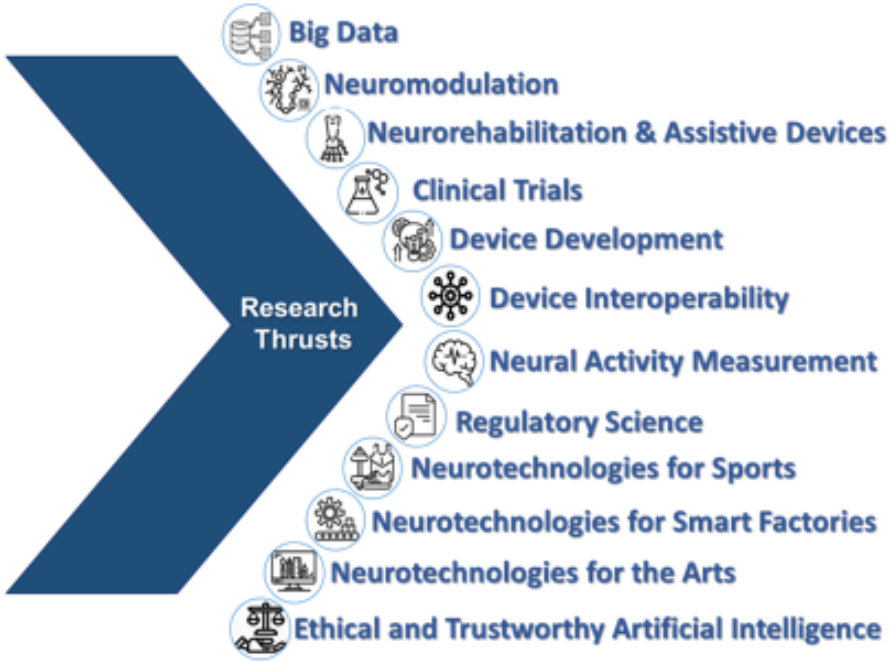
A NSF Industry-University Cooperative Research Center (IUCRC)

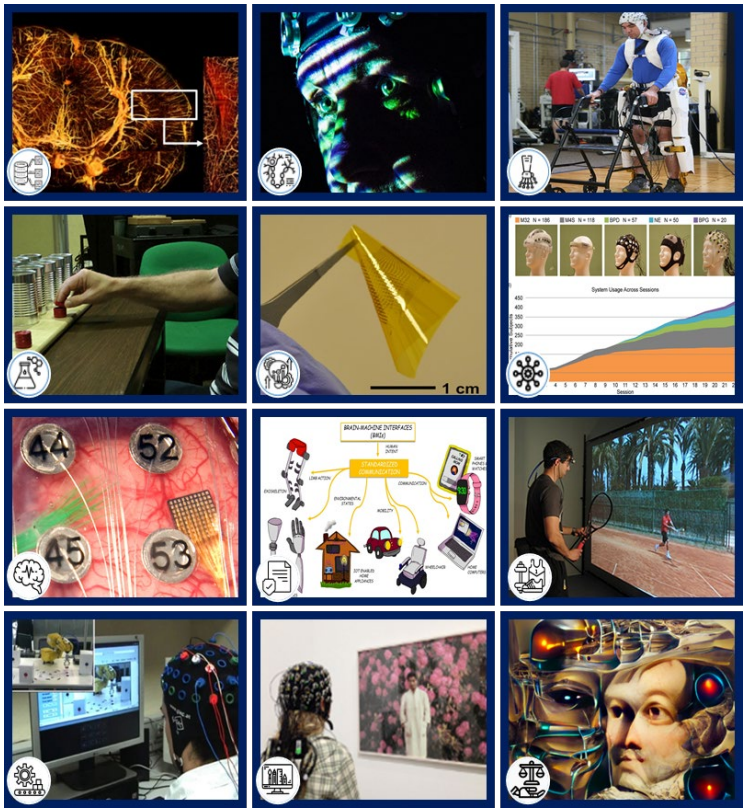
Mission

To develop **safe, effective and reliable personalized neurotechnologies** for diagnostics, restoration, enhancement, and rehabilitation of sensory, motor, affective and cognitive functions.

To allow **rigorous development and testing of efficacy, safety and long-term reliability of neurotechnology.**

Research Thrusts





Building Reliable Advances and
BRAIN
Innovations in Neurotechnology

NSF
An NSF Industry/University Cooperative Research Center (I/UCRC)

BRAIN Research Facilities

	Laboratories \ Research Thrusts	Big Data	Neuromodulation	Neurorehabilitation & Assistive Devices	Neural Activity Measurement	Clinical Trials	Device Development	Device Interoperability	Regulatory Science	Neurotechnologies for Sports	Neurotechnologies for Smart Factories	Neurotechnologies for Art	Ethical & Trustworthy Artificiall Intelligence
UH	Biomedical Imaging	■			■				■				
	Blaffer Art Museum											■	
	Burdette Keeland, Jr. Design Exploration						■			■			
	Center for Neuromotor and Biomechanics Research (CNBR)	■	■	■	■	■	■						
	Computational Medicine Laboratory						■		■	■	■	■	
	Computational Physiology Lab	■				■							■
	Efficient Computer Systems (ECOMS)						■	■					■
	Hyperspectral Image Analysis	■		■									■
	Magnetic Manipulation						■	■					
	Materials Technology						■	■					
	Nanobiophotonics				■		■						
	Nanomaterials and NanoPhotonics	■		■	■		■	■					
	Neuroaesthetics Laboratory	■	■	■	■	■	■	■	■			■	■
	Neurorobotics Laboratory		■	■	■	■	■	■	■		■		
	Noninvasive BMI Systems	■	■	■	■	■	■	■	■	■	■	■	■
	Optical Bioimaging				■	■	■	■					
	Robotic Swarm Control						■	■					
	Scalable Tissue Imaging and Modeling	■											■
	Soft & Bio Electronics Lab -Wearable electronics						■						
	Speech, Language, Aphasia, and the Brain Lab (SLABlab)		■	■	■	■							
	Wireless Networking, Signal Processing and Security	■											
ASU	BioElectrical Systems & Technology (BEST)						■						
	Center for Adaptive Neural Systems			■		■							
	Locomotion Research			■		■							
	Motor Rehabilitation and Learning Laboratory			■									
	Neural Control of Movement		■	■	■	■							
	Neural Engineering				■		■						
	Neural Microsystems				■		■						
	Neural Plasticity and Neurorehabilitation			■		■							
	Neuro-electricity Lab				■		■						
	Neuromuscular Control Human Robotics			■			■						
	Regenerative Medicine				■				■				
	Robotics and Intelligent Systems						■						
	Sensorimotor Research			■	■	■							
	START Lab			■		■							
	Visuomotor Learning			■	■								
UMH	Behavior Analysis									■			
	Brain-Machine Interface Systems	■	■	■	■	■		■	■	■	■	■	
	Group of Design and Development of Bioactive Molecules					■							
	Motor Control and Learning					■				■			
	Ocular Neurobiology Group		■		■	■							
TEC	Biometrics Systems/ Robotics lab						■	■	■	■			
	Cobots Room					■		■			■		
	Manufacture cell					■		■			■		

UH: University of Houston, ASU: Arizona State University, UMH: University Miguel Hernandez, TEC: Tec Monterrey

Color Code

Big Data
Neuromodulation
Neurorehabilitation & Assistive Devices
Neural Activity Measurement
Clinical Trials
Device Development
Device Interoperability
Regulatory Science
Neurotechnologies for Sports
Neurotechnologies for Smart Factories
Neurotechnologies for Art
Ethical & Trustworthy Artificiall Intelligence

https://nsfbrain.org/facilities-equipment-and-software/

Value to Universities

- Conduct **high-impact, fundamental, pre-competitive research** through the Industry–University Cooperative Research Centers Program

Value to Universities

Funding

Build new, sustainable funding paths.

Industry Insight

Learn about cutting-edge industrial needs.

Student Placement

Train and place students in highly relevant research areas.

Value to Government

- Federal, state and local government agencies participate in the Industry–University Cooperative Research Centers program.

Value to Government

Leveraged Research Dollars

Stretch public research funds further

Network

Meet industrial leaders and top researchers driving sector change

Training

Mentor and train students to attain desired skills for work in government

Value to Industry

- IUCRCs accelerate the impact of basic research through close relationships between industry innovators, world-class academic teams, and government leaders.

- IUCRCs are designed to help corporate partners and government agencies connect directly and efficiently with university researchers to achieve four primary objectives:

Value to Industry

1. Conduct high-impact research to meet shared industrial needs in companies of all sizes.

2. Enhance U.S. global leadership in driving innovative technology development.

3. Identify, mentor and develop a diverse high-tech, exceptionally skilled workforce.

4. Develop R&D Roadmaps and Standards to ensure technical and commercial leadership.

Value to Industry

- Businesses of all sizes and market segments participate as members in Industry–University Cooperative Research Centers nationwide.

Value to Industry

Access to Talent

Opportunity to mentor and train students to attain desired skills for work in your industry

Access to Research Results and IP

Gain royalty-free, non-exclusive licenses on intellectual property produced in the center

Leveraged Research Dollars

Earn high return on investment when research is jointly funded

Value to Industry

Industry–University Cooperative Research Centers support areas of strategic interest to industry, offering resources to develop **faster paths to infusion of new technologies**.

Value to Industry

Industry–University Cooperative Research Centers with international sites provide a **faster path for industry to reach international market.**

IAB-approved International Sites:
Mexico – Spain

Value to Industry

Industry–University Cooperative Research Center can **facilitate and accelerate clinical trials for regulatory purposes**.

What are the membership benefits of The BRAIN Center?

1. Pool funds together to conduct pre-competitive research of relevance to industry partners
2. Network and collaborate with other IAB Members
3. Partner with BRAIN Sites to apply for federal grants, including SBIR and STR grants
4. Have access to the Center's Technological Roadmap
5. Meet 2 times/year to review discoveries and collectively vote to recommend which projects to fund
6. Have access to expert faculty, highly skilled students, and center resources at all sites
7. Have rights to a royalty-free, non-exclusive license to generated intellectual property
8. Rapid response for teaming up to program announcement for large federal grants
9. Priority access for recruiting highly skilled and industry-specific graduates from the Center
10. Short and long-term sabbatical periods from industry staff at Center labs and from Center faculty to industry
11. Opportunity for degree-granting programs for industry personnel with mentorship from Center faculty

Current Industry Members

TIRR MEMORIAL HERMANN Rehabilitation & Research

INDUS INSTRUMENTS

Medtronic

THE CORE INSTITUTE

BRAIN PRODUCTS Solutions for neurophysiological research

ripple neuro

zēlosDx Window into the Brain™

MOVEMENT INTERACTIVE

Fourier Intelligence

EUNOVA 2001

FDA U.S. FOOD & DRUG ADMINISTRATION

MACHINECARE EDUCATION

I/UCRC for Building Reliable Advances and Innovation in Neurotechnology (BRAIN)

University of Houston
NSF Award #1650536

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1650536&HistoricalAwards=false

Arizona State University
NSF award # 1650566

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1650566