



Center for Adaptive Systems
of Brain-Body Interactions

CASBBI NSF Research Traineeship (NRT) Program



Siddhartha Sikdar, PhD
Professor, Bioengineering
Director, Center for Adaptive Systems of Brain-Body Interactions

CASBBI Vision:

To enable individuals with disabilities to participate in needed and desired life roles and activities

NRT-HDR: Transdisciplinary Graduate Training Program in Data-Driven Adaptive Systems of Brain-Body Interactions

NSF DGE # 1922598

PI: Sikdar; co-PIs: Thompson, Peixoto, Rangwala, Seshaiyer

09/01/19-08/31/2024; \$3 million



CASBBI NRT'S PURPOSE

Training the next generation of **leaders** to take on some of the most challenging health problems faced by society today

Our students must meaningfully engage with stakeholder communities and work together across traditional academic boundaries to integrate knowledge and develop viable solutions



OUR PROPOSED OUTCOMES

Cross-training graduate students from **engineering, data science, and social science** disciplines to:



Define a problem from multiple perspectives based on disciplinary knowledge, lived experiences, and community knowledge



Utilize design thinking principles to break down open-ended problems



Develop creative solutions by adapting and applying theories and methodologies from different disciplines



Communicate effectively with stakeholders and broad audiences



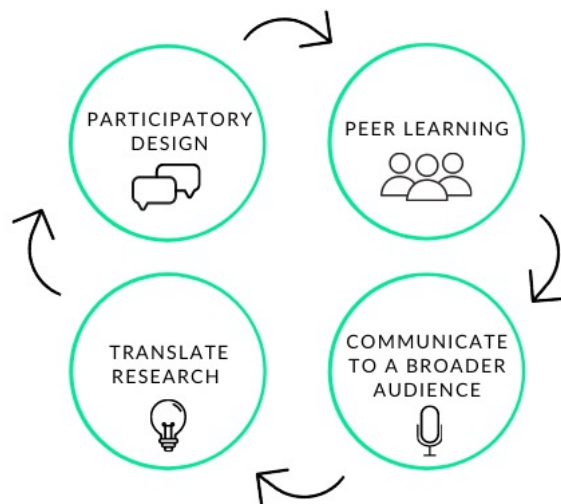
Work productively on diverse multidisciplinary teams



Community-engaged design projects

"Integrating patient input into every aspect of research and development is so necessary for success."

-Soania Mathur; Physician, Patient, PD Advocate, NRT Partner



The 2020-2021 NRT cohort was given the following open-ended challenge:

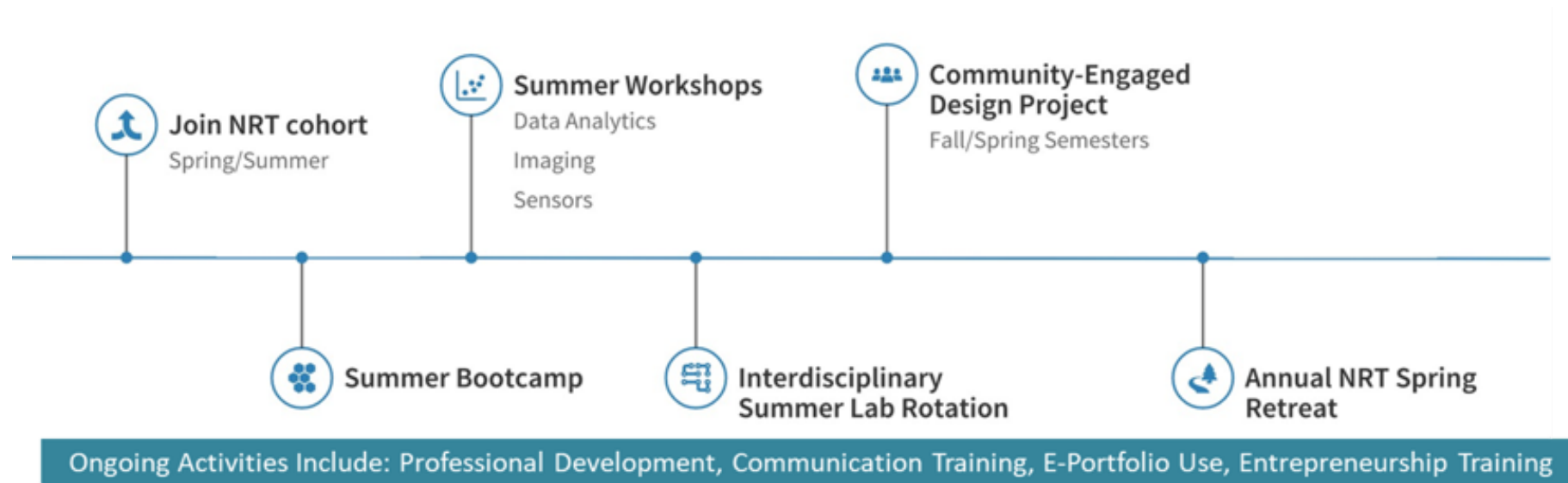
Understand the impact of COVID-19 on individuals with disability.

The teams engaged in design thinking and iterative customer discovery to break this challenge down to focused research projects:

- **RISE-OUT:** Risks and socio-ecological factors associated with opioid use treatment
- **Students with disabilities in COVID-19:** Parents' Perspective
- **IMPACT-PD:** Improving messaging between patients and their care team in Parkinson's Disease



HOW DOES THE CASBBI NRT PROGRAM WORK?

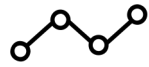


OUR OUTPUTS (IN PROGRESS)

In 2020-2021 our trainees, faculty, and partners:



Designed and implemented team science boot camp, data science workshop, and community-engaged design course sequence (PROV 801 and 802)



Developed 3 NIH research proposals, peer reviewed in panels convened by the trainees. These proposals will continue to be developed for submission.



Presented to community partners and industry representatives in summer, winter, and spring



Preparing multiple manuscripts based on design projects



Engaged in community building, including at the newly established CASBBI Social Hour



NRT Leadership Team



Siddhartha Sikdar
NRT PI
Professor, Bioengineering
Director, CASBBI



Padhu Seshaiyer
NRT Co-PI
Professor,
Mathematics



Nathalia Peixoto
NRT Co-PI
Associate Professor,
Electrical and Computer Engg



James Thompson
NRT Co-PI
Associate Professor,
Psychology



Huzefa Rangwala
NRT Co-PI
Professor, Computer Science



Linda Mason
Professor, Education
Director, KiHD



Holly Matto
NRT Community Coordinator
Associate Professor,
Social Work



Stephanie Carmack
NRT Program Coordinator
Assistant Director,
CASBBI



Laurence Bray
Associate Provost,
Graduate Education



Jill Nelson
Associate Professor,
Electrical and Computer Engg



Leanne Tortez
NRT External Evaluator
The Mark USA

