

## BrainsCAN's Scientific Philosophy:

**Understanding higher brain functions** is central to the diagnosis, classification, and treatment of disorders of the brain. Through its support of **fundamental and transformative scientific research**, BrainsCAN will advance our understanding of the brain — in health and disease — across the lifespan.

BrainsCAN endeavors to deliver evidence-based assessments and interventions for the diagnosis and treatment of brain disorders; seeking answers to **fundamental aspects of how we learn, think, move and communicate**. We will radically transform our understanding of the brain, and significantly reduce the impact of cognitive disorders through interventions in the classroom, in the operating room and in the clinic, as well as leading public policy and medicolegal ethics debates from a position of knowledge.

## Positioning of BrainsCAN Aligned Research:

- Brain disorders result in impairments in cognitive function including deficits in memory, attention, learning, problem-solving, and communication.
- Our ability to clinically characterize and measure such disorders is limited.
- Cognitive neuroscience is rapidly moving away from a syndrome-based approach toward an emphasis on cognitive markers that cut across traditional diagnostic bounds.
- Across disparate disorders – such as dementia, schizophrenia, autism, dyslexia, depression, Parkinson's disease, stroke, and acquired brain injury – underlying genetics and molecular mechanisms may differ, but underlying neural circuits may have important commonalities.
- We need to deeply understand and specifically, accurately, and robustly measure subtle cognitive markers both in human patients and in animal models of disease.
- BrainsCAN strives to facilitate **combinatorial and collaborative strategies** to address the most complex and diverse problems in cognitive neuroscience.

## Pillars of BrainsCAN Strategic Priorities:

*ELITE CORES*: Through their engagement strategies and skilled staff that can train users, schedule, troubleshoot and operate their respective sophisticated equipment, we have transformed our infrastructure into 5 thematically linked core facilities. These 5 cores are: (1) Imaging, (2) Non-Human Primates, (3) Rodent, (4) Human Cognition and Sensorimotor Control, and (5) Computational.

*HIGHLY QUALIFIED PERSONNEL (HQP)*: BrainsCAN is committed to the development of HQP at all levels (undergraduate, graduate, postdoctoral levels and further).

*KNOWLEDGE TRANSLATION & IMPACT (KTI)*: The KTI plan will translate knowledge across three distinct platforms: Industrial, Clinical and Social Innovation. Capturing the impacts that occur through the research activities, and knowledge translation, is instrumental to BrainsCAN's objectives.