Western
BrainsCAN
Transforming brain research.

COMPUTATIONAL CORE

COMPUTATIONAL NEUROSCIENCE

Despite recent progress in Artificial Intelligence, the human brain is still the most powerful computational machine we know. How do roughly 3 pounds of interconnected nerve cells produce movements, language, thought, creativity and consciousness?

We still do not understand the internal language that nerve cells use to communicate with each other. In the field of Computational Neuroscience, experts including mathematicians, computer scientists, neuroscientists, engineers, psychologists and statisticians are working together to decipher the neural code.

We study the computations performed by the brain and use mathematical techniques to analyze and model neural activity.

Accelerator Projects

State-of-the-art clinical assessment of hand function in stroke and cervical spondylotic myelopathy
Diedrichsen, Jörn

Diffusion MRI modelling of the cortex by macro- and myelo-architecture
Khan, Ali

COMPUTATIONAL CORE

The BrainsCAN Computational Core provides state-of-the-art computational resources to BrainsCAN researchers across the university, allowing them to share and analyze large amounts of data, and to run intensive simulations. Our staff provide analysis pipelines for imaging, neural and behavioural data.

These methods are ultimately geared at making clinical predictions on how to best help patients with brain disorders. We are also training the next generation of neuroscientists in mathematical techniques which are becoming increasingly important in the future.

Further information on BrainsCAN research can be found at brainscan.uwo.ca

The BrainsCAN Computational Core is part of Western's $66M BrainsCAN initiative, supported by the Canada First Research Excellence Fund (CFREF). The CFREF investment enables researchers at the University, along with their national and international academic and commercial partners, to seek answers to fundamental questions regarding how we learn, think, move and communicate.

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