

Brain and Mind Institute

Cognitive Neuroscience Leader

The *Brain and Mind Institute* is a unique collaborative research effort drawing upon the talents of more than 30 principal scientists and colleagues from across the disciplines at Western University, including *Robarts Research Institute*. From understanding childhood development to deciphering the neural basis for cognitive functions, the Institute is widely recognized as a national and international leader in cognitive neuroscience research.

About the Brain and Mind Institute

- Acknowledged as one of the few groups of its kind in the world due to the combination of cutting-edge imaging equipment, leading research expertise and close proximity to patients
- Facilitates research in functional brain imaging, behavioural testing and electrophysiological recording
- Led by director **Melvyn Goodale**, the Institute engages various disciplines, including biophysics, neurophysiology, psychology, neuroanatomy, linguistics, philosophy and computer science
- Recruited one of the world's foremost neuroscientists, **Adrian Owen**, from the University of Cambridge as *Canada Excellence Research Chair in Cognitive Neuroscience and Imaging*
- Owen first demonstrated that some patients in a vegetative state may not only have cognitive thoughts, but can also communicate

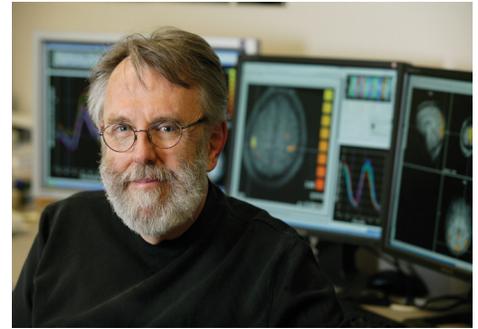
Research

- Dedicated to interdisciplinary research in cognitive neuroscience, which investigates the neural basis of mental capacities and processes, such as categorization, motor control, attention, self-awareness, language, memory, perception and reasoning
- This field promises to reveal how we see the world, think about it, speak, plan ahead and make decisions
- Upgraded fMRI and MR spectroscopy capabilities allow researchers to engage in real-time observations of the 'cognitive brain' and illuminate root causes of cognitive disorders and disease states
- By comparing brain scans of healthy people with those from patients suffering from mental illnesses or neurological disorders, researchers are gaining new insights into the mechanisms of vision, memory and language

Strengths

- Leading Canadian centre for advanced imaging technology and for neurophysiology and behavioural testing resources that provide advanced capabilities for scanning and interpreting the brain
- Core strengths include: magnetic resonance spectroscopy, visuomotor control and computational modeling
- The combination of neural imaging, work with neurological patients, cognitive studies of healthy subjects and use of other models also make the Institute particularly unique
- In addition to basic research, scientists are at the forefront of research to ameliorate and remediate brain damage, psychiatric disorders, aging and such diseases as Parkinson's, Alzheimer's, dementia, schizophrenia, epilepsy and stroke

For more information, please visit: www.uwo.ca/bmi/



Melvyn Goodale and colleagues across disciplines at the Brain and Mind Institute are world leaders at mapping the brain and related advanced neuroscience-based studies.

Highlights:

- Dedicated to mapping the mind from single neurons to the brain as a whole
- Houses a 7 Tesla fMRI system – the highest-field human MRI device in Canada and one of three in the world developed for neurological use
- Lead \$66M BrainsCAN initiative through Canada First Research Excellence Fund
- Its researchers have published more than 1,000 papers over the past 15 years
- Led to formation of the Western Cluster of Research Excellence in Cognitive Neuroscience and recruitment of three Western Research Chairs



**Western
Research**