

# Neuroimaging: Decoding the Processes Implicated in Health and Disease



Angie Laird  
Associate Professor, Physics



## CURRENT RESEARCH

### Using fMRI to further our understanding of the human brain

Functional magnetic resonance imaging (fMRI) is a non-invasive neuroimaging technique that allows researchers to safely examine brain function. However, the results of any single fMRI study may be highly variable and therefore a challenge to apply to patients' treatments and diagnoses. Dr. Angie Laird, Associate Professor of Physics at Florida International University, is developing and applying neuroimaging meta-analysis methods that identify consistent findings across the literature. She and her team study hundreds or even thousands of published brain activation patterns to determine which regions are robustly implicated across studies. By integrating results across many studies, Dr. Laird is helping to make sense of the neural basis of psychological processes implicated in health and disease.

Recognized as a leader in her field, Dr. Laird applies her background in physics to relevant biomedical questions. In fact, she was recently invited to the White House because of her fMRI study on how undergraduate STEM majors develop critical thinking skills. Novel to her research is her broad sweeping approach; due to the high expense and logistical challenges of neuroimaging studies, research is typically reliant upon small sample sizes rather than large data sets. Using meta-analysis, Dr. Laird's studies provide the most robust, consistent, task-related responses in brain activity. In so doing, a clear picture emerges which can help facilitate consensus on brain networks that are engaged during tasks or implicated in psychiatric or neurological diseases and disorders. Furthermore, by uncovering the clues underlying psychological theory found in large data sets of neuroimaging results, Dr. Laird is able to explore...

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## AFFILIATION



Florida International University

## EDUCATION

- Ph.D., in Physics, 2002, University of Wisconsin-Madison

## AWARDS

- Invited Attendee at The 2014 White House BRAIN Conference, 2014
- Florida International University, Provost's Research Excellence Award, 2014
- Thomson Reuters "Highly Cited Researcher" <http://www.highlycited.com>, 2014
- University of Texas System "Rising STARS" Award for Faculty Excellence, 2010
- Paper of the Year, Organization for Human Brain Mapping, 2006

## RESEARCH AREAS

Life Science, Neurological / Cognitive, Empowering Women, Women in STEM

## FUNDING REQUEST

Your contributions will support the continued research of Dr. Angie Laird, of Florida International University, as she develops and applies novel meta-analytic techniques to functional and structural imaging results. Donations will fund students and personnel as they conduct neuroimaging meta-analyses and new fMRI studies. Join in understanding the structure-function correspondences in health and disease; fund Dr. Laird and her team.