



Georgia State University/Georgia Tech Center for Advanced Brain Imaging

VOLUME 2, ISSUE 1

CABI

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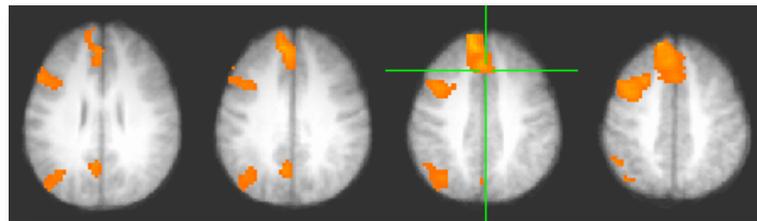
Featured Research

Multi-site collaboration that includes Georgia State and Georgia Institute of Technology

Neuroimaging of reading, language, and cognition

Gwen Frishkoff (GSU Psychology) & Kate P. Revill have been collaborating with researchers at the Medical College of Wisconsin on a combined fMRI/ERP/MEG study of semantic comprehension.

Participants read sentence fragments and then performed a lexical decision task on a visually presented item that was either a non-word or a word that best completed the sentence context ("expected" words), made sense in the sentence context but wasn't the most likely ending ("unexpected" word) or didn't fit the sentence context



at all ("anomalous" words). Using identical materials and an identical paradigm, Dr. Frishkoff and colleagues have collected data using all three methodologies.

They are now looking at the underlying correlates of semantic integration by comparing meaningful completions ('expected' and 'unexpected' words) with nonmeaningful completions ('anomalous' words) and of semantic expectedness ('expected' words vs. 'unexpected' and 'anomalous' words). Each neuroimaging technique has its own particular sets of advantages and tradeoffs- fMRI, for example, provides high spatial resolution but relatively low temporal resolution, while ERP and MEG have excellent temporal resolution- but this study can take advantage of the benefits of each technique to form the most complete picture yet of the neural correlates of semantic comprehension. They are also looking at whether individual differences in verbal abilities relate to activation or brain structure differences.

TRIVIA QUESTION

Q: How much blood flows through the brain per minute?

The correct answer will be posted in the next newsletter!



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Recent Publications

SCIENTIST SPOTLIGHT



Matt Bezdek, Ph.D.

I received an M.A. and Ph.D. in Cognitive Psychology from the State University of New York at Stony Brook, working in the laboratory of Dr. Richard Gerrig. In my research, I study the cognitive and emotional processes that occur as people experience narratives.

In my current work with Dr. Eric Schumacher, I am using fMRI to investigate how the timing of narrative information in suspenseful film scenes affects the scope of viewer attention on a moment-by-moment basis. I am also interested in how the placement of information in narratives can influence learning of new knowledge as well as attitude and belief change.

Fani, N., King, T.Z., Jovanovic, T., Glover, E.M., Bradley, B., Choi, K., Ely, T., Gutman, D.A., & Ressler, K.J. (advance online pub 2012). White Matter Integrity in Highly Traumatized Adults With and Without Post Traumatic Stress Disorder, *Neuropsychopharmacology*.

Leshikar, E.D., and Duarte A. *Task-Selective Memory Effects for Successfully Implemented Encoding Strategies*. *PLoS One*.7(5)e38160, 2012.

Mizelle, J.C. & Wheaton, L.A. Why is that hammer in my coffee: A multimodal imaging investigation of contextually-based tool understanding. *Front. Hum. Neurosci*; 2011; 4:233. doi: 10.3389/fnhum.2010.00233.

Thompson, G. J., Magnuson, M. E., Merritt, M. D., Schwarb, H., Pan, W-J., McKinley, A., Tripp, L. D. Schumacher, E. H., & Keilholz, S. D. (in press). Short time windows of correlation between large scale functional brain networks predict vigilance intra-individually and inter-individually. *Human Brain Mapping*.

Shin, J., Yang, Z, Duarte, A. and Hu, X. (2013, April). Correction of Long-term Physiological Noise Effects Increases the Reproducibility of Resting-State Networks. Poster presentation accepted to 21st Annual International Society for Magnetic Resonance in Medicine, Salt Lake, UT

Recent & Upcoming Events



CABI Users Meetings are on the 1st Monday of each month from 8:30 - 10am

February: During this meeting we discussed appropriate methods for ROI selection & avoiding circularity. (Referenced Kriegeskorte et al, 2009).

March: Speaker: **Mukesh Dhamala, Ph.D**
Professor in Physics and Astronomy at GSU
<http://www.phy-astr.gsu.edu/dhamala/dhamala.html>

April: Speaker: **Audrey Duarte, Ph.D**
Professor in Psychology at GT
<http://www.psychology.gatech.edu/duartelab>

Technologist's Update

In order to continue to the latest technological advances in functional Magnetic Resonance Imaging, CABI has purchased a foot press that can be used to collect response data during functional studies. The foot press can be used as an alternative to the finger/button press.



Lastly, it is time for many of you to attend MRI Safety Training and to update your Cardiopulmonary Resuscitation Certification. Both courses will be offered at various times throughout March and April.