



Georgia State University/Georgia Tech
Center for Advanced Brain Imaging

CABI

NEWSLETTER

VOLUME 3, ISSUE 2

CABI NEWS

This year CABI has taken several steps to foster the neuroscience and neuroimaging community around Georgia Tech and Georgia State. Our monthly users meetings are held at 9:30am on the 3rd Thursday of each month. The meeting is focused on learning about and discussing new imaging and analysis techniques. We typically read and discuss a paper with an interesting result and technique. So far this year we have discussed papers involving different interstimulus interval options and papers using multi-voxel pattern analysis. If you come across an interesting paper, please send it to eschu@gatech.edu and perhaps we'll discuss in an upcoming meeting.

CABI is also hosting a monthly meeting the 2nd Friday of each month focused on MR technology and MR analysis development (Atlanta MR Technology meeting). The MR Technology group provides resources to foster collaboration between Atlanta institutions for MR Physics and Engineering including MR data analysis. This is a place for all MR physicists and engineers to come together to discuss and solve high level MR problems, as well as interesting new findings and methods. More details about upcoming meetings will follow. If you would like more information contact Jaemin Shin at jaemins@gatech.edu.

CABI also hosts a monthly speaker series for the broader neuroscience community called Callosum. This meeting is held the 1st Tuesday of the month. The meetings feature two short talks from different types of neuroscientists directed to a broad audience. So far, we've had short talks by graduate students and post-docs from BME and ECE at Georgia Tech and from Psychology and Neuroscience at Georgia State. In April, Callosum has plans to host a poster session for interested students and post-docs.

Food and snacks are provided at each meeting. All are invited to participate.

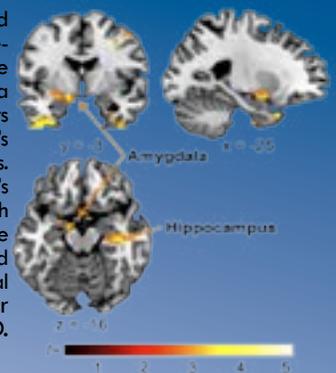


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Featured Research "Identifying predictive risk factors for PTSD"

Post-traumatic stress disorder (PTSD) occurs in about 30% of people who have experienced a traumatic event, and can be conceptualized as a deficit in the ability to inhibit fear responses. Previous research has shown that PTSD is associated with alterations in the structure and function of regions involved in the regulation of fear responses, such as the amygdala and vmPFC, but it is unclear whether these are symptoms of the disorder, or risk factors pre-dating the onset of symptoms. A project led by Dr. Kerry Ressler of Emory University's School of Medicine, with CABI collaborator Dr. Jaemin Shin, seeks to answer these questions. Participants who experienced a traumatic event are recruited from Grady Memorial Hospital's Emergency Department within 24 hours of trauma, and participate in MRI scanning 1 month and 12 months post-trauma. Initial findings by postdocs Dr. Jennifer Stevens and Dr. Sanne Van Rooij indicate that, at 1 month post-trauma, amygdala hyper-reactivity to threat and prefrontal inhibition deficits predict the maintenance of high levels of PTSD symptoms several months later. The findings point to deficient fear inhibition as a risk factor rather than a symptom associated with the high levels of stress experienced during PTSD.



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Seed Grant Recipients

In October, CABI initiated seed grant calls for two categories, neuroscience and neurotechnology. Ten projects were funded, eight neuroscience and two neurotechnology.

CABI 2015 -2016 Neuroscience Seed Grant Recipients

1. Robert Latzman, PhD (GSU) - Disentangling the multiple processes of "Self Control"
2. Chris Conway, PhD (GSU) - Neural Correlates of Sequential Pattern Learning
3. Andrew Butler, PhD (GSU) - Brain network activity changes following stroke and rehabilitation treatments
4. Jessica Turner, PhD (GSU) - Response to Unexpected Social Betrayal in individuals with Social Anxiety
5. Sharee Light, PhD (GSU) - Frontostriatal correlates of empathy subtypes
6. Jaemin Shin & Sanna Van Rooij, PhD (CABI) - Investigating inhibition as a potential predictive biomarker for the development of PTSD
7. Katherine Fu, PhD & Brian Sylcott, PhD (GT) - Design Fixation and it's Mitigation: What Can the Brain Tell Us?
8. Page Anderson, PhD (GSU) - Can therapy help? Could therapy hurt? Anticipation of social reward/punishment and expectation of treatment response among people preparing to receive cognitive behavior therapy for Social Anxiety Disorder.

CABI 2015-2016 Neurotechnology Seed Grant Recipients

1. Robin Morris, PhD (GSU) - Quantification of in vivo Cerebral Metabolic Rate of Glucose
2. Karim Sabra, PhD (GT) - Quantifying Cerebrospinal fluid Circulation using real-time MRI

These seed grants will allow new researchers from across both campuses access to the CABI MRI scanner.

Congratulations to the recipients this year! CABI has plans to initiate another round of seed proposals toward the end of the fiscal year.

Recent Publications.

King T.Z., Na, S., & Mao, H. (2015). Neural underpinnings of working memory in adult survivors of childhood brain tumors. *Journal of the International Neuropsychological Society*, 21(7), 494-505. <http://dx.doi.org/10.1017/S135561771500051X>

King, T.Z., Smith, K., & Ivanisevic, M. (2015). The mediating role of visuospatial planning skills on adaptive function among young-adult survivors of childhood brain tumor. *Archives of Clinical Neuropsychology*, 30(5), 394-403. <http://dx.doi.org/DOI:10.1093/ardlin/acv033>

Schwam, D.M., King, T.Z., & Greenberg, D. (2015). Characteristics of Executive Functioning in a Small Sample of Children with Tourette Syndrome. *Applied Neuropsychology: Child*, 4(4), 297-308. <http://dx.doi.org/10.1080/21622965.2014.930686>

Hudepohl, M.B., Robins, D.L., King, T.Z., & Henrich, C. (2015). The role of emotion perception in adaptive functioning of individuals with high-functioning autism spectrum disorders. *Autism: The International Journal of Research & Practice*, 29(1), 107-112.

In Press:

Ailion, A.S., King, T.Z., Wang, L., Fox, M., Mao, H., Morris, R.M., Crosson, B. (in press). Cerebellar Atrophy in Adult Survivors of Childhood Cerebellar Tumor. *Journal of the International Neuropsychological Society*.

Fani, N., King, T.Z., Shin, J., Srivastava, A., Brewster, R.C., Stevens, J.S., Jovanovic, T., Bradley, B., Ressler, K.J. (in press). Structural and functional connectivity and Posttraumatic Stress Disorder: Associations with FKBP5. *Depression and Anxiety*.

Mizelle JC, Oparah A., Wheaton LA. Reliability of Visual and Somatosensory Feedback in Skilled Movement: the Role of the Cerebellum. *Brain Topography*, 2016, 29: 27-41.

Message From The Director

We have made many improvements to improve scanning for the CABI community over the past 6 months. The CABI website now has resources available for standard preprocessing and analysis of fMRI data for checking the quality of data collected, and for designing efficient experiments. We are working to add tools for analyzing functional connectivity in CABI data as well as using advanced analysis techniques like multi-voxel pattern analysis. We also continue to work to foster the GSU and GT neuroscience and neuromimaging community. In addition to our monthly talks, we will be hosting an end-of-the-year poster session on April 19th. More information about this event will appear shortly.



SAVE THE DATE

**CALLOSUM
POSTER SESSION**

April 19, 2016

4:00pm -6:00pm



Upcoming Events

MR Technology Meeting

3:00pm - 4:00pm

(2nd Friday of each month)

New meeting to discuss acquisition and data analysis in detail

CABI Users Meeting

9:30am - 10:30am

(3rd Thurs of each month)

Monthly meeting of CABI Users to discuss neuromimaging issues.

Callosum Neuroscience Meeting

4:00pm - 5:30pm

(1st Tuesday of each month)

New meeting and social for GSU and GT neuroscientists and students

