

IU Calendar

Event Information		SOIC Master Calendar IUB
Title:	Network Science Talk: Sarah Muldoon, "Using data-driven models of brain activity to understand individual variability and predict differences in task performance"	
Sharing:	Public	
Start Time:	Monday, March 27, 2017 2:00 PM	
End Time:	Monday, March 27, 2017 3:00 PM	
Location:	IMU Oak Room	
Category:	Event	
Contact:	IU Network Science Institute	
Url:	http://iuni.iu.edu/news/talk/1290	
Free/Busy:	free	

Network Science Speaker

Sarah Muldoon, University at Buffalo, SUNY

Monday, March 27 2 p.m., IMU Oak Room (note location change)

Reception following

Using data-driven models of brain activity to understand individual variability and predict differences in task performance

Description: **Abstract:** Humans show individual differences in both brain activity and performance of cognitively demanding tasks, and the origin of this variability is not well understood. Here, I will present work using a data-driven, biologically motivated computational model of brain activity to assess how brain network structure drives dynamics and function. By performing classification of brain networks based on a large feature space of network statistics, we are able to show that specific features of the network topology drive individual differences in brain dynamics. Further, we find that based on the global versus local spread of activation throughout the brain and/or task-specific sub-networks, we are able to predict individual performance across three different language tasks. Thus, by emphasizing differences in the underlying structural connectivity, our model serves as a powerful tool to examine structure-function relationships in dynamic brain networks.

Bio: Dr. Sarah Muldoon joined the University at Buffalo, SUNY in 2015 as an Assistant Professor in the Mathematics Department, core faculty in the Computational and Data-Enabled Sciences and Engineering Program, and member of the Neuroscience Program. Dr. Muldoon received a B.S. in mathematics and physics at the University of Kansas in 2004 before performing graduate studies at the University at Michigan where she received an M.S in physics, graduate certificate in complex systems, and finally a Ph.D. in physics in 2009. Her research interests lie at the intersection of experiment and theory with a focus on applications of network theory to neuroscience data. She has spent extensive time working in experimental neurobiology labs and now runs a research group that couples theoretical advancement, computational modeling, and data-intensive analysis to study the relationship between structure and function in brain networks.

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Cost: Free