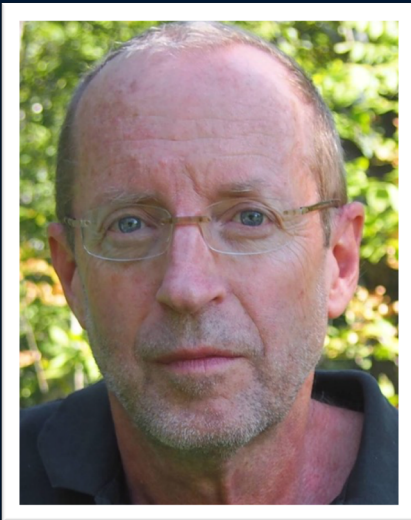# UConn BIRC Speaker Series

Wednesday, February 20th from 3:30–5:00pm in Bousfield A106

Hyperalignment: Modeling the shared deep structure of information encoded in fine scale cortical topographies

Distinguished Speaker:

James Haxby, PhD, Dartmouth College

Abstract: Multivariate pattern analysis (MVPA) has revealed that information is encoded in fine-grained patterns of cortical activity that can be measured with fMRI. Study of cortical functional connectivity also has revealed fine-grained topographies in the connectome that are closely related to these patterns of activity. The surface structure of functional cortical topographies, however, allows considerable variability across brains for encoding the same information. We introduced a new conceptual framework with computational algorithms that make it possible to model the shared information that is encoded in fine-grained functional topographies that vary across brains. This framework, "hyperalignment", models shared information as a high-dimensional information space, rather than attempting to model a shared or canonical topographic structure in the physical space of cortical anatomy. Hyperalignment is based on computational algorithms that discover this space and calculate transformations that project individually-variable patterns of neural activity and connectivity into the common model information space.

Bio: Jim Haxby is the Director of the Center for Cognitive Neuroscience at Dartmouth. His work investigates perception and knowledge of high-level and naturalistic stimuli and the development and application of computational methods for 'neural decoding' – how to decode thoughts and perceptions from patterns of brain activity. His most recent work has focused on the development of computational methods for building a model of shared information spaces in human cortex.

<u>Please email us if you would like to meet with Professor James Haxby.</u>
Shuttle between UCHC & Storrs: transpo.uconn.edu/blank/uconn-health-center/
Remote access: ucsf.zoom.us/j/7384800369
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