

JASON R. YEE, PhD

IMAGING ORGANIZATIONAL CHANGES FOR TRANSLATIONAL SOCIAL NEUROSCIENCE

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While social behavioral traits like monogamy and biparental care are uncommon in mammals, estimated to characterize less than 10% of mammal species, the high degree to which these traits are expressed in humans make them a natural focus of interest. Research on prairie voles (*Microtus ochrogaster*), small rodents that form selective, long-lasting social bonds with mates and offspring, offers a unique model for better understanding basic mechanisms that underlie these social behaviors. Recently, my focus has been to establish magnetic resonance imaging (MRI) capabilities in prairie voles as a platform to better understand the neural changes associated with lifespan developmental transitions and the adoption of new social roles. We have used i) blood oxygen level-dependent (BOLD) imaging of awake voles to examine functional activation in response to various stimuli, and ii) diffusion-weighted MRI in anesthetized voles to examine differences in gray matter microarchitecture. This talk will introduce the prairie vole neuroimaging platform, discussing both its potential and limitations for probing questions relevant to the biology of social cognition. It will do this through the lens of two main projects currently being pursued in the lab. The first concerns the developmental transition to fatherhood, a biologically significant event for biparental species in that the focus of survival concern shifts from oneself to one's offspring. The second topic is centered around investigating sex differences in the brain in a socially monogamous rodent, both under unmanipulated conditions and as a consequence of a common obstetric birth intervention. In addition, we will briefly discuss upcoming endeavors that aim to expand the mechanistic depth and topical breadth of the vole neuroimaging platform.

Jason R. Yee is a Research Scientist at the Center for Translational NeuroImaging at Northeastern University in Boston, MA, USA, and The Kinsey Institute at Indiana University in Bloomington, IN, USA, with broad interests in the biopsychology of stress and social processes. His expertise derives from the fields of neuroendocrinology, psychophysiology, neuroimaging, and ethology.