



Department of Psychology
UNIVERSITY OF WISCONSIN-MADISON



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Special Seminar

Date: Friday, October 16th, 2026
Time: 10:00am – 11:15am
Location: Brogden Hall, Rm 121

Neural and behavioral mechanisms of color-shape associations

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Senior Investigator, NIH

Abstract: The experiments I'll describe leverage the macaque monkey to address two questions in cognitive science: First, why do children learn color words later than shape words? Does this asymmetry reflect a linguistic challenge (must children learn language-defined color categories before they can express color knowledge?), an abstraction challenge (is color knowledge intrinsically harder to acquire?), or the fact that color has little meaning without shape context? We provide some answers using longitudinal behavioral experiments in monkeys who spent years interacting with 2-D colored-shapes of equal reward value, with each shape defined by a unique color and shape. Second, where in the brain are such color-shape associations represented? We answered the question by performing fMRI while the animals were cued to hold in mind unshown features of the associations (e.g. show banana shape, think "yellow"). We then used a new whole brain search light inspired by convolutional neural networks to determine where the brain stores the mental representations.