VT School of Neuroscience
Faculty Recruitment Seminar

Matthew Nassar, Ph.D.
Postdoctoral Fellow
Brown University

"Learning as statistical inference: neural and computational mechanisms for normative learning"

October 3, 2017
11:00am – 12:00pm
Biocomplexity Institute Conference Room

Successful decision-making often requires learning from prediction errors, but how much should we learn from any given error? I will examine this question in detail, drawing on an optimal inference model to formalize how we *should* learn in dynamic environments and a computationally efficient approximation to provide insight into how we *could* do so by adjusting the rate of learning from moment to moment. I will show behavioral data validating key model predictions in humans, demonstrate a role for the arousal system in setting the learning rate, and dissect the computational roles of neural subsystems upstream of learning rate implementation. I will explore the possibility that learning deficits might emerge from a failure to correctly determine how much should be learned, rather than a failure to represent prediction errors per se, and provide evidence for such an explanation in the case of healthy aging. Finally I will re-examine neural architecture of error-driven learning in the context of these results and discuss some future directions emerging from this work.

Contact Anne Wailes for more information: awailes@vt.edu

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