A Window on the Mind: Investigating Cognitive Processing through Eye Movements

by Dr. Monica Castelhano

Wednesday, July 15, 2020 | 11 AM to 1 PM EST (2 hours in duration)

For *Remote Participation*, please click HERE

Seminar Abstract: Whether looking for your car keys, wallet or simply where your coffee mug is to have a sip, eye movements provide a window into how information is initially processed, prioritized and integrated. Early models linked eye movements to the visual properties and stimulus features that would pull attention according to its attractiveness or saliency. However, we now know that in addition to these bottom-up influences, eye movements are influenced by a number of top-down factors including current task goals, previous experience, and general world knowledge. In this talk, I will use visual processing of complex real-world images to examine these influences, both in how each individually contributes to cognitive processes, as well as how they are nested, related and influence one another. These studies not only have implications for how we perceive the real-world in our day-to-day lives, but also how these influences affect our actions, judgements and prioritization across decisions, both explicitly and implicitly. Taken together, investigating cognitive processing through eye movement patterns can improve our understanding of how we come to understand complex information in the real-word and the influences on that understanding.

Panel Discussion: A multi-disciplinary panel will follow the presentation to advance convergence science on the multiscale mechanisms of perception, attention and decision that are captured in eye movement studies. Panelists will also discuss how this science can inform ground breaking innovation and intervention for more adaptive and better targeted support to healthy and clinical populations for navigating everyday life toward lifelong wellness and resilience. The moderator is **Prof. L. Dube**, Chair and Scientific Director, McGill Centre for the Convergence of Health and Economics (MCCHE).

Presenter: Dr. Monica Castelhano is a Professor in the Department of Psychology at Queen's University and is an internationally-renowned scholar examining attentional and memory processes in complex real-world environments using eye tracking technology. She received her PhD in 2005 from Michigan State University and joined the lab of the late Dr. Keith Rayner as a postdoctoral fellow in 2007 at the University of Massachusetts Amherst. She joined Queen's University in 2007, where she is the current chair of the Cognitive Neuroscience area. For her work, Dr. Castelhano has been awarded the Early Researcher Award from the Ontario Government and most recently received an NSERC Accelerator Discovery grant. Her research explores the cognitive processing of complex environments, the function of these processes underlying clinical populations, such as Autism Spectrum Disorders, and how current theory can inform emerging technologies.