

SEMINAR SERIES

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Coordination and Tradeoffs in Individual and Collective Foraging

Featuring Dr. Christopher Kello
University of California Merced



Friday, April 29 | 12:00 - 1:15 pm | BRB 167

<https://unomaha.zoom.us/s/92012305734>

PRESENTATION ABSTRACT

Humans and other organisms move through their environments in search of food and other resources at unknown locations. Efficient foraging movements can require planning, in which case the energy costs of movement must be considered in coordination with the time needed for perception, memory, and decision-making involved in planning. Efficient foraging movements can also require coordination among foragers in the service of group performance. In this talk, I review three recent studies of virtual foraging movements, two involving human participants and two involving agent-based simulations. The first study provides evidence that people are adept at trading off energy and planning costs in producing efficient foraging movements. The second two studies provide evidence that social foraging is more effective when agents can flexibly switch between individual and collective foraging movements, and when they balance individual exploration with exploitation of social learning. Altogether, the studies demonstrate how multiple exploration/exploitation tradeoffs are at play in the coordination of foraging movements.

ABOUT DR. KELLO

•Dr. Chris Kello earned his bachelor's degree in Cognitive Science at the University of Rochester and his Ph.D. in Experimental Psychology at the University of California, Santa Cruz. He was a postdoctoral fellow at Carnegie Mellon University and advanced research associate at the House Ear Institute before joining the faculty at George Mason University in 2001. He received an early career award from the National Science Foundation for his integration of computational and experimental studies of speech and reading, and went on to become Program Director of the Perception, Action, and Cognition program at NSF. He also oversaw two NSF Science of Learning Centers and received an NSF Director's award before joining UC Merced in 2008 as a Professor of Cognitive Science. Dr. Kello has served as both Interim and Associate Graduate Dean for several years, and he has led or co-led several sponsored research projects totaling over \$6 million dollars, including two NSF-funded graduate training programs. He has over 100 publications across a variety of fields and research communities, with broad emphases on speech, coordination, foraging, and complex adaptive systems.

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