

**Applied Math Seminar scheduled on Friday, October 26, 2018, 11-12pm, L01326**

**Speaker: Prof. Vincent Berardi (Chapman University)**

**Title: Computational Model of Behavior Shaping in Health Interventions**

**Abstract:**

As the use of real-time sensing technology expands, adaptive health interventions that automatically adjust in response to participants' behavior are becoming more feasible. However, adaptation strategies often lack a theoretical foundation. As a result, this research explores the use of behavior shaping, a well-known process from behavioral theory, as an intervention adaptation strategy. The incorporation of shaping into an agent-based computational model of behavior dynamics and operant conditioning will be outlined. The parameterization of the model will be discussed and digital experiments conducted to optimize behavior shaping routines for future health interventions will be summarized. Additionally, human laboratory experiments that implemented an analogue of the computational model will be detailed.

**About the speaker:**

Vincent Berardi is an Assistant Professor of Computational Health Psychology at Chapman University whose research lies at the intersection of behavioral science, mathematics, and computational science. A common theme throughout his work is the recognition that the increasing ubiquity of mobile technology offers the opportunity to observe and intervene upon behavior on a personal level in near real-time. He focuses on leveraging the extensive data generated by such technology to model and investigate behavioral systems with an increased level of precision and rigor. His work has spanned many domains, including secondhand smoke abatement, physical activity promotion, and driving risk reduction. In each of these cases, machine learning and other novel analytic techniques are applied to intensive longitudinal data with a focus towards assessing and changing behavior in real-time. Dr. Berardi received his PhD in computational science from Claremont Graduate University and also holds an MS in applied mathematics with a concentration in Dynamical Systems from San Diego State University.