

**NYU Stern School of Business**  
**Department of Information, Operations & Management Sciences**  
**INFORMATION SYSTEMS RESEARCH SEMINAR**

**TOPIC:** Design and Evolution of Complex Socio-technical Systems: An Organizational Genetics Approach

**SPEAKER:** Youngjin Yoo (Temple University)

**DATE:** Thursday, November 5<sup>th</sup>, 2015

**TIME:** 12:30-1:45PM \*Lunch will be served at 12:15PM.

**PLACE:** KMC 3-130

**ABSTRACT**

The role of digital technology has grown significantly during the past twenty years, evolving from a tool connecting business activities and inter-organizational relationships to a tool deeply penetrating into all dimensions of an organization's products, services, and processes. We are seeing the emergence of a new class of digitalized products and services that are generative as a result of the unique characteristics of digital technology. Generative digital artifacts often evolve beyond the original intent of the inventors. They continue to recombine with other digital artifacts and social systems, forming ever evolving complex socio-technical systems. These complex socio-technical systems consist of billions of connected digital artifacts that interact with human actors and each other around the globe. Their behaviors are the product of computational algorithms that are powered by microprocessors, which are inter-connected through global digital infrastructures.

These complex socio-technical systems produce an unprecedented amount of digital trace data from human actors and machines alike. The availability of such "big data" enables the tracing of complex phenomena that can lead to novel insights on human behaviors at all levels. Such developments in digital technology cause fundamental and irrevocable changes in organizations. Yet, existing theories and methods in management are not well equipped to deal with such generative digital innovation.

In this talk, I will present a view that is based on computation evolutionary biology to study the nature and the consequences of digital innovation in organizations. Drawing on recent developments in computational evolutionary biology, I am developing *organizational genetics* as a theoretical and methodological lens to study digital innovation in organizations. At its core, organizational genetics aims at uncovering the architecture of the generativity of complex socio-technical systems and predict its behaviors. To demonstrate the empirical and theoretical viability of organizational genetics, I will present an empirical study of the WordPress ecosystem. The overarching goal of the project is to form a new interdisciplinary field of inquiry to

systematically study the design and evolution of complex socio-technical systems that increasingly characterize our world.

### **BIO**

Youngjin Yoo is the Harry A. Cochran Professor of Management Information Systems at Fox School of Business, Temple University. He is also the Founding Director of Center for Design+Innovation and the founder and Principal Investigator of Urban Apps & Maps Studios, an interdisciplinary initiative for digital urban entrepreneurship in North Philadelphia. He is also WBS Distinguished Research Environment Professor at Warwick Business School, UK. More information can be found on his [website](#).