

**Systems Social Science -- Tutorial On:
“Ethno-Political Modeling for Training and Analysis”**

Barry G. Silverman, PhD

Electrical and Systems Engineering Department
University of Pennsylvania, Philadelphia, PA 19104-6315

basil@seas.upenn.edu

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ABSTRACT

This tutorial explores how a model of models or models library may be useful for profiling and emulating social systems. We begin by exploring challenges for domain specialists, modelers, and social scientists in representing social dilemmas so they may be modeled and simulated. The lack of tools and models for supporting this enterprise are explored as 3 challenges facing the BRIMS community. “Systems social science” is then presented as a meso-scale model of models methodology for design inquiry that synthesizes systems science, agent modeling and simulation, knowledge management architectures, and domain theories and knowledge. The goal is to focus computational science on exploring underlying mechanisms (white box modeling) and to support reflective theorizing and discourse to explain social dilemmas and potential resolutions. To support one in collecting a large library of models, several software design patterns are then explored and illustrated. The tutorial then describes an illustrative agent modeling and simulation library (model of many models from the literature). Two gameworld applications that utilize this library are discussed (a VillageSim and a StateSim). These serve as an example of the new types of instruments useful for systems social science. The conclusions wrapup by reviewing lessons learned about criteria that have guided this research and the types of validity assessment efforts that have been attempted.

Tutorial Outline:

- Challenge: 3 Universal Dilemmas (in Human Socio-Cultural Behavior M&S)
 - Domain Specialists’ Challenge
 - Modelers’ Challenge
 - Social Scientists’ Challenge
- Response: Systems Social Science Defined
- Software Design Patterns To Think About (Model View Controller, Model Factory, Model Driven Architecture)
- Example Model of Models Library
- Case Studies: Training & Analysis
- Conclusions, Lessons Learned, Next Steps

Keywords: social systems, systems approach, socio-cognitive agents, design inquiry