

**AGENTS ON THE LOOSE:
EMBODIED REFLEXIVE PRACTICE
IN EMERGING COMPUTATIONAL SOCIAL SCIENCE**

By

Matthew R. Francisco

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Examining Committee:

Linnda R. Caporaël, Thesis Adviser

Sharon Anderson-Gold, Member

Ron Eglash, Member

William A. Wallace, Member

Rensselaer Polytechnic Institute
Troy, New York

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ABSTRACT

This work is an exploration of the relationship between computer simulation in science and the experience of living in a world seen through the computer model. If computer modeling and simulation are increasingly used to see society as a complex system how does seeing society in this way affect how we experience and engage with the world around us? In what ways do computer models affect how one thinks about their agency in the world? To explore the relationships between computation and human reflexivity I conducted a six-year participant observation study of the emerging field of computational social science where social scientists and computer scientists are using a modeling paradigm called “agent-based computer modeling and simulation” (ABM) to create a new area of social science. During the study I worked for four years as a full member in a modeling group at a private research institution, attended conferences and workshops in computational social science, coauthored papers in the area, designed dozens of social models using ABM platforms developed within the community, and interviewed researchers throughout the community. The findings here indicate that reflexive mechanisms in agent-based modeling have the capability of quickly scaling or integrating together broader issues of cultural and ecological change to specific individual contexts. This is done through what I refer to as an *embodied reflexive practice*, which is the use of the practitioner’s body and identity to make sense of, explore, and update models of human agency in computer simulations. An embodied reflexive practice seeks to create cultural understanding out of and through technical depth and use culture and identity as a way of learning from models that are, by their nature, unrealistic and imperfect representations of the world. Such translations occur through the capability of computers to put massive numbers of individual models of human agents on the loose in a virtual world in order to make meaning in the real world. The hope is that an embodied reflexive practice will make exploring, testing, validating, and shaping system models a meaningful way of interacting and being in the world and strengthen human relationships to the natural world.