

Project Description

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Title: Multi-agent Modeling of Civil Disobedience and Violence

Background:

Multi-agent modeling utilizes agents, considered individual components with the ability to learn from their environment and change their behavior in response, to simulate real-life situations in an increasingly complex world. Interdependencies and relationships between individuals are very difficult to reproduce using human subjects with predispositions and human tendencies that are impossible to compensate for efficiently, and thus multi-agent modeling serves as an effective means to approximate their behavior, provided sufficient background information about each unique agent.

This project builds upon the general theories and equations of civil disobedience and violence advanced by Joshua M. Epstein. His work builds upon previous traction made in this field of study by offering a novel and promising approach to “understanding the complex dynamics of decentralized rebellion and interethnic civil violence.” While he analyzes simple tests of the cops, agents, and opposing groups, he fails to extrapolate more upon his data or use his findings to investigate hypothetical traits not considered in his initial research, a goal of this project.

Description:

This project uses currently existing simulation software to model a variety of situations in which one group of people become antagonized with a centralized authority. By implementing past theories and research into the human psychology that influences people to act in such situations, the underlying causes and nature of such conflicts were understood and built upon. The Multi-Agent Simulator of Neighborhoods (MASON) was utilized as an environment within which to create a simulated ecosystem that could harbor individual agents with unique traits that could act independently in light of an oppressing regime. This research is important because it helps shed light on group interaction in situations of tense conflict; these could include a coup d'état, warring tribes, or the primary test situation for this project – a jail break, involving prisoners fighting against each other and their jailors.