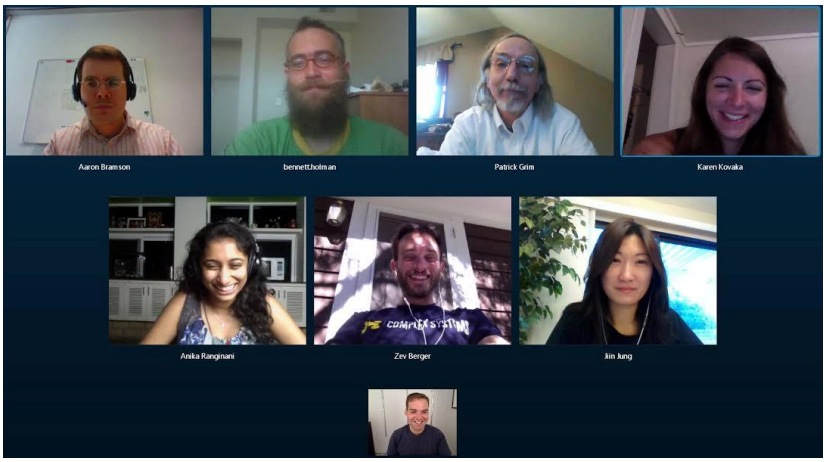


**What is it Like to be a Group?-A Computational Modeling Approach**
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**Advisor: Daniel Singer**

During a summer when an increasingly divided election has dominated the media, I have had the chance to work to understand the underlying mechanisms of polarization. As a research assistant in Prof. Daniel Singer's unique Computational Social Philosophy Lab, I have learned how to use agent-based modeling to focus on the cause of social phenomenon like political polarization.

The goal of agent-based modeling is to use simple mechanics to model complex phenomenon, the most famous being the 1969 Schelling segregation model. In our model, the two main features are agents and reasons. Agents can be thought of as jurors and reasons as evidence suggesting either guilt or innocence. Each agent has a series of reasons, and each reason has a valence (either positive or negative) and a weight. Our project aimed to show that agents following a rational procedure for group deliberation could become polarized. The key to demonstrating this polarization was setting an equally rational limitation on the agents – each agent had a limited number of reasons.

As a part of my project, I was also exposed to the rich literature surrounding rationality and polarization. Because 'rationality' is not a new theme in philosophy, reading the literature also taught me how research moves over time. Today, we are able to use to power of models and data analysis to build upon famous studies. What I learned throughout the summer applies beyond the Department of Philosophy.

In working with models, I learned how to categorize assumptions between those that are necessary and those that can be controlled for. Because of the inherent simplicity of agent-based modeling, researchers have to simplify processes—there are certain assumptions that are necessary for clarity. For example, our model of deliberation does not capture the emotional/personal aspect of group discussion. We assume each agent responds to evidence in the same way and that there is no misinterpretation because these starting points allow us to understand how groups might behave in an idealized situation. On the other hand, there are specific assumptions needed to run trials, like the number of agents or reasons and the initial distribution of those reasons. For these, I was responsible for running robustness tests, or varying different input parameters and ensuring that our results remained the same.

Ultimately, our world is full of complexities that we neither understand nor can fully capture in any computer model. Regardless of the vast computational power we have access to today, it is important to identify simplified models in order to better understand underlying causes. I am grateful to have had the chance to work with a collaborative group of researchers around the world who are equally passionate about seeking this understanding and I know I will apply the skills I have learned this summer as I continue to understand multifaceted problems.