Literature Review

MPhil Politics: Comparative Government

Synthetic AI-Augmented Agent-Based Modelling

Edward Anders

Supervisor: Professor Rachel Bernhard

St. Antony's College

University of Oxford

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1 Literature Review

1.1 Early pre-LLM Agent-Based Models

Epstein and Axtell (1996) were one of the first to apply agent-based models (ABM) to the study of social phenomena. They developed the Sugarscape model to simulate the interactions of agents in a virtual environment, focusing on resource distribution and social dynamics. Their model was a departure from the aggregate macroeconomic models, building on the pioneering work of Schelling (1971) (and see Schelling (1978)), fundamental social structures and behaviours of heterogeneous agent populations were observed through the interaction of rule-based agents within rule-based environments. Thus, their work gave focus to social dynamics through a 'methodologically individualist' lens such that social scientists could used these ABM techniques to 'study the interactions between individuals and institutions' (Epstein and Axtell, 1996: 17).

References

Epstein, J.M. and Axtell, R.L. (1996) *Growing Artificial Societies: Social Science from the Bottom Up*. Cambridge, UNITED STATES: MIT Press.

Schelling, T.C. (1971) 'Dynamic models of segregation', *The Journal of Mathematical Sociology*, 1(2), pp. 143–186.

Schelling, T.C. (1978) *Micromotives and macrobehavior*. [New edition]. New York ; W.W. Norton (Fels lectures on public policy analysis).