

## **Agent-Based Modeling and Archaeology: Past, Present and Future**

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### **ABSTRACT**

Agent-based modelling has a 40+ year history in archaeology, although the word “agent” was not initially used. This rather long history prompts three obvious questions: what progress has been made so far, however hesitantly? What now are the major technical obstacles facing ABM in archaeology? And where should we be going with this line of research?

In this talk I shall briefly discuss these questions touching upon:

- (i) past waves of published studies and the questionable benefit of current software tools for ABM,
- (ii) the need for social models of the type deployed in archaeology to include more genuinely cognitive agents and the difficulty of meeting this need,
- (iii) the possible distinctions that can be drawn between individual, social and compound agents and whether the notion of a compound agent undermines the distinction between the psychological and social sciences
- (iv) the idea of a hierarchy of models of varying degrees of abstraction and the important notion of an emergence oriented model, and finally,
- (v) the development of archaeological modelling to support whole society modelling, for example to study the possible trajectories to statehood given agents with particular cognitive characteristics, and to support agent-based global modelling targeting human species catastrophe avoidance -- a modelling application that merits and is currently receiving substantial attention.