

## **Towards Computational History: Databases and Agent-Based Simulations**

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### **Abstract**

Reloading the treasure of human experiences from the perspectives of artificial intelligence and computation is the next frontier of the humanities. With a crucial focus on primary sources provenance and validation issues, history should be at the forefront of this revolution, but it is somehow the Cinderella of computational humanities. In the first part of this talk, we will present the reasons for this impasse and propose solutions. In the second part of this talk, we will share our vision of how databases can be the next generation of (machine readable) critical editions of primary historical sources. While it should be possible to apply machine-learning techniques to these databases to generate scientific hypotheses that historians can test, we aim to go one step further. In the final part of this talk, we explain how agent-based models (ABMs) can help in the historian's perennial quest for truth, by potentially explaining what happened in the past, predicting what can happen in the future, and exploring how the present could be different had things turn out differently in the past. Drawing examples from our own work, we will describe the challenges we have encountered thus far, and the tentative solutions we have adopted to move this ambitious research program forward.