

CALL FOR PAPERS: Computer Applications and Quantitative
Methods in Archaeology 2012 (CAA2012)
Southampton, UK 23-26 March 2012

**SESSION: Archaeological Simulation Modeling as Computational Social Science:
Next Steps Forward**

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Simulation modeling and 'Artificial Societies' have given social scientists a new and productive means for the study of social interactions. These same tools have been extended to archaeological contexts through numerous simulation models and applications of social and social-ecological interactions over both short and long periods.

The core components of simulation in social science contexts, especially agent-based modeling (ABM), have begun to be considered under a broader heading of 'Computational Social Science.' This shift reflects new currents in the larger domain of computational science, where dramatic changes, such as a shift to 'cloud' computing, are being seen. Computational Social Science includes an array of approaches, including social network analyses and the mining and modeling of large-scale data sets. Broadly, these are all related by virtue of being based on two components that have become available only recently: the increased processing power needed to carry out the extensive computation required and the availability of novel (and often very large-scale) datasets. For the moment, the pendulum has swung toward the latter of these, as new, immense datasets become available and researchers pursue the wide array of opportunities they offer. Computational power, conversely, continues to expand, but to use it social scientists must overcome the technical challenges that arise because the platforms for the most powerful systems for high-performance computing (HPC) require parallel rather than serial computation; systems with tens of thousands of processors can solve very large problems, but only if those problems are parsed into units that can be executed in parallel, a task that is especially challenging for problems in the social sciences. Both the increasing use of large datasets and the move toward high-performance, parallel computing will continue for the foreseeable future.

Archaeological simulation modeling is also being shaped by these trends. The platforms and architecture available for archaeological simulations grow ever more powerful; meanwhile, existing datasets are being expanded and translated into computationally manipulable forms, and are further complemented by datasets that are newly available and are of previously unimaginable kinds and very large scales. These not only allow new ways to approach our original questions, but make possible previously unconsidered ways of understanding the archaeological record.

This session will bring together examples of archaeological simulation models and related computational approaches that are at the fore of these issues. The emphases will be: large-scale simulation models, especially those that feature HPC/parallel computing environments

or 'cloud-based' simulations; models that integrate and employ datasets that are novel or that are especially challenging in their content, structure, or scale; new and innovative ways to use these large datasets; and models or modeling efforts that reflect archaeology as a computational social science and the broader changes being seen in this and similar computational fields. The purpose is to present the current state of the art in the field, to reflect on the new technical and theoretical challenges these models offer and the ways these are being overcome, and to discuss the next directions that archaeological simulations and related problems will take.

DEADLINE FOR ABSTRACT SUBMISSIONS: 11:59 PM NOVEMBER 30th, 2011

CONFERENCE WEBSITE/SUBMISSION SYSTEM:

<http://www.southampton.ac.uk/caa2012/>

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From the conference website:

Submissions are requested for the 2012 Computer Applications and Quantitative Methods in Archaeology to be hosted by the Archaeological Computing Research Group in the Faculty of Humanities at the University of Southampton. The main aim of the CAA conference is to bring together researchers, professionals and students with an interest in the field of computer applications and quantitative methods in archaeology.

We therefore welcome submission of abstracts in English of up to 500 words that:

- Describe original, technically excellent, critical, and/or synthetic research
- Focus on interesting computation and/ or quantitative methods and theories applied in archaeology and related disciplines

You may choose to present your research via a long paper (20 minutes plus 10 minutes for questions and handover), short paper (10 minutes plus 5 minutes for questions and handover), or a poster. You may submit your research to a specific proposed session or to the general session. Poster sessions will run on each day of the conference and posters will be linked in the conference documents and website to the sessions to which they were submitted. Please indicate your preference in your submission.

The deadline is 11:59pm 30 November 2011. Accepted papers will be announced and conference booking system will open on 21st December 2011. Please note that at least one of the authors of a paper or poster must be registered for and attend the conference. All research [both short and long papers and posters] presented at CAA2012 may be submitted after the conference for peer review for publication in the conference proceedings. These will be published prior to CAA2013.