

Medieval Warfare on the Grid



Challenges

This project uses agent-based modelling in a distributed environment to help understand how medieval states moved and fed armies.

Background

The movement of large numbers of people across a pre-industrial landscape presents a series of significant logistical challenges. When logistical systems broke down, armies failed and states sometimes collapsed. Given its importance to the state and its inhabitants, medieval military logistics has been slow to utilise computer modelling techniques in order to understand the complex processes involved. This project takes as a case study the march of the Byzantine army to the battle of Manzikert in AD1071 and models the army on a 1:1 basis, tracing the movement and status of each individual. The Byzantine army probably numbered over 40,000 and travelled more than 700 miles from Constantinople to Manzikert through the Mediterranean summer. By modelling different scenarios regarding the size and composition of the army, the different possible routes and differing levels of food availability the project seeks to generate a set of plausible parameters within which the fragmentary historical record can be placed. These results can then be rendered in both 2d and 3d images or animations, enabling them to be more easily understood by people unused to traditional agent-based modelling outputs.



Case study



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Product Used

Java
Blender
C++
PDES-MAS

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