

**Networks over space and time: modelling, analyzing, and representing complex  
data in the digital humanities**

November 8<sup>th</sup> 2013, FCSH, New University of Lisbon, Lisbon, Portugal

WG1, Spatial and temporal modelling: representation of space and time, NeDiMAH

The workshop is free. All those who wish to attend please register here:

<https://networks-space-time-lisbon.eventbrite.co.uk/>

**Presentation:** This workshop is about interconnections between, and in space and time. But it also sees interconnections at other levels: between modelling and analysing, between theory and practice, as well as between humanities and computing.

In the humanities, a close look at networks and relationships, whether formal or informal, personal or social, of information or of knowledge, of transportation or of communication, has always been an important subject of study and, at the same time, a powerful analytical process. In computer science, the study of networks and of methodologies for analysis and visualization of these relationships is nowadays an increasingly well understood and practiced area of knowledge. In both the humanities and computer science, researchers are well aware of the dynamic nature of data and knowledge when viewed through the lenses of space and time.

Networks can be studied in a purely spatial perspective, if the object of analysis is the distance between things or people. However, there are two other dimensions which render networks' study in a more complex and richer methodology. Either time or social relationships help to extend the focus of analysis from distance to connectivity, and this is an important concept for the Humanities, as it is for the Social Sciences, at least, since

the 1930's<sup>1</sup>. In the field of spatial analysis, the focus has also tended to shift from an almost exclusively quantitative approach<sup>2</sup>, to one that tries to develop a new ontological and epistemological view, combining quantitative with qualitative methods and sources<sup>3</sup>, a view also important for the humanists. When put together, time, spatial analysis, with its derivative, spatial network analysis, and social network analysis, can be a powerful way of thinking about the world (*theory*) and of explaining it (*methodology*). And at the present time, with the integration and plasticity of the digital, the rising awareness about geography and time through the Internet's social networks, and the growing usability of the Web 2.0, thinking and explaining networks can benefit from powerful *tools*, increasingly complex and accessible at the same time.

The aim of this workshop is to combine analytical perspectives in the study of networks, over space and time, in humanities disciplines and on various themes, to identify methodologies, discuss research results, and encourage interdisciplinary approaches. The main focus of this workshop will be the areas of modelling and representation, highlighting them more as methods of analysis and knowledge production than merely as tools.

The perceived outcomes of this workshop will be to document the case studies presented, discuss and share methods and research results arising from these and to identify in the form of a report the interconnection between the humanities and the digital, helping to define a taxonomy of new methodologies and the development of a community of researchers for future collaborative work.

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<sup>1</sup> Stephen P. Borgatti et al., "Network Analysis in the Social Sciences," *Science* 323, no. 5916 (February 13, 2009): 892–895, doi:10.1126/science.1165821.

<sup>2</sup> Ian N. Gregory and Paul Ell, *Historical GIS: Technologies, Methodologies, and Scholarship* (Cambridge: Cambridge University Press, 2007), 161–163.

<sup>3</sup> David J. Bodenhamer, John Corrigan, and Trevor M. Harris, eds., *The Spatial Humanities: GIS and the Future of Humanities Scholarship* (Bloomington: Indiana University Press, 2010), 167–176.

## **Programme**

### **9:00 – 9:30 Reception/Introduction**

### **9:30 – 10:15 Presentations #1**

Pau de Soto Cañamares (Instituto de Arqueología de Mérida - Spain): *Costs & times of the Roman transport. Using network analysis to understand the Roman transportation system*

Thomas Thevenin (University of Burgundy - France), Robert S. Schwartz (Mount Holyoke College - USA) and Christophe Mimeur (University of Burgundy - France): *Measuring the link between space and network over time*

### **10:15 – 10:45 Discussing/Sharing/Practising**

### **10:45 – 11:00 Coffee break**

### **11:00 – 11:45 Presentations #2**

Albertina Ferreira (Instituto Politécnico de Santarém - Portugal), Carlos Caldeira (Universidade de Évora - Portugal) and Fernanda Olival (Universidade de Évora - Portugal): *From low density networks to geo-temporal approach*

Martin Stark, (University of Hamburg - Germany): *Locating historical networks in time and space: current achievements and challenges*

### **11:45 – 12:15 Discussing/Sharing/Practising**

### **12:15 – 12:30 Results/Conclusion**

### **12:30 – 14:00 Lunch**

### **14:00 – 14:45 Presentations #3**

Tim Evans (Imperial College London - UK): *Spatial Network Models in Archaeology*

Joaquim de Carvalho (Universidade de Coimbra - Portugal): *Networks, self-organisation and historical research: uncovering hidden structures in historical data*

### **14:45 – 15:15 Discussing/Sharing/Practising**

**15:15 – 15:30 Coffee break**

**15:30 – 16:15 Presentations #4**

Clement Levallois (Erasmus University Rotterdam - Netherlands): *Visualization of large and time-dependent networks: advances and limits*

Sofia Oliveira, Jared Hawkey and Nuno Correia (CADA and Universidade Nova de Lisboa - Portugal): *Finding and Representing Personal Time/Space Patterns*

**16:15 – 16:45 Discussing/Sharing/Practising**

**16:45 – 17:30 Results/Conclusion**