

# GeoHumanities 2017 Workshop Report

Bruno Martins<sup>1</sup>, Patricia Murrieta-Flores<sup>2</sup>

<sup>1</sup>Instituto Superior Técnico - INESC-ID, University of Lisbon, Portugal

<sup>2</sup>Digital Humanities Research Centre, University of Chester, United Kingdom  
(Workshop Co-Chairs)

## Abstract

*This article reports on the 1st ACM SIGSPATIAL Workshop on Geospatial Humanities, held in conjunction with the 25th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems. The article outlines the objectives of the workshop, and briefly describes the technical program.*

## 1 Introduction to the ACM SIGSPATIAL Workshop on Geospatial Humanities

The 1st ACM SIGSPATIAL Workshop on Geospatial Humanities (GeoHumanities'17) was held together with the 25th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems. It addressed the use of geographic information systems and other spatial technologies in humanities research, bringing together researchers and practitioners from different sub-fields of computer science and the geographical information sciences, interested in the application of spatial methods and technology to the humanities.

Scholars in the humanities have long paid attention to spatial theory and cartographic outputs. Moreover, in recent years, new technologies and methods have led to the emergence of a field that is now commonly known as the Spatial Humanities. Methods from the standard toolset of geographic information systems (e.g., computation of viewsheds and zones of influence, least-cost path analysis, mass-preserving areal weighting and dasymetric mapping, terrain classification according to land coverage or land use, different types of thematic cartography techniques, etc.) have been successfully employed to analyze the geographies of human cultures, both past and present, and to address research questions posed by humanities-based fields. However, many challenges persist in the application of more recent technical developments in the geographical information sciences, which have been showcased in venues such as the ACM SIGSPATIAL conference. The workshop is thus concerned with the use of geographic information systems and other spatial technologies in humanities research, placing a strong emphasis on new methodologies that leverage recent technical developments (e.g., the above-mentioned standard tools from geographic information systems, as well as more advanced methods such as text-based geographical analysis or spatial simulation, can all benefit from innovative approaches leveraging machine learning, parallel and/or distributed computation, semantic technologies, etc.).

## 2 The Workshop Program

The call for papers resulted in 13 submissions describing high quality research. A program committee of 31 members, which are listed on the workshop website<sup>1</sup>, reviewed the submissions, and 8 papers were accepted for presentation, given the time constraints of the workshop. The workshop program featured a keynote presentation

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<sup>1</sup><http://bgmartins.github.io/sigspatial-geohumanities/program-committee.html>

and 3 regular technical sessions, followed by a discussion at the end. The 3 sessions focused on (i) text geo-parsing and gazetteer development, (ii) spatial analysis within geo-humanities and geo-linguistics, and (iii) methods and applications from related areas.

After a brief opening address, the workshop started with the keynote presentation jointly given by Krzysztof Janowicz and Yingjie Hu, respectively from the University of California at Santa Barbara and the University of Tennessee at Knoxville. The presentation addressed the use of linked data for digital humanities applications, discussing the benefits and shortcomings of this technology through examples that focused on geographic data (e.g., places or itineraries) and on the combined use of ontologies and statistical approaches to annotate data.

After the keynote, the first session of paper presentations began with the work of Moncla et al., concerning a prototype system that leverages text geo-parsing technology (e.g., methods for automatically geo-parsing street names, implemented in the PERDIDO<sup>2</sup> set of tools) to retrieve, map, and analyze the occurrences of place names in fictional novels whose action takes place in Paris, published between 1800 and 1914. The second presentation covered research by Rayson et al. concerned with the development of a new annotated corpus (i.e., the Corpus of Lake District Writing<sup>3</sup>) for supporting comparative experiments with geographical text analysis methods. The first session ended with the presentation of a paper by McDonough and van de Camp, concerned with the development of gazetteers for the early modern period (ca. 1450-1750) by collecting place names from the ARTFL version of the canonical 18th-century Encyclopédie<sup>4</sup>.

By the afternoon, the second session started with a paper from Chagnaud et al., in which the authors describe spatial interpolation methods for producing isogloss maps depicting the spatial distribution of local dialects (i.e., maps with explicit boundaries that define areas where people share the same language features), leveraging digital versions of the Linguistic Atlas of France<sup>5</sup>. Afterwards, Bergmann and O'Sullivan discussed ideas related to how geospatial projections can be generalized to better represent spatial multiplicity or fragmented spaces.

The third session started with a paper by Doytsher et al. concerning the development of emotion maps (i.e., maps depicting emotions, such as boredom or happiness, in association to specific locations) through the analysis of geotagged social-media posts. This was followed by Robinson et al.'s paper describing the use of convolutional neural networks for producing high-resolution maps of population density, with basis on ancillary information obtained through remote sensing. The final paper of the workshop described research by Wang et al. focused on graph-based methods for analyzing spatio-temporal patterns in crime data, discussing a case study with the city of Chicago from 2001 to 2016. A discussion period followed the last presentation of this session, covering common aspects between the different contributions at the workshop.

The workshop had a total of 15 registered participants and, on average, 15 attendees were also present at each session. We believe GeoHumanities'17 was a very successful event, through which the participants could explore the contributions that modern GIS technologies can enable within and beyond the digital humanities.

### 3 Acknowledgments and Final Remarks

The organizers would like to thank the authors for submitting and presenting their contributions, and also the program committee members and external reviewers for their professional evaluation and commitment to the paper review process. We hope that the proceedings of GeoHumanities'17 will inspire new research ideas, and that you will enjoy reading them. A special issue in the International Journal of Geographical Information Science (IJGIS), featuring extended versions of the best papers at the workshop, is currently under preparation.

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<sup>2</sup><http://github.com/ludal360/Perdido>

<sup>3</sup><http://github.com/UCREL/LakeDistrictCorpus>

<sup>4</sup><http://encyclopedie.uchicago.edu>

<sup>5</sup><http://cartodialect.imag.fr/cartoDialect/>