# Exploring Scholarly Craftsmanship and Digital Research Methods in nodegoat

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In this paper we will explore methodological approaches to digital research practices in the humanities by means of the web-based research environment nodegoat (http://nodegoat.net/). For the majority of researchers in the humanities, automated research processes are unattainable as their data may be dispersed, heterogeneous, incomplete or only available in an analogue format. For an art historian studying local urban networks, no resources exist that will be suitable for any form of automated analysis. A practice that is far more suitable in this respect is the old fashioned card catalogue system, in which all relevant objects and their varying attributes and relations are described. Since the emergence of digital research tools, scholars in the humanities have the ability to create digital card catalogue systems (databases). Although a number of historical databases exist, few individual researchers produce a database as an integral part of their individual research practice.

We have developed nodegoat to facilitate humanities researchers in creating and managing datasets in a dynamic environment with a focus on relationality and diachronic, geospatial, and social contextualisation.

nodegoat is a web-based research environment that facilitates an object-oriented form of data management with an integrated support for diachronic and spatial modes of analysis. This research environment has been designed to allow scholars to determine and design custom relational database models. nodegoat dynamically combines functionalities of a database management system (e.g. Access/FileMaker) with visualisation possibilities (e.g. Gephi or Palladio) and extends these functionalities (e.g. with in-text referencing) in one web-based GUI. As a result, nodegoat offers researchers an environment that seamlessly combines data management functionalities with the ability analyse and visualise data. The explorative nature of nodegoat allows researchers to trailblaze through data; instead of working with static 'pushes' – or exports – of data, data is dynamically 'pulled' within its context each time a query is fired. The environment can be used in self defined collaborative configurations with varying clearance levels for different groups of users.

nodegoat follows an object-oriented approach throughout its core functionalities. Borrowing from actor-network theory this means that people, events, artefacts, and sources are treated as equal: objects, and hierarchy depends solely on the composition of the network: relations. This object-oriented approach advocates the self-identification of individual objects and maps the correlation of objects within the collective.[1]

In the case of a research project on correspondence networks, this means that a researcher would define three types of objects in nodegoat: 'letter', 'person', 'city'. Each object relates to an other object via relations (e.g. a letter relates to persons to identify the sender/receiver and this letters has been sent from/received in a city). In an extended research process, researchers could also define themselves as objects in the dataset, their sources or other datasets.[2] Due to the focus on relations and associations between heterogeneous types of objects, the platform is equipped to

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[1] http://nodegoat.net/about, http://historicalnetworkresearch.org/?topic=nodegoat-faq

perform analyses spanning multitudes of objects. By enriching objects with chronological and geospatial attributed associations, the establishment and the evolution of networks of objects is inherently contextualised. In nodegoat, these contexts and sets of networked data can be instantly visualised through space and time.

This open-ended approach makes nodegoat different from tools like the Social Networks and Archival Context Project[3], Alan Liu's Research Oriented Social Environment[4], the Software Environment for the Advancement of Scholarly Research[5], Prosop[6], or tools with a main focus on coding of qualitative data as seen in various computer-assisted qualitative data analysis software. With its object-oriented approach, nodegoat facilitates the aggregation of collections, coding of texts, and analysis of networks, but models these methods towards the creation and contextualisation of single objects that move through time and space.

The analyses performed by nodegoat and the visualisations produced in nodegoat allow scholars in a variety of disciplines within the humanities to explore new research practices and methodologies. Joep Leerssen of the University of Amsterdam uses nodegoat for his project 'SpInTime – Dynamically visualizing how cultural patterns, networks and exchanges evolve in space and time'. By using nodegoat's data management and visualisation functionalities, SpInTime 'aims to map the dissemination of cultural nationalism across Europe by charting cultural patterns and networks as they evolve over time'.[7] The Ghent Center for Digital Humanities uses nodegoat to map conference attendance in the long nineteenth century.[8] In June 2014, students of UNIKA university in Semarang Indonesia used nodegoat during a workshop organised by NIOD. During this workshop, they interviewed survivors of anti-communist violence and built interactive mappings of an infrastructure of violence in nodegoat.[9]

In our presentation, we will introduce nodegoat's functionalities and explore two exemplary projects. Next, we will present a workflow in nodegoat to show how humanities researchers can make use of nodegoat for their own research questions.

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[2] P. van Bree, G. Kessels, 'Mapping Memory Landscapes in Nodegoat', in: L. Aiello, D. McFarland, Social Informatics. Lecture Notes in Computer Science (Heidelberg, 2015) 274–78. http://dx.doi.org/10.1007/978-3-319-15168-7_34

[3] http://socialarchive.iath.virginia.edu/snac/search

[4] http://liu.english.ucsb.edu/rose-research-oriented-social-environment/

[5] http://www.seasr.org/

[6] http://www.prosop.org/

[7] http://spinnet.eu/spintimemappings and http://romanticnationalism.net/

[8] http://www.tic.ugent.be/?q=VRE_description

[9] http://www.niod.nl/en/projects/memory-landscapes-and-regime-change-1965-66-semarang