

**S. 5. 3. NEW STEPFAMILY IN MARITIME HISTORY RESEARCH: THE PORTIC
TRUPLE OF HISTORIANS, INFORMATICIANS AND GEOMATICIANS TO QUERY
AND VISUALIZE 18TH CENTURY SHIPPING AND TRADE.**

Chair/Discussant: Maria Fusaro
(University of Exeter)

Panel abstract

This session aims at presenting a new research project (Agence Nationale de la Recherche, 2019-2023) called PORTIC (PORTs & Information and Communication Sciences and Technology). Querying and visualizing eighteenth-century shipping and trade dynamics in the digital era). PORTIC will enable different users (such as professional historians, students, teachers or genealogists) to query online, on a user friendly web-site, the content of two databases, Navigocorpus and Toflit18, to visualize the results as charts, maps, graphs, and to export pertinent data. The two databases are the results of previous research projects financed by the French Agence Nationale de la Recherche: Navigocorpus (2007-2011) contains among others approximately 20,000 ship entrances in Marseille (1749 to 1799, sample years), and 50,000 clearances from French Atlantic ports in 1787 and 1789. Toflit18 (2013-2017) contains the French balances of trade for the 18th century (products, quantities, values at national level, and for 1789, at local level). In cross-referencing their content and in offering a set of powerful tools to test hypothesis through visualizations, PORTIC will hopefully results in a major instrument for maritime historians to produce a renewed understanding of French coastal, national and international maritime trade and fishing. Although PORTIC is still at its beginnings, we will concretely illustrate in this session the kinds of visualization we aim to implement and discuss their pertinence.

“I’ll be back!” Navigocorpus, ten years after

SILVIA MARZAGALLI (University Côte d’Azur)

Abstract

From 2007 to 2011, a team of historians created Navigocorpus, a database conceived to collect data on maritime trade from different kind of sources, without loss of information, and to preserve them for future research. If we managed to produce a powerful tool, to collect information for over 100,000 ship voyages, and to secure the database future existence through the French CNRS’s Very Large Research Facility HumaNum, the complexity of the database has discouraged since its larger use among scholars.

The rapid evolution of Digital Humanities over the past years, more particularly of interactive visualization tools, has led us to promote now a new research project, called PORTIC, to create a user-friendly interactive interface for visualizing Navigocorpus’ content. Though PORTIC has already introduced over 25,000 new voyages in the database and will also produce new historical insights in cross-referencing them with the French balance of trade, one of its major challenges will consist in its capacity to produce visualizations reflecting the very nature of many historical data, which, according to informaticians, are “imperfect” because of the missing, contradictory and uncertain information provided by historical sources. Most charts, maps, graphs, tend either to eliminate uncertain data, or to convert them in certain ones. “Imperfection”, however, is in some instances extremely telling for historians, and PORTIC aims at taking its “imperfect” nature into account within the visualizations. This paper presents the challenges of a truly close interdisciplinary project, and the general philosophy shared by the team: “be realistic, demand the impossible”.

Biography

Silvia Marzagalli is full professor for Early Modern History at the University Côte d’Azur in Nice, and honorary fellow of the Institut Universitaire de France. Her research deals with merchant networks, shipping and trade, and consular information in 18th and early 19th century Atlantic and Mediterranean worlds. She is presently working on a book on US shipping in the Mediterranean and editing an Atlas of shipping and trade in France at the eve of the French Revolution. Former PI of Navigocorpus, and current PI of PORTIC, she has increasingly been attracted by the possibility of renewing historical methodology through intensive recourse to Digital Humanities.

Representing shipping in 3D-graphs, or how to help historians to understand their data

GÉRALDINE GEOFFROY (University Côte d'Azur)

Abstract

When dealing with thousands of data and hundreds of ports, historians need adequate tools to visualize their database content and conceptualize their object. Graph representation is a matter of links to connect objects. It can serve visualization goals as charts and histograms do, but presents a plus over conventional descriptive statistical tools in that it is well-fitted to represent complex and multi-dimensional structures by offering the possibility of mixing and linking in the same graph entities of several kinds. In addition, data network, combined with the calculation of graph-specific metrics and graph-specific algorithms, also provides an alternative methodology for research, particularly for the search of data patterns which would remain invisible without graph modelling.

This paper demonstrates that 3D-graphs can be particularly useful to explore the pertinency of sub-categories, without pre-imposing them on the data itself. We will test 3D visualizations by linking the register port of ships clearing French ports at the eve of the French Revolution and their destination, to cluster trade patterns among different areas of the French coasts. In our graph, nodes represent the characteristics of the recorded voyages (ports, ships, captains, flags, products, dates, etc...). We elaborated a projected simplified subgraph where each travel is represented by a link between the port of departure (node A) and the port of destination (node B) by taking the ship's homeport into account (node C). On this projection we apply spatialization layout and community detection algorithms which will allow to map clusters of more connected ports, as well as centrality algorithms that will reveal the position (e.g. the importance) of each port in this flow set.

Biography

Géraldine Geoffroy is data librarian at the University Côte d'Azur and in charge of many research -projects connected with big data. She is member of the PORTIC team, and in charge of 3D visualizations to detect communities and cluster within the Navigocorpus Database.

First tries of Shneiderman's mantra for visualizing shipping data: can we do better than with dad's Excel?

CHRISTINE PLUMEJEAUD (CNRS)

Abstract

The famous Schneiderman's mantra to visualize data ("overview first, zoom, then details on demand") proves to be a complex task when applied to historical digitalized sources, which present missing, uncertain, imprecise or doubtful data. However, handling this imperfection is a richness for those who understand that data is never given, but always built. To address the challenge of visualizing 18th-century shipping data stocked in Navigocorpus, we choose to provide two possible entries. The first one offers a view of aggregated data, thus a progressive understanding of global and local flows of ships clearing French ports in the late 18th century. The second one responds to the needs of those who seeks individual details on captains and/or ships (visited harbors, tonnage, flags, etc.), and takes the possible different spellings into account. Both provide a mix of charts, maps, and interactive panels to query data in a Web interface, using a data driven concept for development and libraries (d3.js, vue.js, openlayers.js). The aggregated categories we constructed raised some specific difficulties for visualizing data. For example, when showing results according to the nature of the ship-adventure (fishing, coastal, or long distance trade), it is still quite delicate to include the incomplete and rather uncertain nature of this information (due to missing registers or a non-verified declaration of a future event, i.e. the ship is recorded as "bound to Newfoundland" but without positive proof it ever arrived there). We also want to create interactive tools to improve the database content by mixing human and computer expertise. Through the detailed view, users can compare two captains (or ships) that have been assumed as different ones in the database. They might know that in fact information refers to same person (or vessel). We will work towards the possibility of correcting the database accordingly.

Biography

Christine Plumejeaud is research engineer at the CNRS and one of the PIs of PORTIC, a French ANR project aiming at creating an interactive query and visualization of 18th-c. trade and maritime shipping data. More generally, her work consists at providing a better handling of data in different disciplines, such as ecology, biology, geography, history and geosciences. Her skills address the field of computer science and geomatics, as well as the edge of data science analysis through spatio-temporal analysis and statistics. After a master's degree in applied mathematics in 2000, she worked for six years for a start-up. In 2006 she graduated at the LIG laboratory at Grenoble. Her PhD (2011) was considered in the geomatic community

as particularly valuable for long-term and sustainable information systems for socio-economic statistics. As post-doc at the French National Mapping agency she built and analyzed a spatio temporal database, through the digitalization of ancient topographic maps.