Beyond GIS: The Promise of Spatial Humanities

David J. Bodenhamer

The Polis Center
Indiana University Purdue University, Indianapolis
Virtual Center for Spatial Humanities

Purdue University November 7, 2014

An Epistemological Shift

"We know not through our intellect but through our experience."

Maurice Merleau-Ponty, Phenomenology of Perception (1945)

Post-Modernism

subjective, experiential contingency, ambiguity fluidity, simultaneity multiplicity, diversity emphasis on agency skeptical, especially of experts

New Framework for Learning

Unstructured interactions

Volunteered information

Blurred disciplinary boundaries

Does not privilege expert

Networked participant-collaborators

Open to experiential knowledge

Current Perspectives

What perspectives engage humanists?

- Multiple realities
- Interdependency
- Intercultural and trans-cultural
- Multi-scalar and inter-scalar
- Hybridity and complexity

Spatial Turn and GIS

Increased attention to space and spatiality, beginning in 1960s

New technologies support the spatial turn, with GIS the primary tool-kit

Critique of GIS

Emergence of GIScience

(Re)Discovery of the Power of Maps

"Relationships that jump out when presented in a spatial format such as a map tend to clog a narrative, choking its arteries, until—even if the narrative does not expire—the reader, overwhelmed by detail, is ready to die of tedium and confusion."

Richard White, *Placing History* (2008)

Historical GIS (Spatial Humanities 1.0)

Spatial turn in humanities in 1980s/1990s

Emphasis on integration, visualization, and spatial analysis through GIS-facilitated tools and methods

Strategic datasets (various national HGIS projects)
International collaborations

New genres of scholarship in history, archaeology, cultural studies, etc. (e.g., Historical GIS)

National Historical GIS



Geo-rectified Historical Maps



ECAI











Electronic Cultural Atlas Initiative

About ECAI

Activities

Community

Atlases

Research

Technology

Participating

Cultural Atlas Portal

Link to example projects or browse cultural atlases in Google Earth

Highlights -

Upcoming:

preservation of human culture.

ECAI uses time and space to enhance understanding and

ECAI / PNC 2011 Joint Meetings October 19-21, 2011 Sasin Graduate Institute of Business Administration of Chulalongkorn University Bangkok, Thailand

Past Events:

Western Han Dynasty Exhibits
Virtual Masterpieces From Ancient China
April 16-22, 2011
CITRIS Tech Museum
345 Sutardja Dai Hall, UC Berkeley

ECAI Workshop: Visualization, Computation, and Analysis in Large Text Corpora and Cultural Collections 16 March 2011

Academia Sinica, Taipei, Taiwan

Joint Conference with KAIST & VSMM October 2010 COEX Conference Center, Seoul, Korea

ECAI / PNC 2010 Joint Meetings Nov 30 - Dec 3, 2010 City University of Hong Kong, Hong

ECAI Workshop, in collaboration with the Central Library of Fudan University May 2010 Fudan University, Shanghai, China

Projects:

Dynamic Map Catalog



Search the <u>ECAI</u> <u>Clearinghouse</u> of cultural material which uses place and time as a common element.

Community



Participate in the ECAI community through twice yearly conferences and international working groups.

Technical Infrastructure



ent Collab

ECAI technical infrastructure illustrates the vision of sharing distributed data and using time enabled mapping tools.

Research & Development

Collaborate to identify research topics and

Projects and Publications

Projects with HGIS components

Salem Witchcraft Trials, e-Williamsburg, etc.

Major HGIS projects

Stanford Spatial History Project, Digital Atlas of American Religion, Irish Famine, Aurora Project (Dynamic Atlas of US History), Holocaust Project, Literary Atlas of Europe

Major publications and conferences in HGIS and spatial humanities

Salem Witch Trials: Accusations



Spatial History Project

STANFORD UNIVERSITY



The Spatial History Project

JUNE 10, 2011

- Publications
- About Us
- Gallery
- Resources

SEARCH

220

RECENT PUBLICATIONS

- Conceding the Ocean
- A Data Model for Spatial History
- Neoliberalism, Civic Participation and the Salmon Industry in Southern Chile
- When the Loss of a Finger is Considered a "Minor" Injury
- Land Speculation in Fresno County: 1860-1891

CURRENT PROJECTS ::

- Shaping the West
- Terrain of History
- Tooling Up for Digital Histories
- Holocaust Geographies
- Chile's Aquaculture Industry, 1950-2000

RECENT VISUALIZATIONS ::



The Spatial History Project at Stanford University, a part of the Bill Lane Center for the American West, is made possible by the generous funding of the Andrew W. Mellon Foundation.

RECENT UPDATES

01 June 2011

OUR TEAM ::

PRINCIPAL INVESTIGATORS



DAN EDELSTEIN -

Edelstein is an associate professor of French at Stanfor...



ANDREW GERHART -

(Principal Investigator) Andrew Gerhart is a Ph.D. candidate in the Emmett Interdisci...



MICHAEL KAHAN -

(Principal Investigator) Michael Kahan is the Associate Director of Irban Studies at



RICHARD WHITE -

(Principal Investigator) Richard White is the Margaret Byrne Professor of American Hi...



ZEPHYR FRANK -

(Director) Zephyr Frank is an Associate Professor of History at Stanfor...



JON CHRISTENSEN -

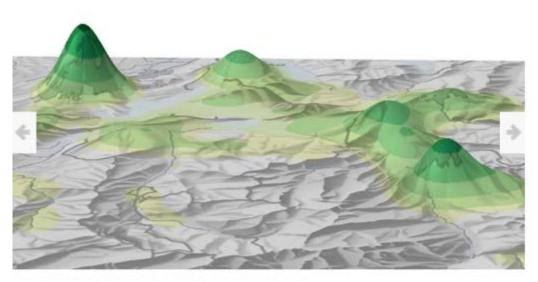
(Principal Investigator) Jon Christensen is the principal investigator for the Critic...



MATTHEW BOOKER -

Literary Atlas of Europe

Mapping and Analysing the Geography of Fiction with interactive Tools



STATISTICAL SURFACES AS BLOCKIMAGES

TOWARDS A GEOGRAPHY OF FICTION

It all starts with the supposedly simple questions: Where is literature set and why there? Europe offers an abundant wealth of fictionalised landscapes and cities. The nascent research area of literary geography / literary cartography aims at visibly rendering such complex overlays of real and fictional geographies. Against this background that an interactive prototype of a »Literary Atlas of Europe« is currently under development at the Institute of Cartography and Geoinformation, ETH Zurich.

Critiques

Mostly mapping/spatial primitives

Requires technical expertise

Incompatible with much humanities data

About space, not place

Where is time?

Contributions to scholarship debated

Scanty uptake by humanists

Barriers

Systems

Data

Culture

Literacy

Spatial/Geographic

Visual

An Epistemological Clash?

GIS and (re)discovery of the map: vision of rigorously measurable, infinitely sharable information across temporal and spatial scales

Where does GIS fit with post-modernism's emphasis on indeterminacy, ambiguity, fluidity, particularity, and other non-standard characteristics?

Can GIS fit the needs of historians and other humanists?

Pareto GIS

Pareto principle (80/20): 80% of the effects come from 20% of the causes

We often do not need the full analytical functionality of ArcGIS to accomplish what humanists need

Virtual Center for Spatial Humanities

Formed in 2008 as a collaboration among three research universities:

Florida State University, West Virginia University, and Indiana University-Purdue University, Indianapolis

Goal: Move beyond GIS and toward the spatial humanities, a post-modern and post-structural approach that bends technology to the needs of humanists; blends GIScience with the humanities to understand the reciprocal influence of space and place on culture and society.

Moving beyond GIS

Making geo-spatial tools open to humanities data

Embracing multimodal approach

Using VREs and immersive environments

Creating collaborative spaces

Developing a new epistemology (nonlinear, fluid, reflexive)

Emergent Realities

"[M]aps will be more than the sum of their parts: they will possess 'emerging' qualities, which were not visible at the lower level....Not that the map is itself an explanation, of course: but at least, if offers a model of the narrative universe which rearranges its components in a non-trivial way, and may bring some hidden patterns to the surface."

Franco Moretti, Graphs, Maps, Trees (2005)

Spatial humanities is an explicit recognition of the reciprocal influence of geographic and constructed space on culture and society.

Fuses traditional focus on nuance, voice, experience, text, and image with the systematic approaches of spatial science, computer modeling and virtual reality.

Links time, space, and culture dynamically.

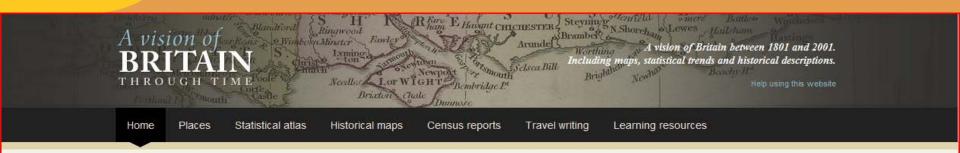
Spatial Humanities and Web 2.0

- Space as the meeting ground; an integrated perspective on place
- Web 2.0 as the toolkit; does not privilege a spatial technology or quantitative data
- Open, participatory framework for experts and non-experts

New Approaches

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Neogeography
     Participatory GIS
     Volunteered Geographic Information (VGI)
Virtual globes, APIs, mash-ups, and social
     networking
Gazetteers
Semantic searching
Text mining
```

Vision of Britain.com







Historical maps

Topographical, land use and administrative maps from the 19th and 20th Centuries:



- * Ordnance Survey 1st Series
- * Ordnance Survey New Popular
- Smith's New Map of the United Kingdom of Great Britain and Ireland
- British War Office
- 1 More maps »

Election Results

A Vision of Britain through Time holds results from every British parliamentary election since 1833.



- 1906: Victory for the Progressive Alliance
- 1 1983: Thatcher's Landslide
- 1007: Plaide Landelida

Travel writing

This is the largest collection of historical British travel writing on the web. Each author gives a different perspective on the towns and villages they visited.

- ' John Byng Torrington Diaries
- ' Geo. Head Manufacturing Districts
- ' Thomas Pennant Chester to London
- ' More writers »

Census reports

Since 1801 the Census has created a uniquely detailed record of our changing communities.

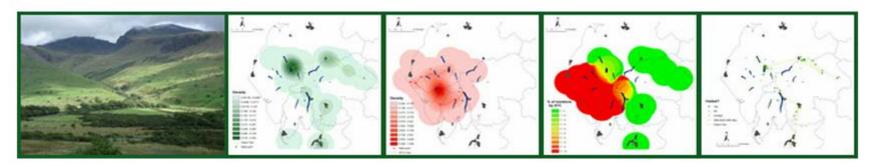
' Reports index

News

- November 2010
 New e-learning tutorial on Boundaries
- Santomher 2010

Lakes District Project: Mash-up GIS





Mapping the Lakes: A Literary GIS

Visible Past: A Participatory GIS



Omaha Beach

By Sorin Adam Matei

Visible Past > Modern > 20th Century Omaha Beach

Visible Past utilizes as one of its showcase mapping environments a model of Omaha Beach fortifications at the time of the Allies' landing on the morning of June 6, 1944 (D-Day). The model was produced by the Visible Past team.

Virtual Omaha Beach was built in Sketch up, a modeling platform distributed by Google for creating models compatible with the Google 3D mapping application Goggle Earth. The model includes the full set of two dozen German fortifications (Wiederstandnest or in German military parlance WN) that the American 1st and 29th divisions encountered on the morning of 6 June 1944. Each WN includes a barbed wire enclosure and one or more points of fire: pillboxes, bunkers, mortar pits or field gun encasements. Many of the artifacts were provided by 3D weapons collections found at the Google Earth 3D Warehouse repository; some of them were reconstructions produced by the Visible Past team members. The 3D artifacts were selected and evaluated according to the historical literature dedicated to Omaha beach.

All artifacts were placed in the field according to information provided by historical

About this map :

Map of Omaha Beach German fortifications (blue dropets) laid over the American operational map for June 6, 1944 (misaligned due to Google Maps limitations). Clicking the button "Google Earth" will show the 3d Model of the German fortifications and will correctly align the overlay map. Use upper left wheel to tilt the image. You might be prompted to download the Google Earth 3D Plugin.

YOUR COMMEN	Γ		
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Virtual Globes



Augmented Reality

Synthesis of real and digital space e.g., Architip



Wearable technology, e.g., Google Glass





Spatial VR

DIGITAL ROMAN FORUM

uer e

REOUT

CONTACT

HOME

TIMEMAR

SEARCH

RESOURCES

GEOSPATIAL DATA

188.0, 267.0, 18.0

Drag the mouse in either the photograph or the model to adjust the point of view.

DATE AND TIME SHOWN IN MODEL

June 21, 10:00 -





Virtual Reality

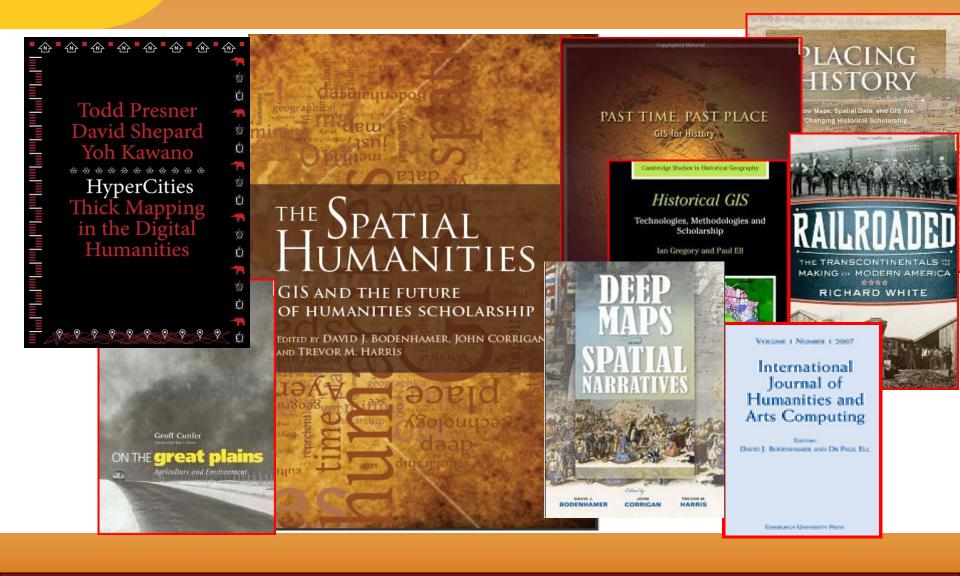
VR is an experiential medium, not a peripheral

It evokes emotion

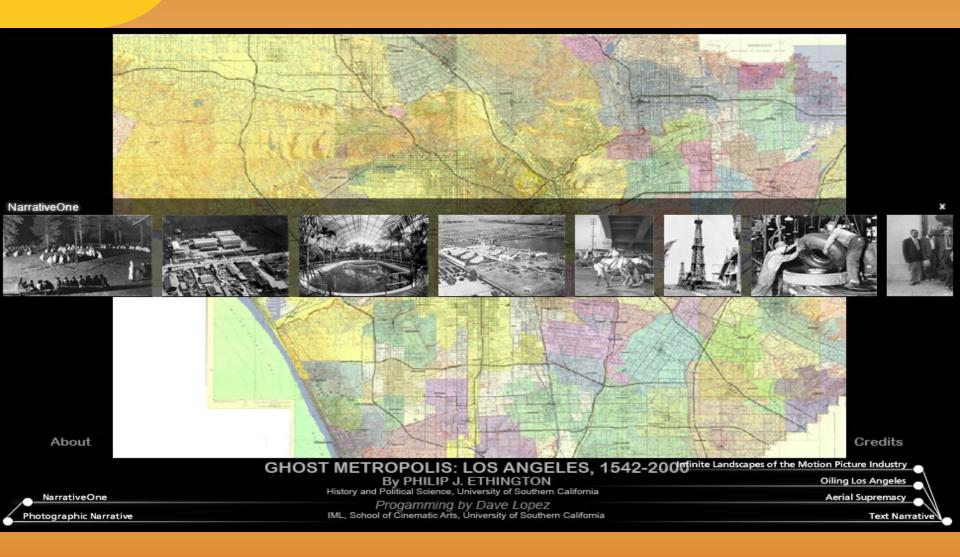
The experience is social

It is open to everyone

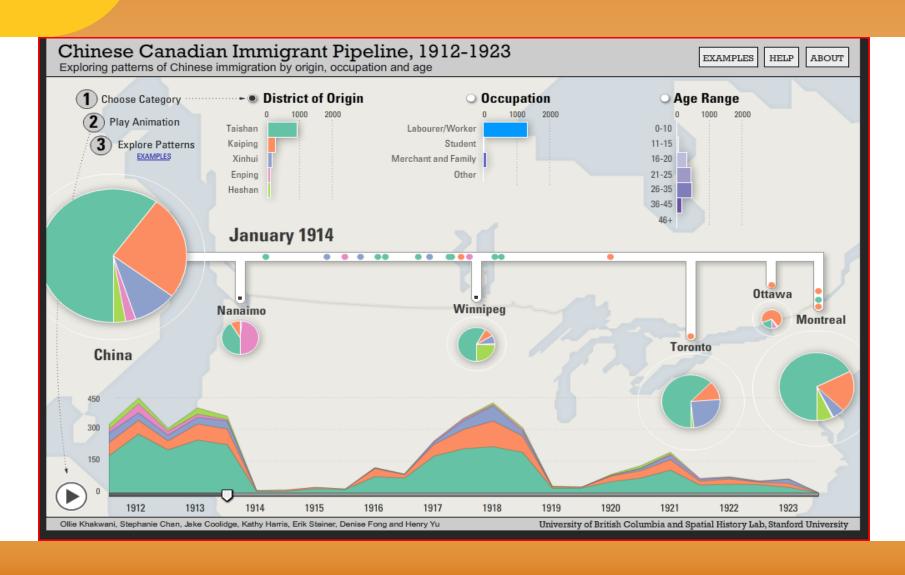
New Scholarship



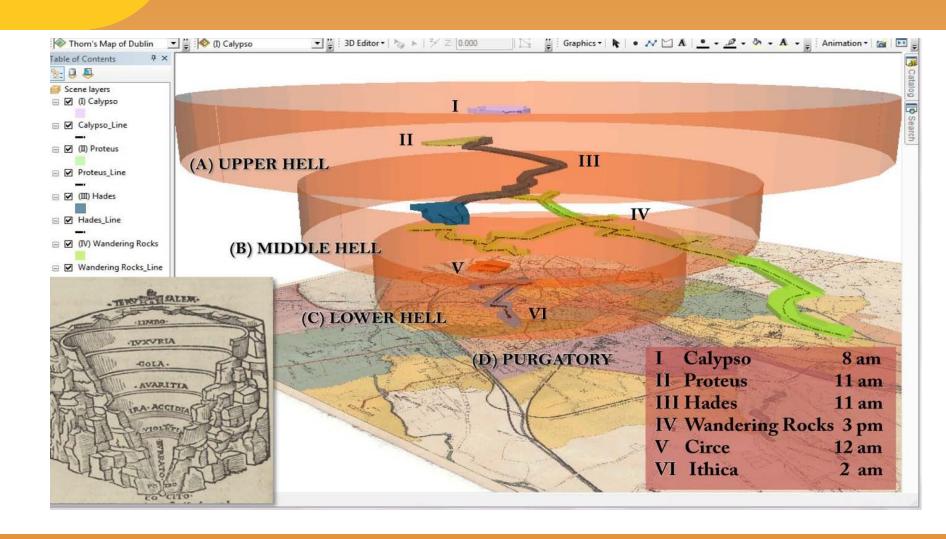
New Forms of Scholarship



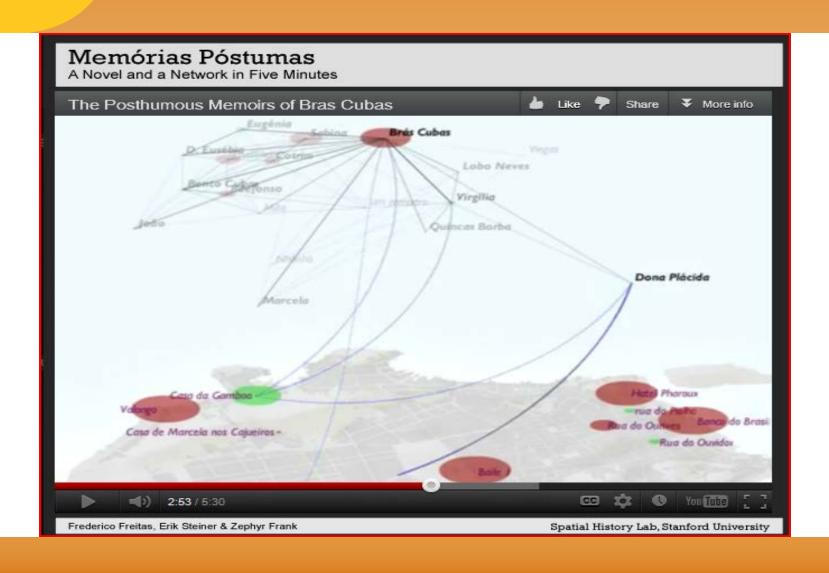
New Spatio-Temporal Visualizations



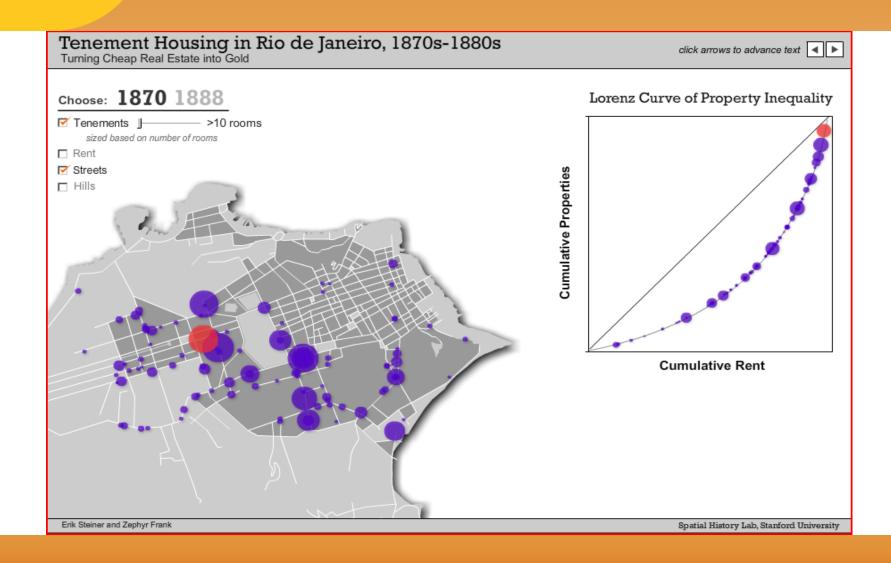
New Geo-Literary Visualizations



Space-Time Networks



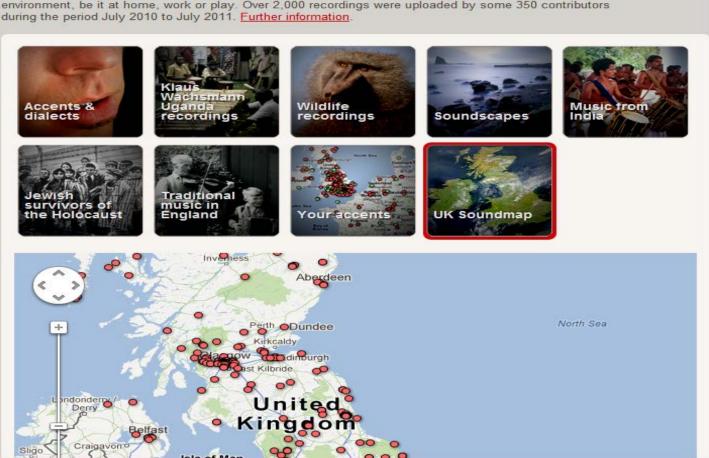
ESDA



Sound Maps

Sound map - UK Soundmap

The UK Soundmap, the first nationwide sound map, invited people to record the sounds of their environment, be it at home, work or play. Over 2,000 recordings were uploaded by some 350 contributors during the period July 2010 to July 2011. Further information.



Spatial Humanities Today

What has emerged are new and exciting forms of convergence, focused on geocultural spaces (or place).

Also, new types of scholarship and new collaborations, while retaining the best of HGIS/Spatial Humanities 1.0.

Opportunities for Spatial Humanities

Life paths and spatial narratives

Spatio-temporal networks

Spatial imaginaire

Virtual reality/immersion

Gaming and simulations

Practice theory

Deep mapping/deep contingency

Deep Mapping

Goal: Reveal the complex and contingent context of events within and across time and space

Deep maps (platform, process, and product):

Links time and space (chronotope)

Operates across multiple scales (time and space)

Embodies multiple agents, multiple perspectives

Recognizes alternate schemes/emergent realities

Fosters dynamic context (movement, linkage)

Evokes emotional and experiential (visual and immersive; an affective geography)

Design Requirements

Deep maps are:

Flexible, inviting exploration

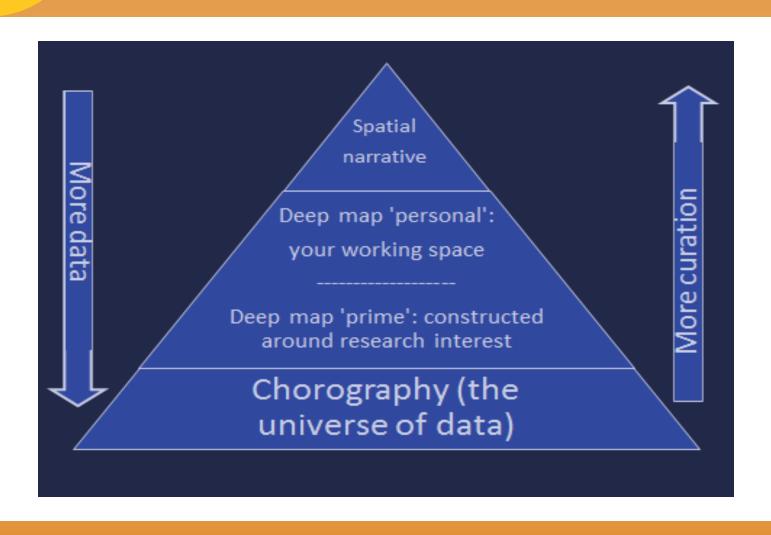
User-centric, supporting differing views

Path-traceable, supporting narration

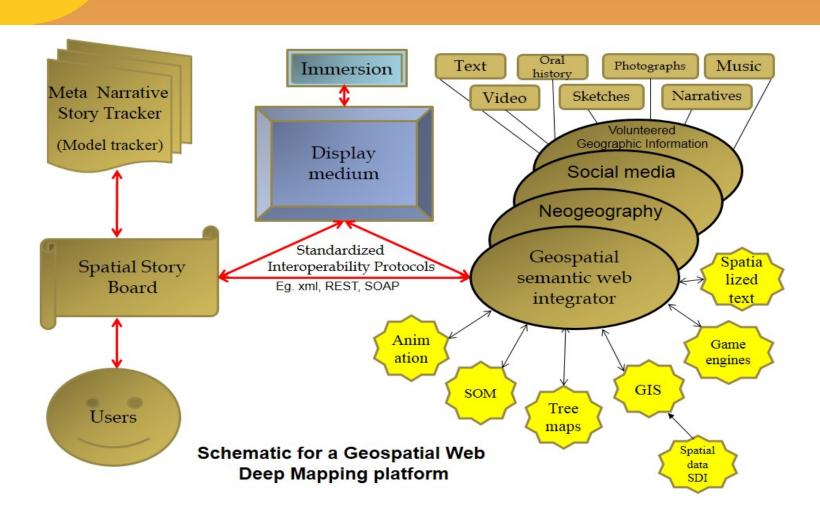
Open, admitting new material

Immersive, evoking experience

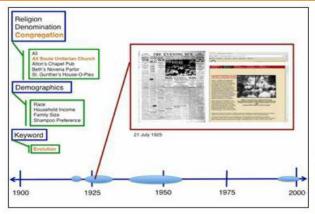
Conceptual Schema



Technical Schema



Frameworks: WordPress





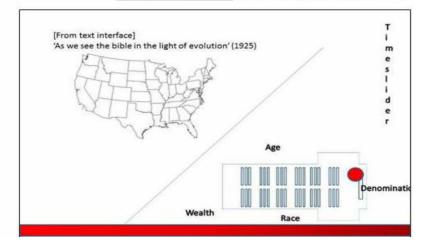


Document list

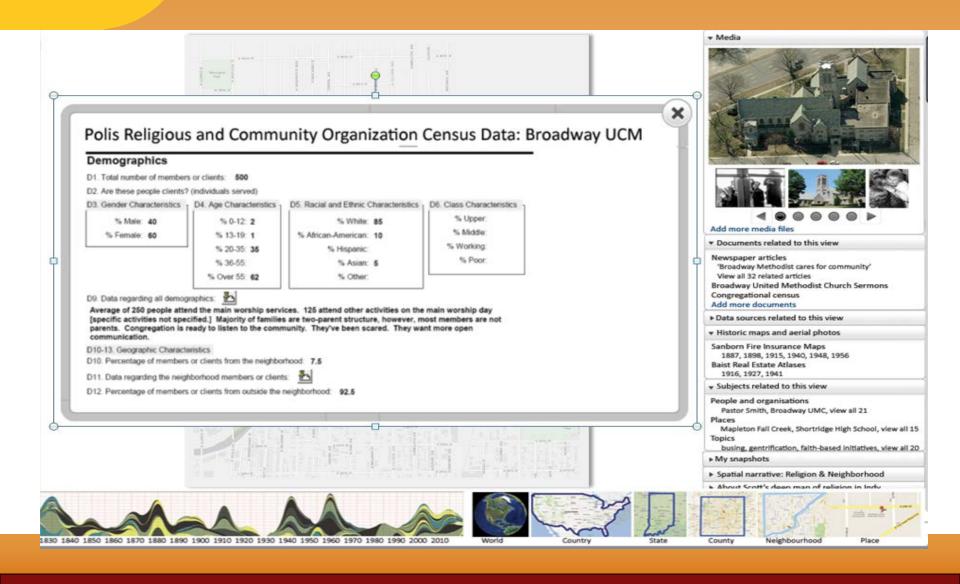
Newspapers

- + New York Times
- Philadelphia Star
 ☐ 26 June 1925
 ☐ 17 July 1925
- + Chicago Sun





Frameworks: HGIS



Frameworks: Space-time cubes

spatial, temporal, & contextual

what/where/when

total perspective



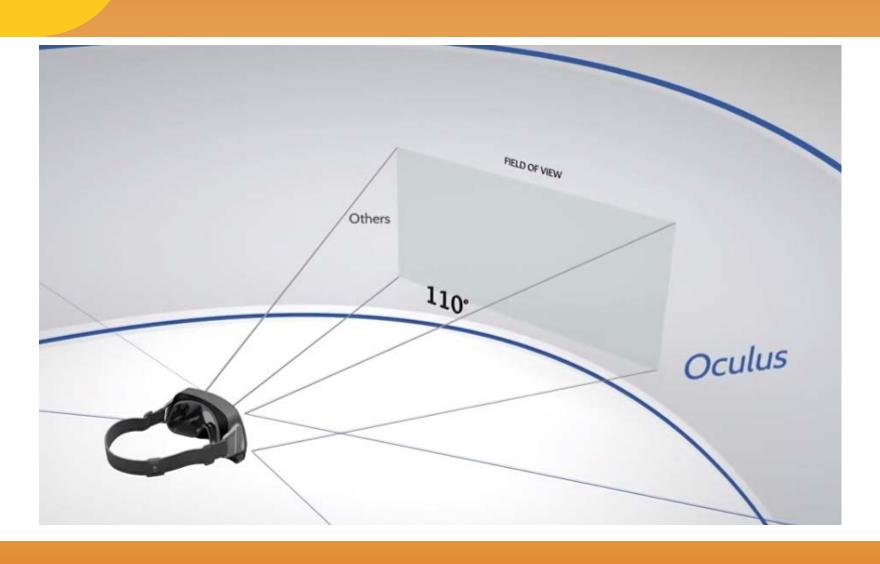
Frameworks: Virtual Resource Environments



Justitia is the home of the SL Bar Association with many real life lawyers from all over the world. Stop by for one of their many informative discussions on everything from human rights, real (and virtual) estates, taxes, copyright and more. Find legal information, get a referral to an attorney or tell them which topics

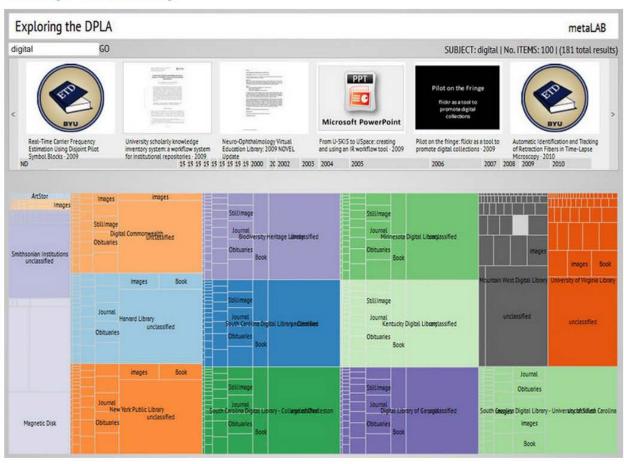
various to beautimore about

Frameworks: Immersive Gaming



DPLA Observatory

Library Observatory



Library Observatory recognizes a unique opportunity the emergence of the DPLA represents: both to imagine new ways of interacting with cultural and scientific resources and to reflect on what collections of such materials mean, what stories they tell. An observatory, after all, is more than a collection of telescopes; it's also the community of people who maintain those instruments, peer through them, and tell one another stories about the stars. In similar fashion, Library Observatory intends to help us look at constellations of books, manuscripts, and images, and to use those tools to focus our reflections on relationships, meaning, and import of cultural resources as well. The exhibition reflects this bicameral character: we present an interactive tool for searching and visualizing the DPLA collections, accompanied by an interactive documentary that weaves together imagery from the history and latter-day data practices of libraries with analytic visualizations and audio testimonials about the making, use, and enduring significance of library data and the collections they describe.

App Home page

Driving through Time: Digital Bue Ridge Parkway

Active Facets

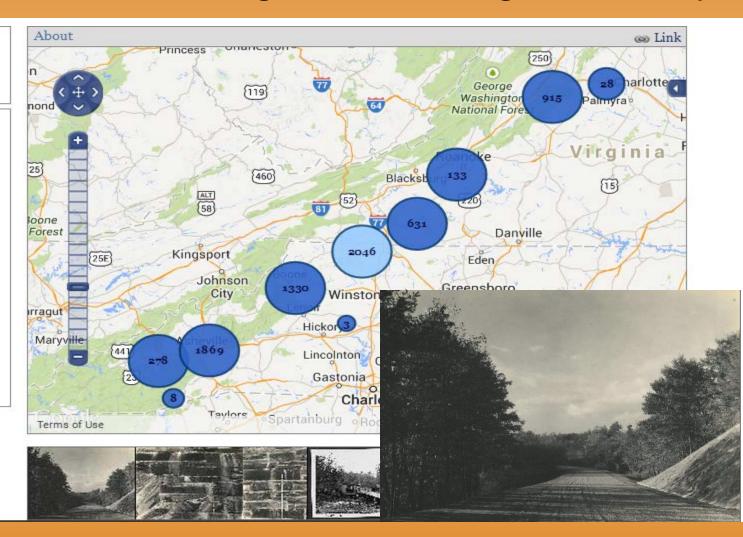
Date

- · 1800s (2)
- · 1900s (7134)

Subject

- · Photographs (6832)
- · People (1336)
- Alleghany County (N.C.) (1045)
- · Roads (1025)
- · Construction (884)
- · View of road (884)
- · Landscape (807)
- Automobiles (793)
- Scenery (623)
- Floyd County (Va.) (551)

(more)



Temporal Ubiquity

Walking Through Time

Available for iPhone now

"SatNav for historical maps"
The iPhone app that combines
GPS technology with old maps
to allow users to walk through time.



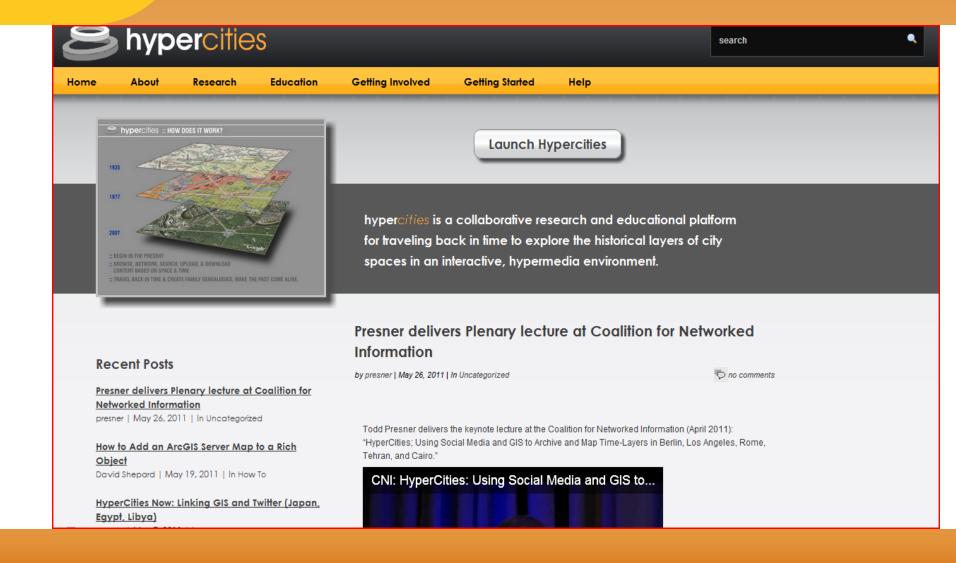
Virtual Place-Making



Imaginative and Historical Cityscapes (Literary Edinburgh)



HyperCities.com



Spatial Narratives

Time geography

Text mapping

Geospatial semantic web

But how to:

Capture experiential/metaphorical space?

Enable deep contingency? Integrate structure, process, event? Space, time, place?

Understand the situatedness of the narrator(s)

Represent the narrative(s)? Make the argument?

New Vision

New collaboratories that allow

- Retrieval
- Contextualization
- Hypothesis building
- Flexible narration
- Integration into knowledge networks

Virtual Research Laboratories (VRL)

GRID+Web 2.0/3.0+Spatial Technologies

Future of Spatial Humanities

A unique post-modern scholarship with real and conceptual space as an integrating and animating framework:

Visual and experiential

Multiple perspectives

Complex environments

Emergent realities, deep contingencies

Spatial narratives, spatial arguments

