Digital Humanities & Service Science

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Nexusslab.org
Nexus Lab
Growing Transdisciplinary Collaborations for Meaningful Change

http://nexuslab.org/
What are Humanities?
What are “digital humanities”? 

- Study cultural/historical objects using digital and computational methods
- Motivate cultural/historical/linguistic inquiry
- Spatial, social, linguistic approaches
Upstream/downstream
Downstream: Awards granted

<table>
<thead>
<tr>
<th>Country</th>
<th>Social Sciences &amp; Humanities</th>
<th>Natural Sciences</th>
<th>Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>15%</td>
<td>44%</td>
<td>42%</td>
</tr>
<tr>
<td>U.K.</td>
<td>13%</td>
<td>65%</td>
<td>23%</td>
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<tr>
<td>Australia</td>
<td>13%</td>
<td>35%</td>
<td>52%</td>
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<tr>
<td>U.S.A.</td>
<td>2%</td>
<td>15%</td>
<td>84%</td>
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</tbody>
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Downstream: An example

Annotation, custom metadata, faceted search, upload utility, data analysis and visualization, exhibit curation, public-facing web layer, geobrowser, custom javascript presentation, open source
1 developer
$10,000
1 year
An example
At stake: solving hyperobjects

- Climate change
- Global poverty
- Urban agglomeration
Some examples of digital humanities

- Maps
- Texts
- Networks
Neatline as a Basis for Algorithmic Calculation

Mackenzie 1801
Mask of Gravelot, Lake Ontario (1746) 
Shape Analysis Algorithm
Northern Straits, Manitoulin Island, Lake Huron

“On the 2nd June I left Lake Huron, still covered with ice for several miles from the shore.”

--- From the journal of David Wingfield, June 1816, written from the south coast of Georgian Bay
Ice Cover in Northern Huron
Hypercities
Probabalistic Topic Model (Blei)

[Diagram of topic model with terms and proportions]

http://michaelsimeone.org/topics/solotopic3.html  http://isda.ncsa.illinois.edu/~mpsimeon/topics/solotopic.html
American Economic Review 1960-2013
American Economic Review 1960-2013
Earth Scientists
Digital Humanities

- Projects that expand knowledge beyond existing frameworks
- Gather new data
- Contextualize existing data: depth and breadth
- “Model”

- No integrated infrastructure
- Mostly downstream adoption
- Not part of decision making
Service Science
Service Science + Digital Humanities

- Service
- Participant
- Process
- Universe

- Humans
  - Values/ assumptions
  - Procedures/ habits
  - Culture/ context

- Human/Service Systems
  - More nuance in model for participants and entities
  - Value chains begin service chains
  - Service processes terminate in value chains
  - Expand notion of service universe
  - “Best” and “most efficient”
Mutually upstream
UIUC: Kevin Franklin, Robert Markley, Kenton McHenry, Theerasit Isarnon, Deepak Neralla, Tenzing Shaw, Peter Bacsys, Jennifer Guilliano, Luigi Marini, Scott Poole, Ted Underwood

ASU: Jacqueline Hettel, Mark Hannah, Hasan Davulcu, Manfred Laubichler, Sally Kitch

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