1. Query
Define a query to retrieve from ISI Web of Science a dataset representing literature on
- the social and human impacts of AI as well as
- the uses of AI in social science & humanities

2. Basemap
- Extract the references cited by ≥ 3 dataset records
- Build a network connecting the references if co-appearing in ≥2 records
- Remove the isolated references
- Spatialise with a force-directed layout

3. Metadata projection
- Extract the article keywords appearing in ≥18 records and co-appearing to ≥3 extracted references
- the subject areas appearing in ≥18 records and co-appearing to ≥3 extracted references
- the institutions appearing in ≥20 records and co-appearing to ≥3 extracted references
- Project the metadata on the basemap according to references to which they are connected

1. Query (16,757 results)

<table>
<thead>
<tr>
<th>AI synonyms &amp; techniques</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>social &amp; human issues</td>
<td>AND</td>
</tr>
<tr>
<td>published between 2015 and 2019</td>
<td></td>
</tr>
</tbody>
</table>
1. Query - AI synonyms & techniques

Title =
AI synonyms & techniques
AND
social & human issues
AND
social & human disciplines
AND
doc. type = article OR proceedings published between 2015 and 2019

= 23,000 ISI WoS bibliographic records
(≥ 15,000 journal articles & ≥ 9,000 papers in conference proceedings)
2. Basemap

- We constructed a network in which
  - nodes are the ≈ 28,000 references appear in the bibliography of <3 dataset records
  - edges connects the references that co-appear in the bibliography of <2 dataset records (cf. Small 1973 co-citation method)

- We spatialized the reference network in Gephi (gephi.org) with a force-vector layout (ForceAtlas2, Jacomy et al. 2014) to reveal disciplinary and sub-disciplinary clustering
- To simplify the image, we replaced nodes and edges by a heatmap of the density of nodes distribution
- We identified and named the
  - 3 larger scientific regions
  - and 18 thematic smaller clusters that characterize the basemap

3. Metadata projection

- From the WOS dataset, we extracted
  - the most frequent article keywords
  - the most frequent subject areas
  - the most frequent institutions (and removed the generic institutions, e.g., Dept. Comp. Sci., Sch. Law)
- We added the metadata to the network, connecting them to the references that co-appear with them in <3 records of the WOS dataset
- We spatialized the metadata with the same force-vector layout while keeping the references blocked (so that the metadata positions themselves relatively to the references basemap)
### 3 design twists

1. Represent nodes and edges other than by points and lines
2. Encourage engagement with the maps
3. Abandon a god-like viewpoint
1. Beyond points and lines

VOSviewer
https://www.vosviewer.com

Graph Recipes
https://medialab.github.io/graph-recipes

Graphology
https://graphology.github.io
2. Encourage engagement

3. An imperfect viewpoint

Leo Breiman (2001)
Random Forests, Machine Learning

danah boyd & Kate Crawford (2012)
Critical Questions for Big Data
Information, Communication & Society
3. A situated viewpoint


danah boyd & Kate Crawford (2012) Critical Questions for Big Data, Information, Communication & Society

Thank you!