Designing mapped data of social behaviour

Key research questions

How can mapping techniques be used when designing complex data visualisations to display human real-time behavior?

Background

In 2007 I wrote a Bachelor-thesis about the visualisation of social awareness data. For the visualisation of these data I choose a tag cloud and I used a learning software called moodle to implement my visualisation in this learning environment. The visualization was based on tag clouds.

Tag clouds offer a bottom-up approach to categorize information and they allow us at the same time to visualize the behavior of a community itself. In this way an outsider can quickly become aware of a community.

The motivation of this work was born by looking at a project of a research team which visualised Tags in an Art School in the early 2000s in Weimar. They visualised Search Tag Clouds to convey community awareness/ social awareness.

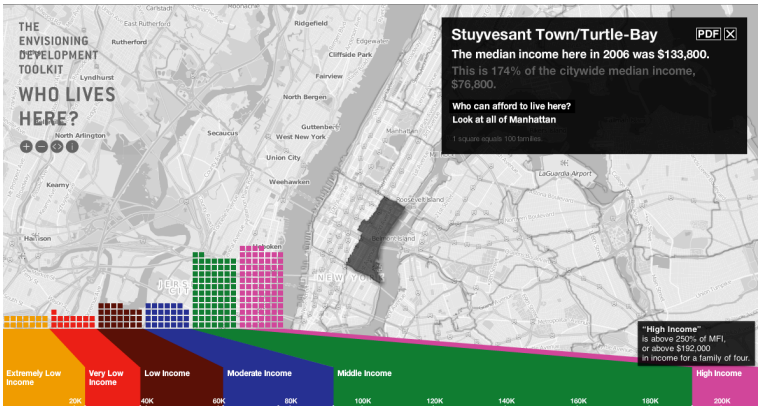
Social awareness defines a special term in Computer Science and it describes „The knowledge about other users, common artefacts, common workspaces in virtual environments." (see Gross, Koch, 2007). It supports a social experience as knowledge about the behaviour, presence and exact location of a user influence the behaviour of a single person in interactive systems.

With this work I would like to concentrate on the design of such data combining creative visual and interaction design approaches of the information displayed in data visualisations and emphasize its experimental character.

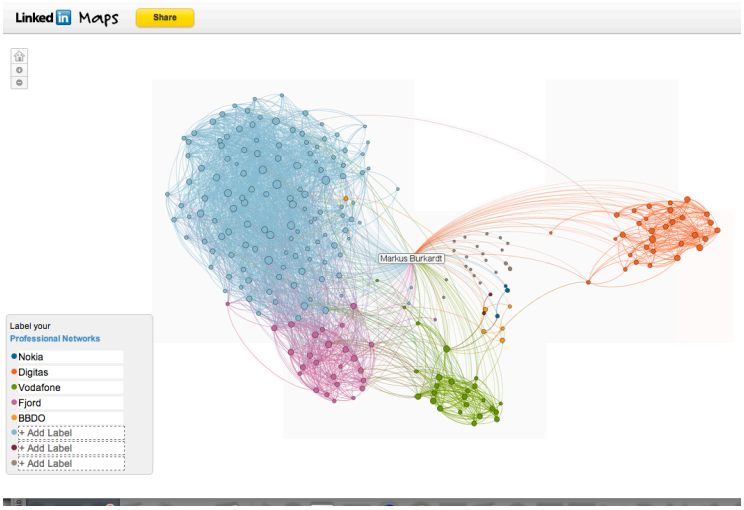
I would like to combine this approach with my experience in the mapping industry.

For the last 3,5 years I focused my work on maps and objects being displayed on maps and I learned a lot about mapping techniques from a User Experience perspective. I learned how to show detailed information on a map, how to cluster and how to design interfaces to interact with them. I would like to translate this knowledge into the domain of designing interactive visualizations of social data.

My first research in this field has shown that lots of work has already been done and of course extremely much examples of social data have been visualized already.



http://envisioningdevelopment.net/map



The LinkedIn Map

Most of these examples focus on social relationships or demographic data. I couldn`t find much examples were actual behaviour and especially real time behaviour is viusalised.
The slightly older example of elastic tag maps of Moritz Stefaner is however a nice example of the visualization of social behaviour. He visualized del.icio.us tags in a project called www.well-formed-data.eu in 2007.

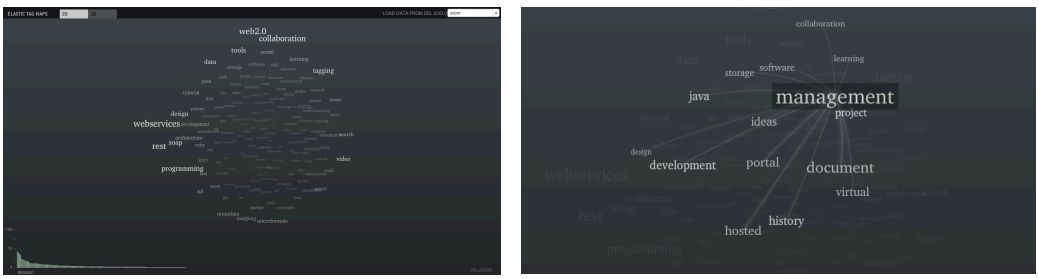
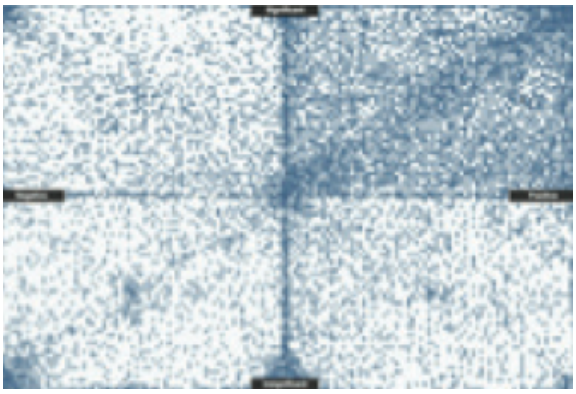


Image Source: www.well-formed-data.eu

Stefaner introduces clustering and proximity to indicate relations and he highlights a certain set of information via a cluster visualization. Cluster visualisations are actually a very good example for mapping techniques in in design for digital media. They are very helpful to discover patterns.

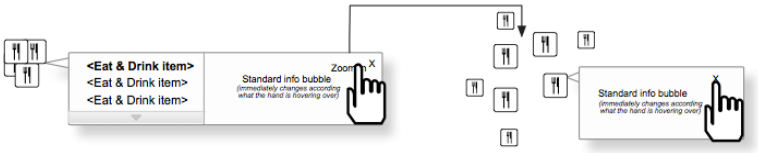


Example of a cluster visualisation. Source: Unknown

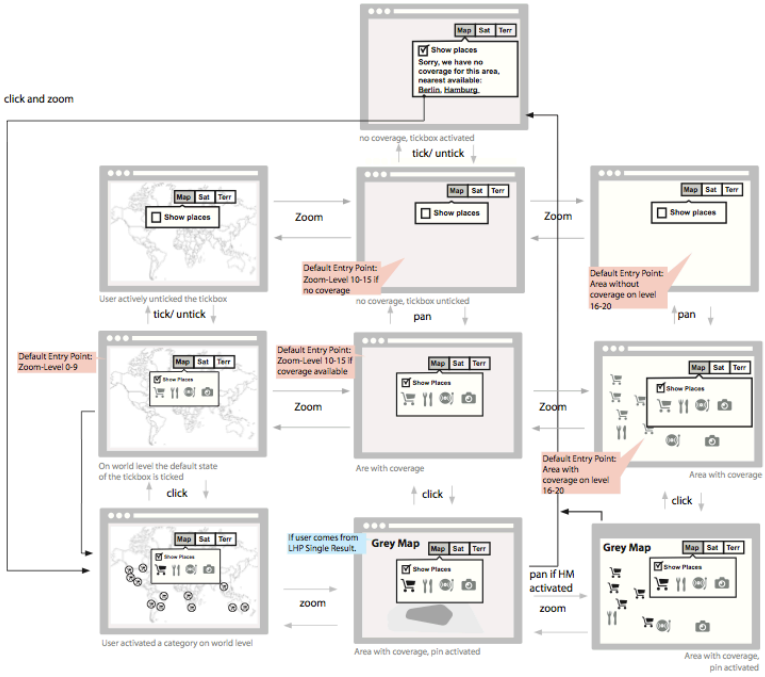
But mapped on a real and interactive application the cluster visualisation can raise questions in terms of interactions and aesthetics design.

Source: Google Maps

While the Interaction Design for clusters can start simple...



...it can become very complicated in the end.

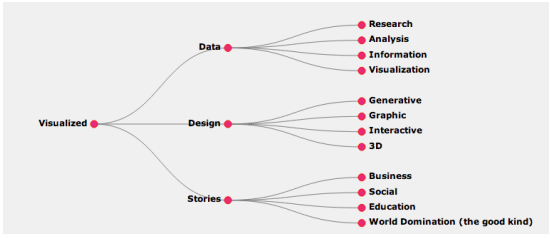


Source: Example of a complex interaction with a cluster visualisation on a map (done by myself)

So while certain mapping techniques work very well for the display of information they actually can show a certain weaknesses when it comes to the interaction design for digital and interactive media.

3. My research approach

This work shall focus on the experimental research for solutions and concepts to visualize and design social and in particular awareness information and assign it to the discipline of ‘Design for Digital Media’.



Schematic overview on visualized.com for the discipline of data visualization

In this context I want to make use of the concept of Design Patterns. Design Pattern are used in the domain of Human Computer Interaction (see „Design Pattern“ on Wikipedia) to develop solutions for Interfaces. Similar to Design Patterns in the field of Human Computer Interaction there exist as well Design Pattern for computer mediated communications.
In this context Design pattern can be defined as how information amongst users of a system are exchanged (the Human-Computer-Human Interaction).

3. Design Challenges

Step 1

Categorisation of data visualisations for social data with a focus on mapping techniques, like cluster visualisations, zoom, filter, animations.

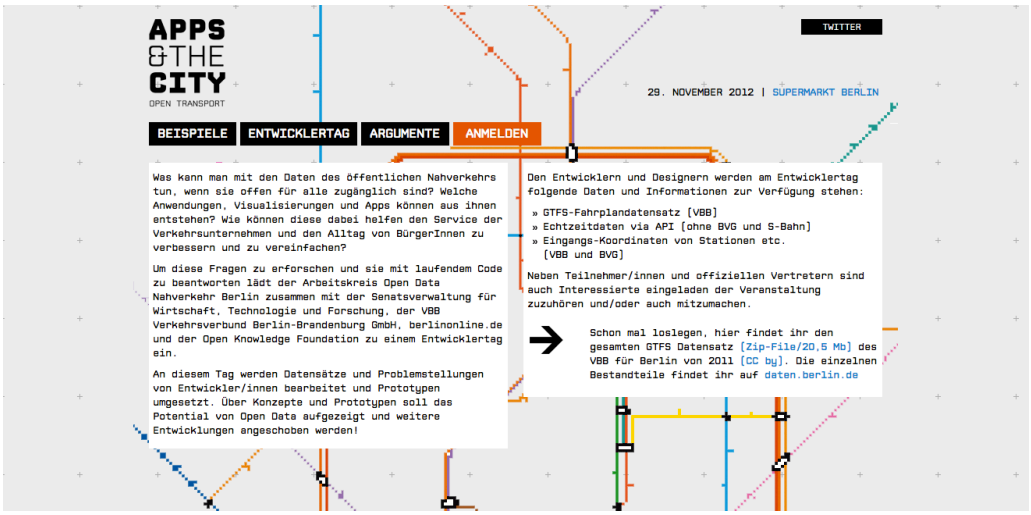
Step 2 (Version A)

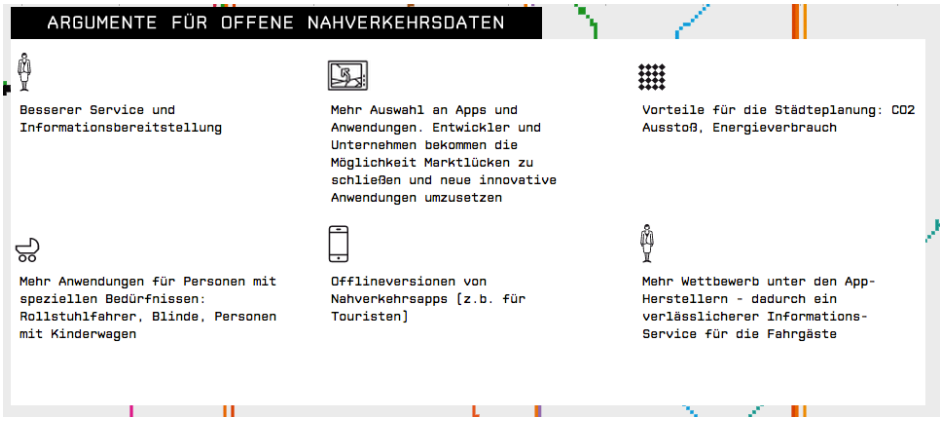
Coming up with some sort of pattern overview which can be published online.

OR

Step 2 (Version B)

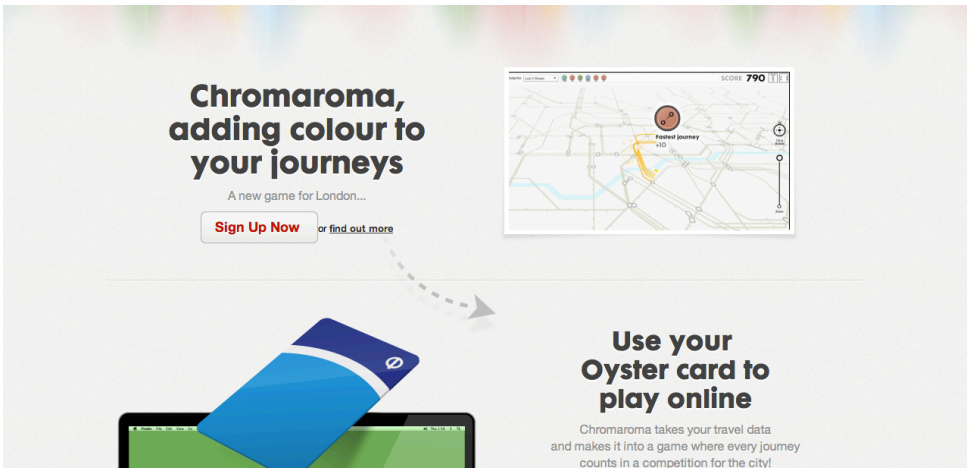
Developing a specific Interface for social information – helping to understand a specific set of social Data (experimental approach). Possibly traffic data as they are offered for free by cities, e.g. for Berlin: **http://appsandthecity.net/**





Source: http://appsandthecity.net/

Eventually these data can lead into a service/ game concept, like this one here:



In general I am open to any topic.

If possible in these three months I would like to try to improve my skills as I see room for improvement in visual and prototyping skills and concepting in general. So I am looking very much forward to my time in Portsmouth.

Literature

- Gross, T., Koch, M. 2007: Generative Gestaltung
  Entwerfen, Programmieren, Visualisieren mit Processing
  Hartmut Bohnacker, Benedikt Groß, Julia Laub, Claudius Lazzeroni (Hrsg.), Mainz, Verlag Hermann Schmidt
- Gross, T., Koch, M. 2007: Computer-Supported Cooperative Work, Oldenbourg, Wissenschaftsverlag GmbH

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- www.well-formed-data.eu
- en.wikipedia.org/wiki/Design_pattern_(computer_science