

# generative**stream**

Deliverable 2

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BA Project Methodology | Background research

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When i started to think about the BA Project, i first came up with the idea of an generative visualisation of flows in my hometown. by flows i meant people or objects who are circulating in the city every day.

for my these flows or actually people were always fascinating. i thought on people who are always left some tracks behind like data fractals. the more people are coming up with mobile devices such as mobile phones tablets like the ipad or other wireless capable devices and such.

there are many projects and examples around dealing with the idea of computer art. the data which are needed to display images are coming from all kind of sources. it could be an data-based list of static data combined with some variables or from sensors, video capturing a.s.o

## *Projects*

Radiohead's "House of Cards" and

Visualizing Urban Data

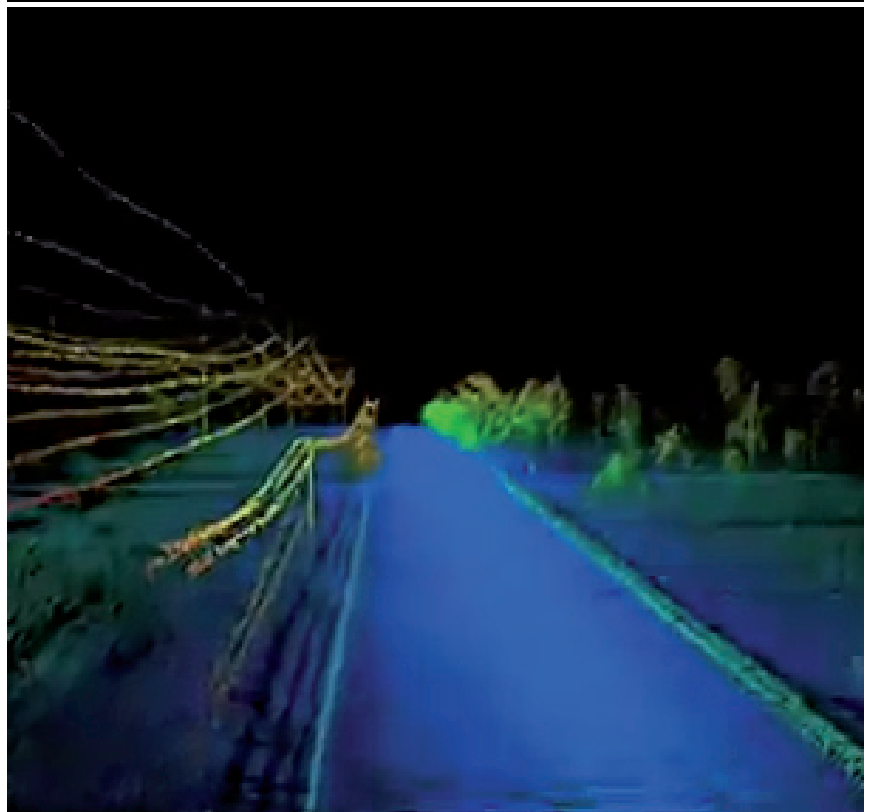
I started the Research first with the question of general visualizing of data. What are the tools which are used in the different project. Are there similar things used or totally different approaches?

the first project i had in mind was a video clip by Radiohead from the 2007 music album „House of Cards“.<sup>01</sup> The Makers behind this Clip were Aron Koblin<sup>02</sup> and Valdean Klump.<sup>03</sup> This clip was made entirely with data and it's even available for download at Google Code page.<sup>04</sup> For this Project, all data came form laser sensors. The Velodyne Lindar system was used for this project to act as the Data capture Equipment. The Velodyne HDL-64E Lindar<sup>05</sup> is a scanner with 64 laser emitters and 64 laser detectors. It spins in a circle, and gets data 360 degrees horizontally and 26.8 degrees vertically with a data rate of over one million points per second. By default the Lindar rotates at 600 rpm.

video-still from  
Radiohead's House of  
Cards

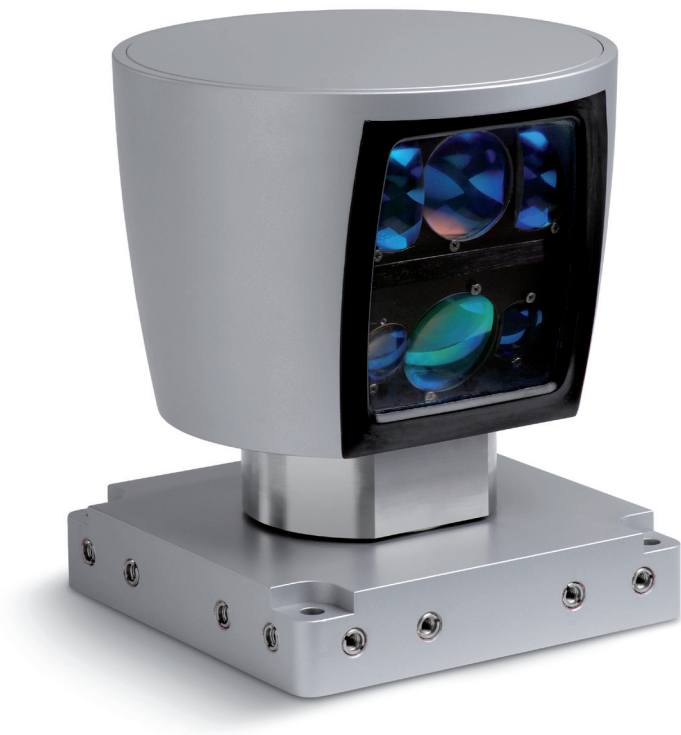


video-still from  
Radiohead's House of  
Cards



One of the conclusions of Aron Koblin and Valdean Klump was that you don't have to scan the moon, a tropical island, or a fashion model to obtain data that looks beautiful. Looking at common objects in a new way can have the same effect. In their work for the Radiohead music clip, they scanned a person's face and some common suburban architecture. By looking at these very common things in a new way and with new visualisation techniques, they made them interesting.

the Velodome Lindar  
video-head.



Public data processing

Urban data

The second project in this range about making data visible, is an work by Michal Migurski<sup>06</sup> which is about Visualizing Urban Data. The general Question here was that were the data is coming from and what makes it beautiful. Migurski says that data is most beautiful when it is public and free, and available for inspection and debate.

As we say earlier, the Radiohead Code is free accessible over the google database but the way to get the data for the work itself is quite different. While Koblin and Klump have used the Velodyne laser, Migurski and his system are not using data from other places like a database. The Basic Idea of this work was, to insert collected data into a map and move it into the internet piece by piece. The collected data was about crimes committed in Oakland, California. Oakland Crimespotting<sup>07</sup> was developed as a response to the existing Oakland Police Department crime-reporting application, CrimeWatch<sup>08</sup>

the Velodome Lindar  
video-head.



Crime Types sibols with  
various colours for  
different crime Types

AA	Aggravated Assault	<input checked="" type="checkbox"/>
Mu	Murder	<input type="checkbox"/>
Ro	Robbery	<input checked="" type="checkbox"/>
SA	Simple Assault	<input checked="" type="checkbox"/>
DP	Disturbing the Peace	<input checked="" type="checkbox"/>
Na	Narcotics	<input checked="" type="checkbox"/>
Al	Alcohol	<input checked="" type="checkbox"/>
Pr	Prostitution	<input checked="" type="checkbox"/>
Th	Theft	<input checked="" type="checkbox"/>
VT	Vehicle Theft	<input checked="" type="checkbox"/>
Va	Vandalism	<input checked="" type="checkbox"/>
Bu	Burglary	<input checked="" type="checkbox"/>
Ar	Arson	<input checked="" type="checkbox"/>

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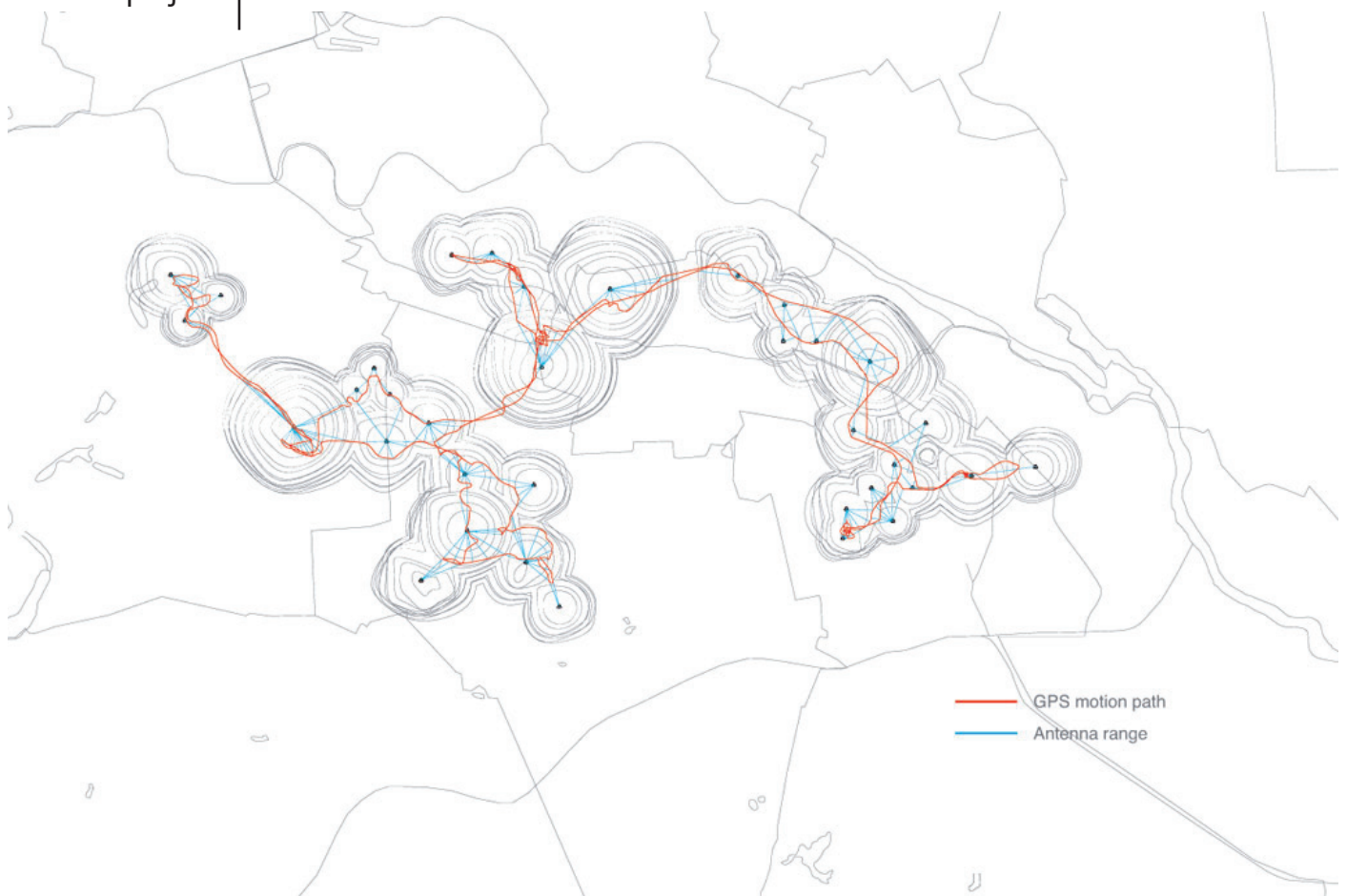
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### One Week In the Life

#### data from sensors

Andreas Fischer's Work, One Week in the Life, is a combination of collecting data on the one hand and display this very data through a physical installation. Generally speaking, it's the Visualisation of telecommunication data which collected over a certain period of time.

digital map of Andreas  
Fischer's project. |





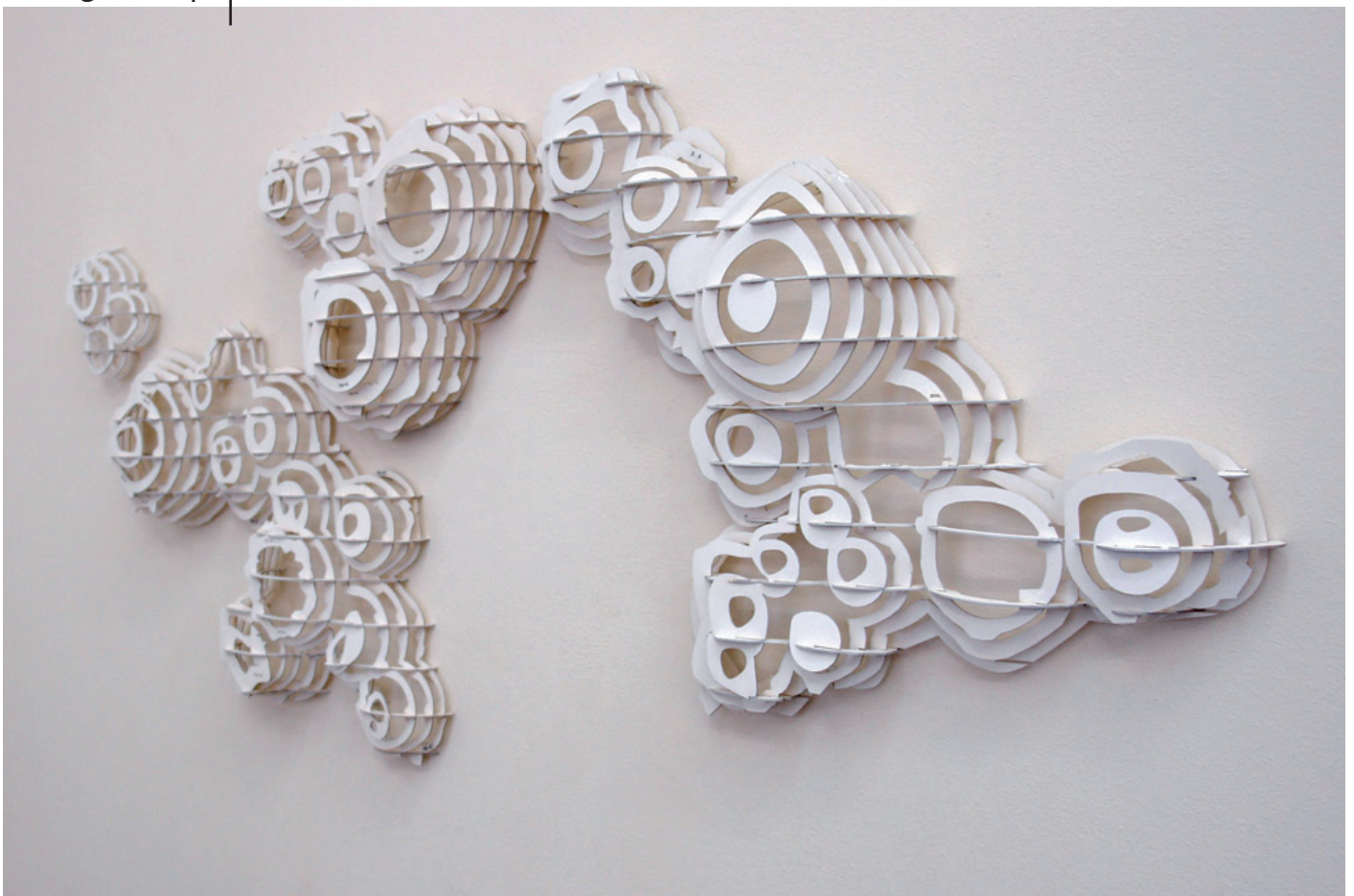
One Week in the Life<sup>09</sup> was related to the new Telecommunication Act from 2006 in Germany. The new guideline was designed to handle the will of the government. to save general mobile telecommunication data for a period of six month. The communication network providers were therefore forced to store phone call data and location.

The upper image shows the data recordings which Andreas Fischer captured during one week in his hometown Berlin. He then build an Software that was able to save his GPS position (shown with the red line) data and the range of Antennas (blue line) around him over his mobile phone. The data was then used to build the visualisation in the image beneath. In addition, he made a more phisical copy of the digital map.

The sculpture underneath, made of laser sliced paperboard cuts, represent the data tracked during the Week. The Collected data of the Antennas were transformed in degree's of long - and altitude that created these bell-structures. Together with the movement during the certain period and the translation in an sculptural artifact was finally the interesting output of this work.

The combination of digital data and a mechanical or physical combination as an final output, seems very interesting to me. It first combines interesting different methods and it helps to bring meanings of the work in the foreground.

Phisical interpretation of  
the digital map. |



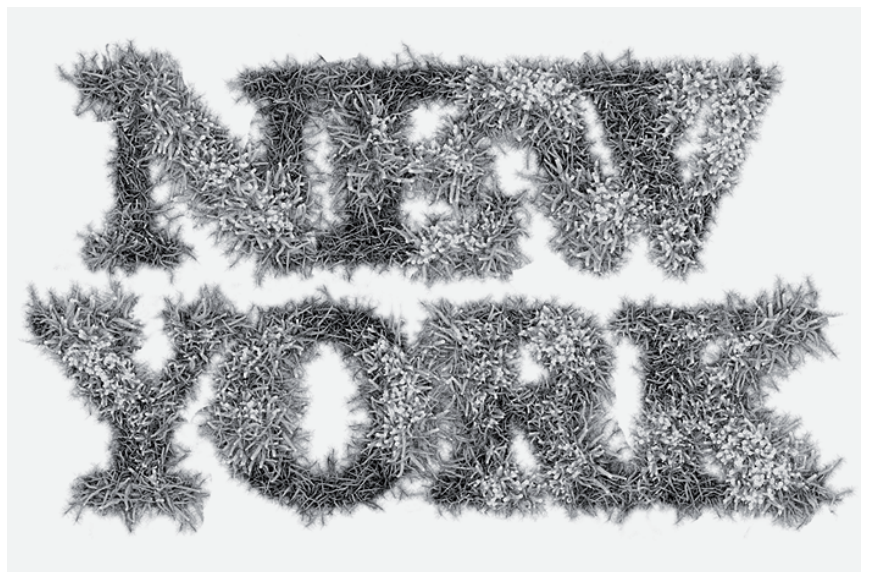
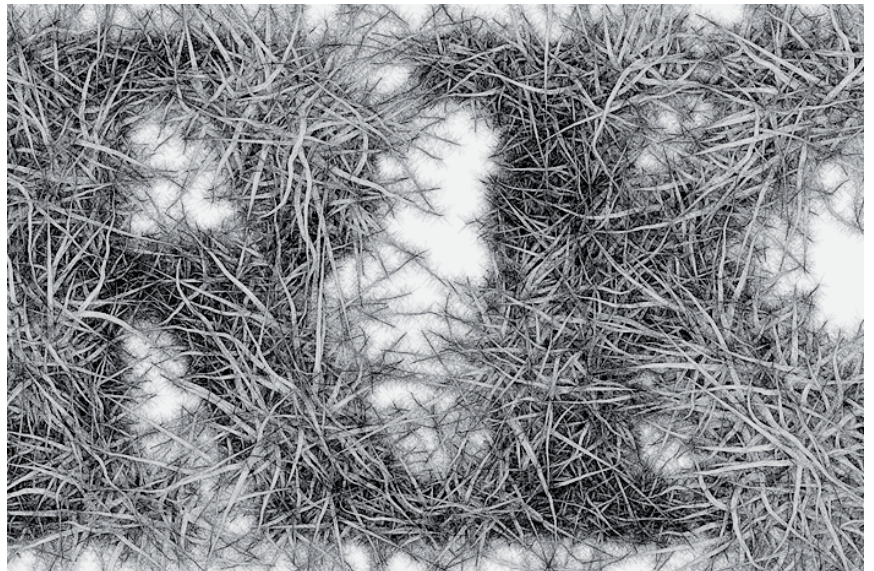
## Growing Data

### Data from sensors for science purposes

The next project that i found in this context was by Cederic Kiefer. Growing Data<sup>10</sup>

is a research Project which is engaged with the question how far real structures and transactions could used to build data visualisation that differ from usual and classical diagram's. Visual and formal aspects from natural phenomena were translated. Generative strategies are eligible to build and model patterns and structures while the human brain is able to interpreting those patterns and putting all together to a "big Picture".

A closer look into the Growing data project.



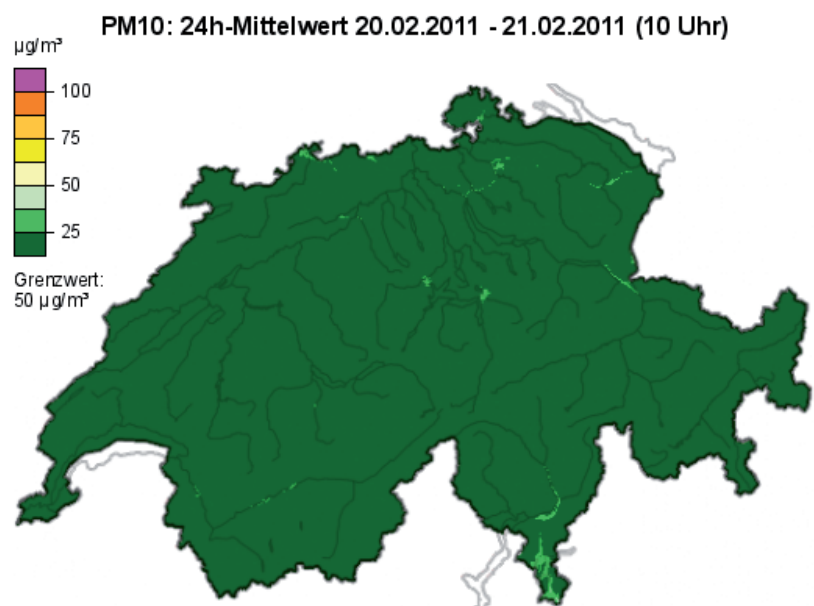


Growing Data finally tries to combine or setting up a relation between growth of virtual botanical plants and air quality in cities. The Visualisation <sup>11</sup> is an dynamic changing in how the visualisation looks like. The changing goes along with different air quality, it's also changing during the time. In many cases, getting air quality data remains not an static event. The Swiss BAFU Departement <sup>12</sup> for example, is evelating data hourly.

The Swiss BAFU Department provides data about several air pollution types over the internet. The Data is coming from a observational network all over the country. The network delivers several air pollution data such as NOx, o3, NO2, SO2 a.s.o

available data from the  
BAFU department.

Lage	Ort	O <sub>3</sub>	O <sub>3</sub> max	NO <sub>2</sub>	PM10	SO <sub>2</sub>
Stadt, Verkehr	Bern-Bollwerk	31	51	36	17	*
Stadt, Verkehr	Lausanne-César-Roux	38	65	41	14	*
Stadt	Lugano-Universita	60	60	42	27	5
Stadt	Zürich-Kaserne	3	17	46	19	3
Vorstädtisch	Basel-Binningen	9	9	34	21	1
Vorstädtisch	Dübendorf	3	3	41	20	2
Land, Autobahn	Härkingen	14	40	58	23	1
Land, Autobahn	Sion-Aéroport	59	59	42	19	*
Land, < 1000 m	Magadino-Cadenazzo	62	62	22	27	1
Land, < 1000 m	Payeme	71	71	14	9	1
Land, < 1000 m	Tänikon	28	28	25	22	*
Land, < 1000 m	Lägeren	23	26	25	*	*
Land, > 1000 m	Chaumont	48	70	7	5	*
Land, > 1000 m	Rigi-Seebodenalp	63	76	10	4	1
Land, > 1000 m	Davos-See	52	64	5	*	*
Hochgebirge	Jungfrauoch	65	66	1	2	0
Immissions-Grenzwert	µg/m³	120	120	80	50	100



## Final Thoughts

During the research - Process i was often confronted with the question of how getting data to visualise and in what kind of extend. In what kinda scale could do my work?

After a talk with Max Rheiner it was apparently clear that provide general from an public space is hardly viable. The first problem might would be the data privacy discussion. Also getting the data with sensors would produce a lot of financial efforts. Another problem was then still the question of interaction design itself. What might be the purpose of the work or project?

Therefore, i decided after the talk with Max to change the topic. It is still about a way to visualiize data, this area was always intresting to me. During the research i saw that there are many approaches in this field and many interesting solutions.

## Resources and Links

<sup>01</sup> <http://www.youtube.com/watch?v=8nTFjVm9sTQ>

***Video of Radiohead's House of Cards.***

<sup>02</sup> <http://sandbox.aaronkoblin.com/>

***Private website of Aaron Koblin***

<sup>03</sup> <http://valdean.tumblr.com/>

***Private blog of Valdean Klump***

<sup>04</sup> <http://code.google.com/intl/de-DE/creative/radiohead/>

***google resource-site for the Radiohead video***

<sup>05</sup> <http://www.velodyne.com/lidar/hdlproducts/hdl64e.aspx>

***Velodyne homepage, technical equipement for the Radiohead video.***

<sup>06</sup> <http://mike.teczno.com/>

***Private site of Michal Migurski***

<sup>07</sup> <http://oakland.crimespotting.org/>

***Official oakland crimespotting site***

<sup>08</sup> <http://gismaps.oaklandnet.com/crimewatch/>

***Crimewatch-site of oakland police***

<sup>09</sup> <http://anfischer.com/a-week-in-the-life/>

***Private andreas fischer website***

<sup>10</sup> <http://www.onformative.com/blog/growing-data/>

***Andreas Fischers growing data project description***

<sup>11</sup> <http://vimeo.com/17142501>

***Andreas Fischers growing data video***

<sup>12</sup> <http://www.bafu.admin.ch/>

***Federal Office for the Environment FOEN***