INFORMATION ARCHITECTURE

Mondays 10:00 - 12:00
051-0726-16L | 2 ECTS*

Creative Data Mining
Intuitively Analysing Design Ideas

The goal of this course is to introduce various data mining techniques for design and urban planning applications. Students will learn how to select relevant data sources and collect their own data using a "sensor backpack". Various methods will be applied to a common project to evaluate the predominant influencing factors of the urban environment on our perceptual experiences. A select neighborhood in the city will be used as a case study. Final results will be presented in the last class.

The course will start with an initial overview to data mining and the relevant mathematics as well as an introduction to the programming tool (RStudio). Then students will learn how to use and interpret results from a machine-learning tool to cluster self-made design sketches, which automatically generate qualitative collages. Finally, students will collect data using a "sensor backpack" with environmental sensors such as noise, temperature, illuminance, and air particulates. Students will also generate the data for perceptual quality in this neighborhood through time-stamped and geo-referenced surveys and biofeedback wristbands. Students will be given a work-flow to collect, process, analyze and interpret this data which may be used in their final projects.

Where
HIT H 12

Supervision
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22.02.2016	**Course Introduction** Introduce data-mining techniques and case study
29.02.2016	**Introduction to the Environment** Introduction to R Studio and clustering
07.03.2016	**From analog to digital analysis** Use hand-drawn sketched to auto-generated collages
14.03.2016	**Seminar week (No lecture)**
21.03.2016	**Analysis and interpretation I** Evaluate auto-generated collages
28.03.2016	**Holiday (No lecture)**
04.04.2016	**Time-series data analysis and Urban Planning** Introduction to time-series analysis
11.04.2016	**Data collection with sensor backpack** Collect data and introduce workflows
18.04.2016	**Holiday (No lecture)**
25.04.2016	**Analysis and interpretation II** Evaluate sensor backpack data
02.05.2016	**Q&A Feedback Workshop** Finalise semester projects
09.05.2016	**Final iA critique** Combined critique with the other iA courses (14:00 - 16:00)

Requirement   Former knowledge of any digital tool or coding language is most welcome but NOT required. You only need to provide a reasonable amount of motivation and of course a notebook.

* Total 60 h = 2 ECTS

Exercises 40% (documentations)
Final Presentation 40% (Final project)
Attendance 20%

The most recent outline will be found on www.ia.arch.ethz.ch

iA Chair for Information Architecture