Introduction to Information Visualization

Mini-Semester: 2   of the Academic Year: 2022
Class 215
Fridays, 9:00-13:00

Teaching Staff:
Instructors: Dr. Peter Bak, bakpeter6@gmail.com, 052-6677988;
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Office Hours: by appointment only

Prerequisites: None
Co-requisites: None
Courses Without Credit: None

Credits: 2 points

Study hours per week: 4 hours

Course Goals and Description

 The course intends to teach visualization design and analysis and provide hands-on experience in creating interactive visualizations on real-world data. Students will be exposed a wide range of information visualization techniques in a systematic way based on a strong theoretical background and scientific approach.

Learning Outcomes

- Students will become familiar with the field of information visualizations (background, definitions, why it is necessary)
- Students will understand how to abstractly analyze the relevant data and questions for information visualization
- Students will be able to detail basic principles in visual perception
- The students will know guidelines for designing visual solutions derived from the characterization of the data and the questions
- Students will be able to analyze information visualization with a critical eye
- Students will be able to build an effective information visualization in Tableau

Course Content/Topics

The course content starts with theoretical background on visualization analysis and design. The scope will include selected topics on information visualization consisting of space, time, networks, multidimensional attributes and sets visualization. The scope will extend to applied information visualization in science and technology.

Assignments and Grading Procedures

Project: 70% (PDF file per email-attachment)
Assignment: 20%
Exercises: 10%
All grade components in a passing grade are necessary.

Submission date of the project: 3/3/23

Course Schedule

Lesson 1.   30.12
Motivation for Interactive Visualization (Lecture Slides)
Visualization Analysis and Design (Lecture Slides, and Readings) Part 1.

Lesson 2.   6.1
Data Abstraction; Marks& Channels; Visual perception;
Tableau – Introduction, Connecting to Data, Preparing Data, UI Overview, Discrete and Continuous Data

Lesson 3.   13.1
Task Abstraction; Arrange Tables; Choosing a chart
Tableau – Charts, Calculated fields

Lesson 4.   20.1
More charts. Manipulation, Facet, Reduce
Tableau – Interactions

Lesson 5.   27.1
Dashboards and Data Stories
Tableau – Dashboards & Stories

Lesson 6.   3.2
Space-Geo and Time-oriented data visualization (Lecture Slides)

Lesson 7.   10.2
Selected Topic / Guest Lectures

Course Requirements & Course Policies

Participation is mandatory.

Text book(s) and/or other materials

T. Munzner: Visualization Analysis and Design, https://www.cs.ubc.ca/~tmm/vadbook/
M. Ward et at. Interactive Data Visualization. Foundations, Techniques and applications,
http://www.idvbook.com/
D. Murray: Tableau Your Data, https://tanthiamhuat.files.wordpress.com/2015/07/tableau-your-data.pdf

Academic Integrity

We expect personal and original work. In group work we expect an equal division of work.