Summerschool on
Scientific Visualization and Presentation.
Abstracts.

Falun, June 16-18, 2014

The art of complex communication

Jo Røislien

Abstract

How do you communicate complex scientific knowledge beyond the
congregation? Based on the personal experience of being a university
researcher who suddenly finds himself at the center of the production
of a large scale TV-series about mathematics, statistics and numbers
for the general public, aimed at attracting hundreds of thousands of
viewers, week after week, this talk on communication in general, and
statistics in particular, points to common mistakes often made in sci-
ence communication, and offers advice on how to solve the problem,
using anecdotes and concrete examples and film clips from TV-series
Siffror and the mathematics short movie Chasing the worlds largest
number. Learning from popular culture and psychological studies, the
importance of both metaphors and visuals images is highlighted. See-
ing is believing.

Data manipulation

Hadley Wickham

Abstract

R's built in subsetting is powerful, but can be verbose. The '**dplyr**' package is an powerful alternative to express most data manipulations, using a consistent family of functions. You'll learn:

- how to use the filter, select, arrange, mutate, and summarise functions
- how missing values work in R
- combine multiple data frames with joins.

Creating layered graphics with ggplot2

Hadley Wickham

Abstract

The key to creating rich, informative graphics in **ggplot2** is to use multiple layers. Layers can display different datasets, use different mapping between variables and aesthetics, use different transformations or different geoms. You'll learn how to use layers effectively to create rich graphics that combine raw data, context and summaries.

Cognitive psychology for visualisation

Hadley Wickham

Abstract

To design and critique visualisations you need to know a little bit about how the brain works. This talk will give you the basics of perception as it applies to visualisation.

Ill cover four main principles:

1. Match perceptual and data topology

2. Make important comparisons easy

3. Visual connections should reflect real connections

4. Beware of animation!

Each topic will be illustrated with real examples from around the web, and youll be able to put the principles to work right away in your own visualisations. Ill also show some optical illusions, cases where our visual system fails us, and show how some common visualisation techniques can be extremely misleading.

ggvis sneak peek

Hadley Wickham

Abstract

I'll give you a sneak peek at **ggvis**, the successor to **ggplot2**. Like **ggplot2**, **ggvis** allows you to describe visualisations declaratively. Unlike **ggplot2**, **ggvis** graphics are fundamentally of the web: they're built using `html`, `js`, and `css`. More importantly, **ggvis** graphics are fundamentally reactive. You can bind plot parameters to sliders and dropdowns, and visualise streaming data as it comes in.