Today

- What the course is about

Why?

To advance the state of the art, you must be able:

- to understand the current state
- (invent something new)
- to present your findings
  both as engineer and as researcher.

Aims seminar

- Get in touch with research
- Get experience with finding, reading, reviewing
- Get experience with writing a paper
- Get experience with presenting

To do

- Choose a topic
- Find literature
- Read literature
- Write a review paper
- Present your findings
Choose a topic

- From Information Visualization and Visual Analytics
  - key area TU/e visualization group

- From Visualization, Rendering or Computer Graphics
  - special interest?
  - preparation for Master project?

Choose a topic

- Not too big
  - 100's of papers to read
  - already many overviews available

- Not too small
  - almost nothing can be found
  - just reproduce single paper?

Literature

- Books
- Articles from journals
- Articles from proceedings
- Web-pages???
  - Peer reviewed?
  - Status of source?

Finding literature

- Library (physical/digital)
- IEEE and ACM
- DBLP, Google Scholar (scholar.google.com)
- Google
- Backward tracking, forward tracking
- Check authors, keywords

Reading literature

- Be critical!
- Keep notes. What did you like, what not?
- Check if the claims of the authors are:
  - Correct, understandable, complete, …
  - Evaluated, validated, …
- If appropriate: Implement things yourself and compare

Digesting literature

- Engineering perspective:
  - Describe ways to solve a problem, and their weak and strong points
- Research perspective:
  - Find out what has not been solved yet
Here: Try both
Digesting literature

<table>
<thead>
<tr>
<th>Solution</th>
<th>Property A</th>
<th>Property B</th>
<th>Property C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solution A</td>
<td>Good</td>
<td>10</td>
<td>analytic</td>
</tr>
<tr>
<td>Solution B</td>
<td>Weak</td>
<td>20</td>
<td>numerical</td>
</tr>
</tbody>
</table>

Don’t just enumerate papers!!!

Find the structure of the problem and the solutions:

– Can we make a taxonomy?
– Can we draw a diagram?
– What are principal choices?

The Paper

Result: Review paper
Format: IEEE TVCG, 8-10 page, double column
Text: Original. NO COPY-PASTE!
Quality: high

well-written, flawless, complete, interesting, ...

Typical structure paper

1. Introduction
2. Background
3. Analysis
4. Details
5. Conclusions
6. Future work

Presentation

• 20 minutes
• 5 minutes questions
• 15 minutes discussion

Typical structure overview paper

1. Introduction
2. Approach
3. Taxonomy
4. Details, examples
5. Conclusions
6. Future work
Schedule
- Week 1: Introduction + submission topic choice
- Week 2: Final topic choice, Progress meeting
- Week 3: Outline + First short presentation
- Week 4: Progress meeting, short presentations cntd.
- Week 5: Progress meeting + submission first version
- Week 6: Progress meeting
- Week 7: Presentations
- Week 8: Presentations
- Week 10: Submission final version paper

Submission
- Week 2: Choice of topic
- Week 3: Outline + short presentation
- Week 5: First version paper
- Week 7-8: Presentations
- Week 10: Final version due: FRIDAY 29 JANUARY 2016

Rules
- Meetings: obligatory
- Not all meetings are held, see study guide + notices
- Submit via OASE (see time/date in study guide)
- Final deadline: Hard
- Details: See Study Guide

Grading
- 60% paper
- 30% presentation
- 10% active participation

Topics
- Application
- Data type
- Mapping method
- Generic

Study guide: 2 sentences + 1 reference
Application oriented

- Web usage
- Cohort selection
- Database structure
- Twitter
- Financial transactions
- News
- ...

Data type oriented

- Uncertainty visualization
- Time series
- Dynamic networks
- Video visualization
- Clusters
- Network comparison
- Word counts

Neural networks
- Support vector machines
- Association rules
- Linear regression

Mapping

- Parallel coordinate plots
- Performance graph lay-out algorithms
- Matrix representations of graphs
- Event visualization
- Orderability
- Sensitivity
- Physical data visualization

Generic

- Evaluation
- Tasks
- Story telling
- Visual literacy

Next week:

- Sign in via OASE (if not done yet)
- Submit a proposal for your first, second and third favorite topic, at last on Tuesday 22 November, 12:00.