FJH3003 Information Visualization for Doctoral Students 7.5 credits

Informationsvisualisering for doktorander

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for FJH3003 valid from Autumn 2018

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

All doctoral students in EECS who handle data and have basic programming skills are eligable.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

The student will be able to:

- Understand the visualization pipeline applied to their own research data.
- Use state-of-the-art visualization packages to meet their general visual analytics needs.
- Develop visualization tools using state-of-the-art development packages to meet their specific visual analytics needs.
- Communicate their own research through improved printed figures on papers, interactive visual structures online, and live during conference talks in a way that produces a positive impact on the sustainability of research (by lower traveling and printing demands, for example).

Course contents

The main content includes the visualization pipeline, collecting and processing data, mapping data into interactive visual structures including maps, graphs, trees, scatter plots, parallel coordinates, treemaps, and chord diagrams, and evaluating the capacity of these visualizations to address specific analytic tasks from selected target users.

Disposition

The course will have 7 meetings over one academic period. Each meeting will be approximately 4 hours long. There will be reading assigned and discussed at each meeting. Students will develop and discuss one individual visualization project addressing their own data and needs and that of their communities of practice throughout the meetings. They will present their projects in a final oral presentation and in a written report.

Course literature

Mazza, R. (2009). Introduction to Information Visualization. London: Springer London.

Ware, C. (2013). Information visualization perception for design (3rd ed., Interactive Technologies). Amsterdam ; Boston: Elsevier/MK.

Spence, R. (2007). Information visualization : Design for interaction (2.nd ed.). Harlow: Pearson/Prentice Hall.

Spence, Robert, & SpringerLink Content Provider. (2014). Information Visualization An Introduction.

Shneiderman, Ben. "The eyes have it: A task by data type taxonomy for information visualizations." In The Craft of Information Visualization, pp. 364-371. 2003.

Amar, Robert, James Eagan, and John Stasko. "Low-level components of analytic activity in information visualization." In Information Visualization, 2005. INFOVIS 2005. IEEE Symposium on, pp. 111-117. IEEE, 2005.

As well as other current scientific articles relevant to the participants' research and individual projects.

Equipment

Personal computer and smart phone

Examination

 • EXA1 - Examination assignment, 7.5 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

Students will be examined based on their participation during the meetings and on the quality of their projects as these are presented at various stages throughout the course.

Other requirements for final grade

A passing grade (P) is obtained through completing these criteria:

- Active participation (80%) during the meetings, which includes reading and discussing the course literature.
- Approved presentation (80%) and feedback of individual projects at different stages of development.
- Approved final oral presentation of the individual project (15 minutes).
- Approved final written project report.
- Peer-review comments to other projects in the course.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.