CMPT 767 - G100 Visualization

Instructor(s): Sheelagh Carpendale

Calendar Objective/Description:
Advanced topics in the field of scientific and information visualization are presented. Topics may include: an introduction to visualization (importance, basic approaches and existing tools), abstract visualization concepts, human perception, visualization methodology, 2D and 3D display and interaction and their use in medical, scientific, and business applications.

Instructor’s Objectives:
The goal of this course is to introduce students to the research field of Interactive Information Visualization. The course presents both seminal and recent work in InfoVis by looking at a variety of topics from the research field. It will cover a subset of the topics listed below. Each of these topics contains a fundamental approach to creating information visualizations. Each has its own guiding principles, its own significant publications, and its own research methods. While we will discuss each separately, keep in mind that in reality some chosen subset of these is usually used in conjunction.

Note: Prerequisites for this course are being reviewed- Please contact csgrada@sfu.ca for assistance with enrollment.

Prerequisites:
CMPT 316, 461 or equivalent (by permission of instructor). Students with credit for CMPT 878 or 775 may not take this course for further credit.

Topics:
- Representation of data, data mappings
- Design thinking
- Presentation
- Principles from perception
- Sketching and Externalization
- Principles from graphic design
- Layout and spatial organization
- Data driven design
- Personal visualization
- Task-based design
- Constructive visualization
- Applications (e.g., web, text, biology, social data)
- Biomimicry and alternate aesthetics
- Physicalization
- Interaction (e.g., exploration, navigation, transformations, details on demand)
- Communication, data-driven storytelling, visualization literacy
- Evaluation methodologies and issues
Grading:
   To be discussed the first week of classes

Recommended Books:
   · Semiology of graphic: Diagrams, Networks, Maps, Bertin, Jacques, ESRI, Incorporated, 2010, 9781589482616
   · Information Visualization: Perception for Design, Ware, Colin, Login, 2012, 9780123814647

Academic Honesty Statement::
   Academic honesty plays a key role in our efforts to maintain a high standard of academic excellence and integrity. Students are advised that ALL acts of intellectual dishonesty will be handled in accordance with the SFU Academic Honesty and Student Conduct Policies (http://www.sfu.ca/policies/gazette/student.html).