The Hebrew University of Jerusalem

Syllabus

Visualization and Sonification - 67737

Last update 26-07-2017

HU Credits: 3

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Computer Sciences

Academic year: 0

Semester: 2nd Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Dani Lischinski

Coordinator Email: danix@cs.huji.ac.il

Coordinator Office Hours:

Teaching Staff:

Dr. Fink Michael

Course/Module description:

The course attempts to characterize the optimal way to present multi-dimensional information in two modalities: Data Visualization and Data Sonification (i.e. using auditory representations)

The course focuses on tools for converting rich and dynamic information such as activity in social networks, multi-channel information, etc.

In the first part of the course we will discuss the characteristics of successful visualizations and sonifications and how they relate to the constraints of the human perceptual and cognitive systems.

In the second part of the course we will adopt a computational approach to examine how to simplify large amounts of data by using dimensional reduction techniques.

The course is open to students of the combined program of Bezalel and computer science.

Other students who wish to participate in the course will seek approval from
Dr. Michael Fink
0542451115
Fink@cs.huji.ac.il

Course/Module aims:

Learning outcomes - On successful completion of this module, students should be able to:

During the course, the students will submit two projects that present multidimensional information through an innovative combination of visualization and sonification.

Attendance requirements(%):

100%

Teaching arrangement and method of instruction:

Course/Module Content:

Week 1: introduction
Week 2: Learning the constraints of the visual system
Week 3: Learning the constraints of the auditory system
Week 4: Learning the constraints on attention, memory & cognitive processing
Week 5: Midterm projects
Week 6: Introduction to modeling: graphs and metric spaces
Week 7: Introduction to optimization
Week 8: Introduction to clustering techniques
Week 9: Introduction to dimensionality reduction & embeddings
Week 10-15: Final projects

Required Reading:

Presentation will be delivered throughout the course

Additional Reading Material:

Grading Scheme:

Additional information: