CAP-5738 Data Visualization

Catalog Description
Advanced topics class covering data visualization principles, techniques, and algorithms. Students are familiarized with the scientific research workflow by proposing, implementing, and presenting a project with strong collaborative, interdisciplinary, and visual components.

Prerequisites
SCIS Graduate Standing

Type
Elective for MSCS, MSIT, and Ph.D. students.

Objectives
In this class students will be familiarized with Information Visualization principles, techniques, and algorithms. They will implement a few fundamental visualization techniques. They will read and discuss seminal and state of the art research papers on the subject. Finally, students will experience the research pipeline in its entirety by participating in a simulated funding process and implementing a collaborative visualization project. Specifically, students will meet potential collaborators, decide on projects that are likely to yield valuable research contributions, write short project proposals, review each other's proposals and decide collectively which proposals are worth “funding”, implement the project, write a short paper documenting the results, and present that paper.

Topics
Principles of visual encoding
Multidimensional data visualization
Tree and Graph visualization
Visualizing text and document collections
Geospatial and temporal visualization
Interactivity in visual analysis systems
3D or scientific visualization
Evaluating visualization efficiency
Principles of visual reasoning
An introduction to research funding mechanisms and interdisciplinary projects

Textbook

Last Update
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