



Mathematics and CS Seminar

Driving Scientific Discovery with Interactive Visual Data Analysis

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Host: Chris Wojtan

Today, scientific discovery is increasingly data-driven and enabled by computational tools. However, there are many aspects of the data science process for which purely automatic approaches do not suffice. In a typical data analysis scenario, reasoning and incorporating contextual knowledge is essential, and when decisions are ultimately made by humans, they need to be knowledgeable about the data and the methods applied. In my talk I will show how to enable this interplay between data, computation, visualization, and humans to augment intelligence. I will first introduce a technique we developed to analyze large clinical genealogies with the purpose of identifying suicide cases that have a likely genetic component as an example of a visualization project tailored to solve an important domain-specific problem. I will then sketch approaches to Literate Visualization, an analogy to Knuths Literate Programming, which is widely used in the form of computational notebooks in data science today. I will show how we can leverage provenance data of an analysis session to create well-documented and annotated visualization stories that enable reproducibility and sharing. I will also introduce early work on semi-automatically inferring mid-level analysis goals, which allows us to understand the analysis process at a higher level. I will conclude by reflecting on ways of knowing in visualization: how can we tell if one visualization is better than another one? I will showcase a new method we developed that fills a gap in the current canon of evaluation methods.

Tuesday, February 25, 2020 10:30am - 11:30am

Mondi Seminar Room 2, Central Building



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.

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<https://ista.ac.at/en/campus/how-to-get-here/> The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.

