

Simon Fraser University
School of Interactive Arts and Technology
IAT461-4: Data Science for Human-Centered Systems

Calendar description:

Analytical approaches examining user interaction data to understand how interactive

pitfalls.

Prerequisites:

IAT-355 and IAT-360 (Fundamentals of AI)

Lectures: 3 hours, **Tutorials:** 2 hours

Faculty:

Marek Hatala
Alireza Karduni
Nilay Yalcin

Course objectives:

By the end of this course students will be able to:

- carry out the data analytics process for human-centered systems from beginning to end
- use proper terminology in the field
- understand various types of data, and the issues in analyzing each type of data
- identify the techniques used for each step and when a technique is appropriate
- integrate data capture mechanisms into the system design based on the analysis of needs
- to use the tools available in the Python ecosystem to carry out the analysis

Materials are delivered via lectures (3 hours/week), tutorials/workshops (2 hours each) for technical training in programming libraries, application of concepts to practice problems, and

The standard SIAT grading scale will be used:

<https://www.sfu.ca/siat/programs/undergraduate/current-students/student-resources/grading-scale.html>

Tentative weekly topics:

Week 1: Introduction: What role data plays in understanding how users use interactive systems

Week 8 & 9: Distance metrics, comparing sequences of user actions, clustering users based on their actions

Objectives: Understand the importance of distance in ML methods, measure distances between sequences of actions, find groups of users with similar behaviors using unsupervised clustering techniques, and interpret behaviors based on cluster characteristics.

Week 10 & 11: Using machine learning to understand various users' interactions with the