Computing Science Course Outlines

CMPT 461 - D100 Comp. Photo. & Image Manip.

Instructor(s): Yagiz Aksoy

Calendar Objective/Description:
Comp. Photo. & Image Manip.

Instructor's Objectives:
This is a complex course consisting of multiple stages. In the first 2 weeks, an overview of image processing and computer vision is provided in flipped-classroom setup. In the following 2 weeks, we cover fundamental computational photography topics in mathematical modeling and also in real-world film production environments through guest lectures. The latter part of the course follows a research-heavy curriculum. 2 hours of each week is dedicated to deep dives to fundamental topics in image manipulation, relating multiple papers on each topic with each other in terms of mathematical modeling and color theory. 1 hour each week is reserved for all-together open-ended discussions on term projects and research papers. Students form project groups and each projects develops their own photography project through discussions with the instructor. Each student also prepares a detailed video presentation of a selected research paper, which is watched and discussed together in class at the end of the semester.

Flipped classroom setup in overview weeks allows for covering any open questions of students on fundamental topics, and also discussing the research field in general, introducing coding tools for photography etc. This is done in an open environment where every student participates by sharing links, sharing screen to show examples etc.

In the research-focused lectures, we go over very detailed formulations directly from pdf's of papers. A tablet + Zoom setup allows a more adaptive lecture coverage guided by student questions or in-class discussions.

In the discussion hours, the students casually talk about their plans for their project or bring up problems they came across. The Zoom setup with easy screen-sharing and link sharing makes this discussion very fruitful.

The students define and create unique applications in project groups. The collaboration is enhanced through weekly check-ins and discussions during lecture hours.

Prerequisites:
see go.sfu.ca

Grading:
2 Programming assignments for 461, 3 for grad-level 985 = 20% Paper discussion and video - 30% Project = 50%

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).