CMPT 985 - G200 Graphics-HCI-Vis-Multimedia

Instructor(s): Yagiz Aksoy

Calendar Objective/Description:
Graphics-HCI-Vis-Multimedia

Instructor's Objectives:
Computational Photography is concerned with overcoming the limitations of traditional photography with computation: in optics, sensors, and geometry; and even in composition, style, and human interfaces. The course covers computational techniques to improve the way we process, manipulate, and interact with visual media. The covered topics include image-based lighting and rendering, camera geometry and optics, computational apertures, advanced image filtering operations, high-dynamic range, image blending, texture synthesis and inpainting.

Prerequisites:
see go.sfu.ca

Topics:
- Imaging basics
- Camera basics
- Fourier transform and sampling
- High dynamic range imaging
- Tone mapping
- Bilateral filtering
- Color
- Image blending
- Boundary minimization techniques
- Focal stacks and light fields
- Transformations and panoramas
- Camera models
- Optical flow
- Deconvolution and noise

Grading:
- Programming assignments: 30% · Final project: 40% · Presentation: 30%

Recommended Books:

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 ).