Introduction to Computational Design

Presenter: Yuki Koyama (AIST, Japan)

2021-05-12 | CHI 2021 Courses | Online

Quick Self-Introduction

https://koyama.xyz/

Yuki Koyama

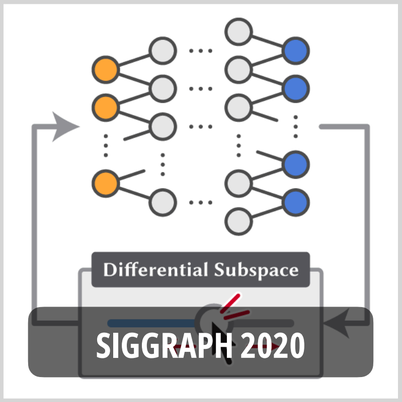
Researcher

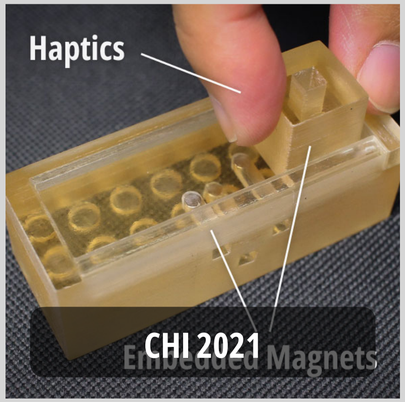
National Institute of Advanced Industrial Science and Technology (AIST), Japan

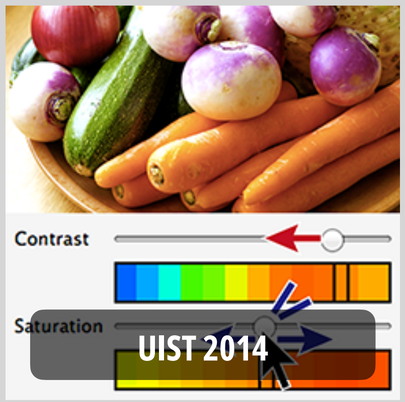
Research areas

- Human-Computer Interaction
- Computer Graphics

Keywords: computational design; human-in-the-loop optimization; physical simulation; digital fabrication; animation; design tools; machine learning







Computer Graphics

Human-Computer Interaction (HCI)

Goals of This Course

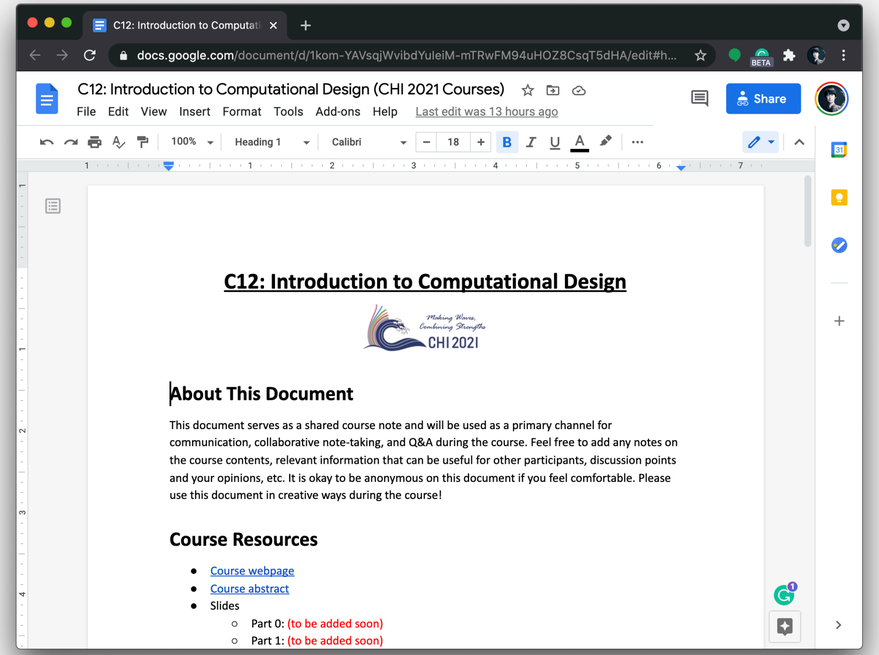
- This course aims to let students (and researchers) who are **novices to computational design** become ready to start research on this topic.
- Specifically, this course tries to offer the following benefits:
  - Understanding of fundamental concepts in computational design and an overview of this topic.
  - Understanding of how researchers have formulated design problems as optimization in various application domains.
  - Understanding of common considerations when human evaluation is involved in optimization problems.

Outline (75 min)

Part 0: Course Introduction	5 min.	08:00–08:05 (JST)
Part 1: What is Computational Design?	35 min.	08:05–08:40 (JST)
Part 2: Human in the Loop	25 min.	08:40–09:05 (JST)
Part 3: Summary and Discussion	10 min.	09:05–09:15 (JST)

Communication / Collaborative Note-Taking / Q&A

- **[experimental]** In this course, I'd like to use **a shared Google Docs** as a primary channel for communication, collaborative note-taking, and Q&A
  - But you can also use the Zoom chat if you prefer
  - It is okay to be anonymous on the Google Docs if you feel comfortable
- **Please use the Google Docs in creative and productive ways!**



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Videos / Q&A

- **[experimental] I will play pre-recorded videos for the main parts**
  - During the video play, I can answer questions **in real time** on the Google Docs (or the chat)
  - Please don’t hesitate to ask any questions any time!
- **If you know (or have published) papers related to computational design, please share the information with the participants via the Google Docs!**
  - This course itself is not aimed at covering all topics exhaustively, but we can try to collect as many papers as possible

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