

CSC2521 Fall 2011: Topics in Computer Graphics

Sketching: interaction, modeling and perception

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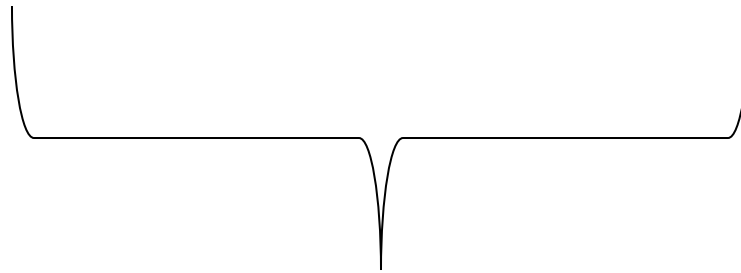
Interdisciplinary course

OCADU DIGF 6B13

Design

CSC 2521

Interactive Graphics



A seminar course, where every student makes a design or technical paper presentation on digital sketching and executes a project in a team that will comprise students with both art and science backgrounds.

Sketching

A metaphor for creative communication...

Creative communication

The transformation of a creative vision into a digital reality, that is easy to refine and reuse.

Why is it challenging?

Humans have an audio IN and OUT,
a video IN but no explicit video OUT!

Creative communication

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Why is it challenging?

Humans have an audio IN and OUT,
a **biased** video IN but no explicit video OUT!

^

we need WYSIWYP instead of WYSIWYG!

"what you see is what you perceive/get"

video IN: Perception

- **Visual field:** one eye looking straight at the horizon, with a narrow cone of vision, while standing still.
- **Visual world:** two eyes looking all around with peripheral vision, while moving dynamically.

[**J. Gibson, 1950.** The Perception of the Visual World, *Houghton Mifflin.*]

video OUT: Sketching

Most children between the ages of about 9-11 have a passion for realistic drawing. They become sharply critical of their childhood drawings and begin to draw certain favorite subjects over and over again, attempting to perfect the image. Anything short of perfect realism may be regarded as failure. ... Perhaps you can remember your own attempts at that age to make things “look right” in your drawings, and your feeling of disappointment with the results. ... Looking at your drawings, you may have said, as many adolescents say, “This is terrible! I have no talent for art. I never liked it anyway, so I’m not doing it anymore.”

[**B. Edwards, 1999.** *The New Drawing on the Right Side of the Brain*, Tarcher/Putnam.]

Issues in Digital Sketching

2D

- Stroke filtering. (clothoids, multi-stroke... what are we filtering?)
- Stroke Processing. (sketch widgets, gestures...)
- Strokes and multi-touch. (gestures, symmetric drawing...)
- Stroke appearance (NPR, neatening...)
- Stroke dynamics (pressure, tilt, direction, temporal order...)
- Seamless UI Control (sketch widgets, crossing menus, gestures...)
- Navigation (paper manip., onion skinning...)
- 2D curve creation: (What are desirable curves, how do we perceive them in relation to our design knowledge?).
- Stroke Perception (what spatio-temporal information do they convey?)

3D (Additional dimension for 3D design, animation or 2D design explorations)

- 3D Navigation. (camera tools, single/multi-view, view bookmarks...).
- 3D curve creation: (2D stroke to 3D curves perception & inference).
- Animation (motion trails, evolving shape fronts...)
- Alternate Designs (co-locating them in space...)

Agenda

- We will pick an issue every week and go over representative papers in the area.
- Potential papers and themes and a schedule is on the course webpage.
- Students will present one or two such papers at one such session. (decided by the second week).
- Students should also define groups combining art and science students and pick a project in consultation with the instructors. (decided by the third week).