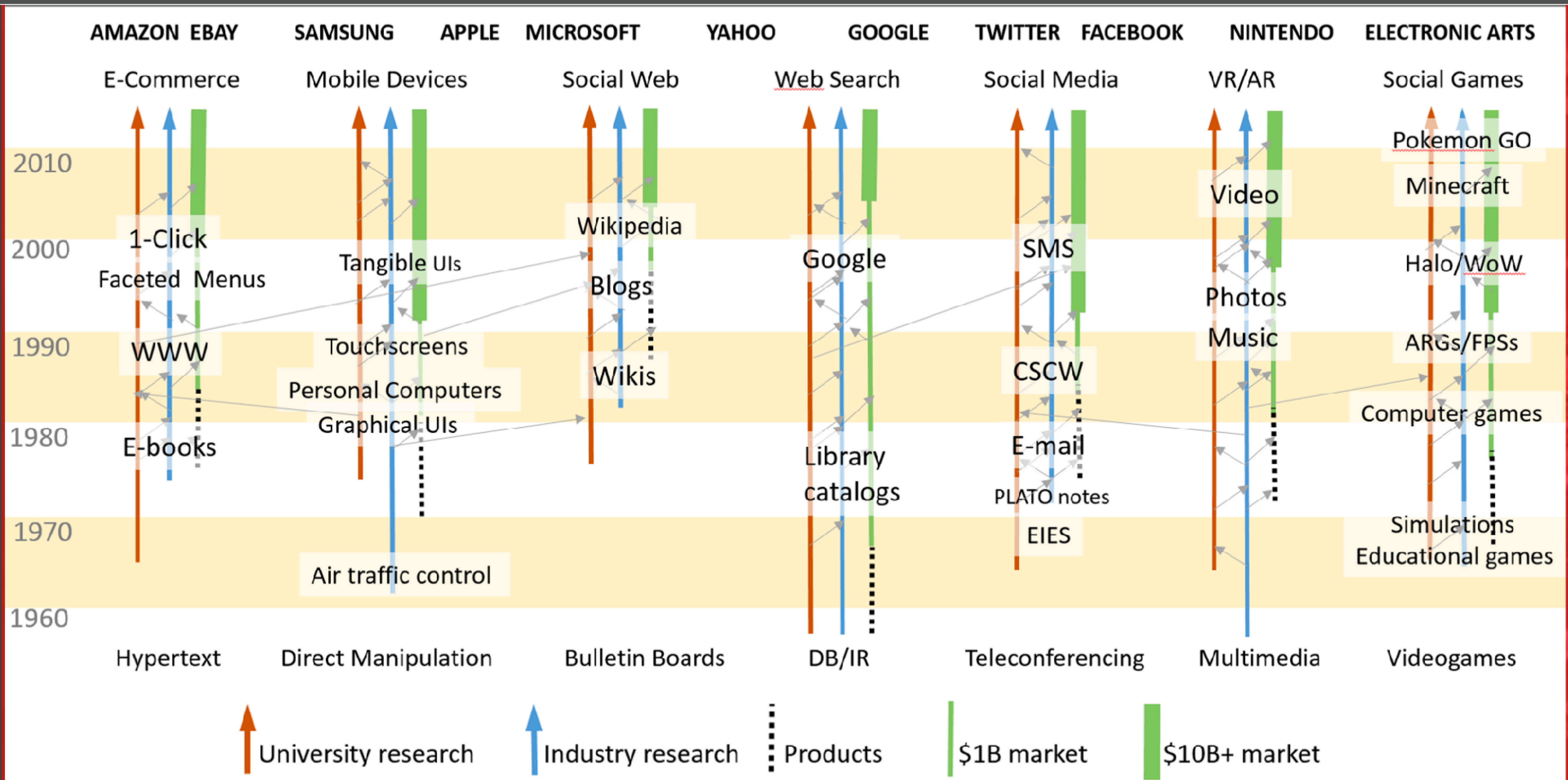


HCI research-to-industry “tire tracks” diagram [Shneiderman 2017]



Creativity

MICHAEL BERNSTEIN
CS 376



Project fair |
today



Create.

Authoring Tools

A close-up, high-angle shot of a hand sketching a diagram on a piece of paper. The hand is holding a pen and is in the process of drawing a line. The paper is white and has some faint, light blue lines already drawn on it, forming a grid or a set of axes. The background is dark, making the white paper stand out. The overall scene is dimly lit, with the primary light source coming from the top, casting a soft shadow of the hand and pen onto the paper.

I love sketch

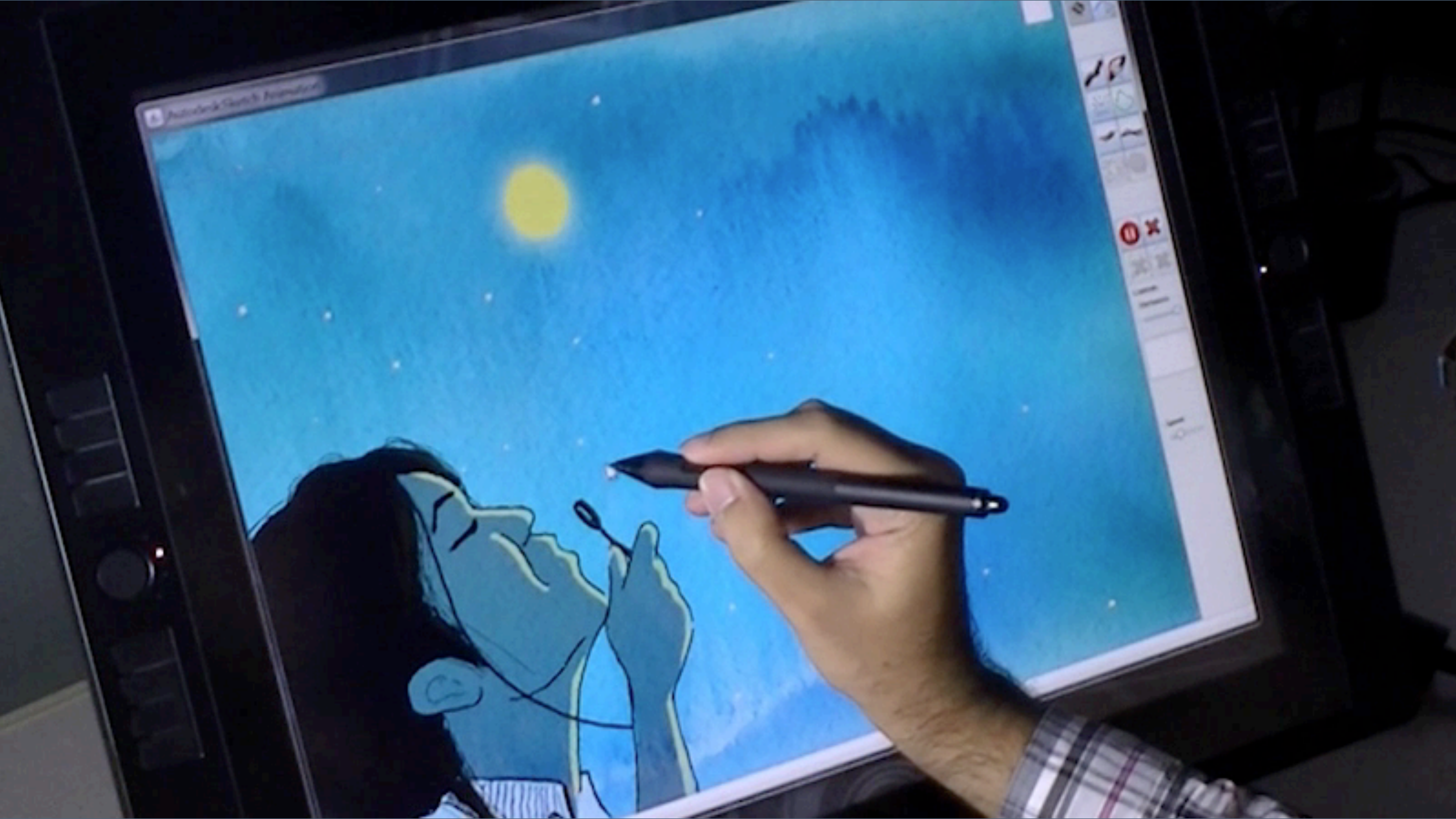
[Bae, Balakrishnan, and Singh, UIST 2008]

1.5x Speed

YOU READ THIS

Draco: kinetic textures

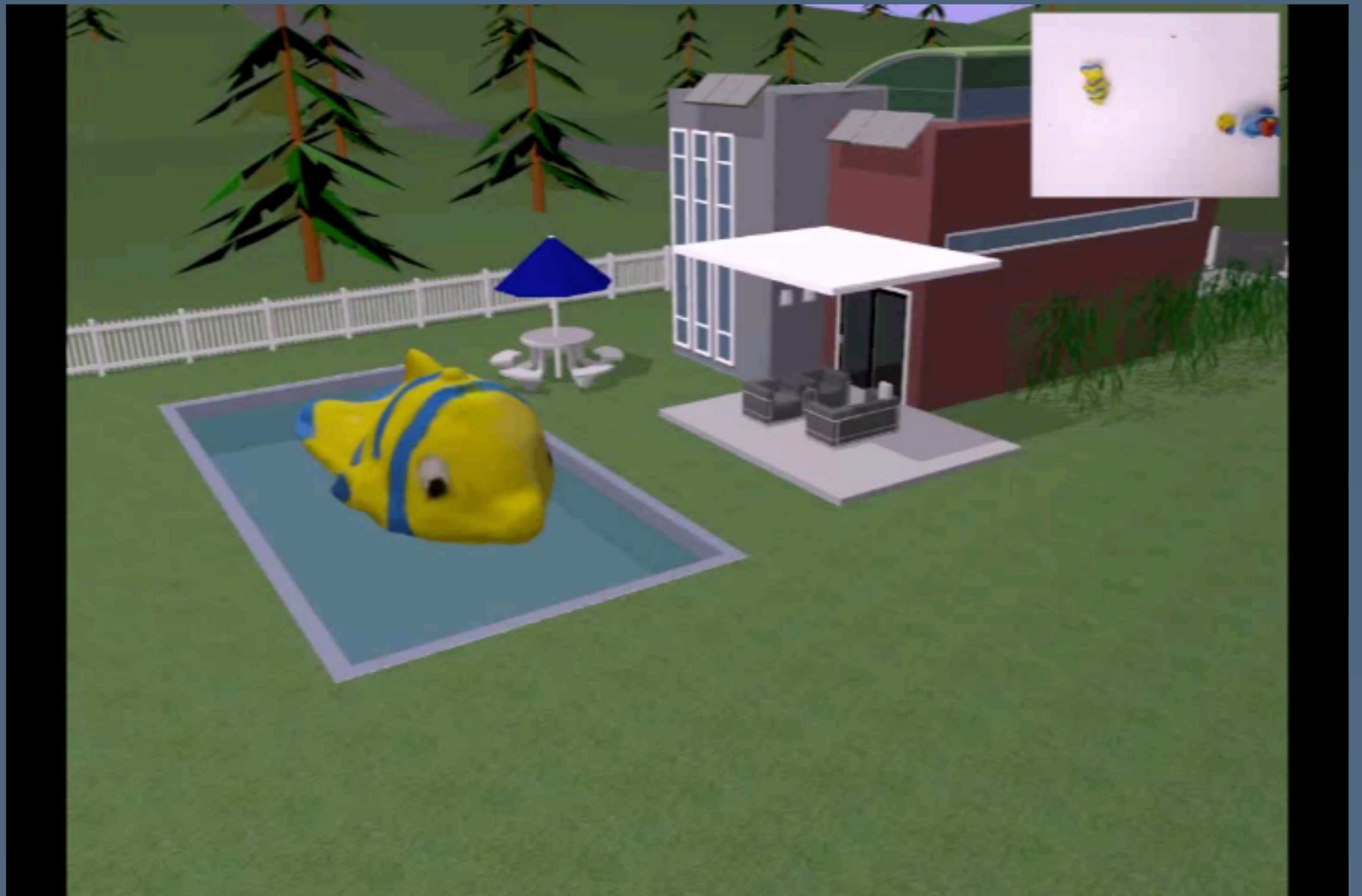
[Habib et al., CHI 2014]



3D puppetry

[Held et al., UIST '12]

- Kinect motion capture + texture capture = puppets



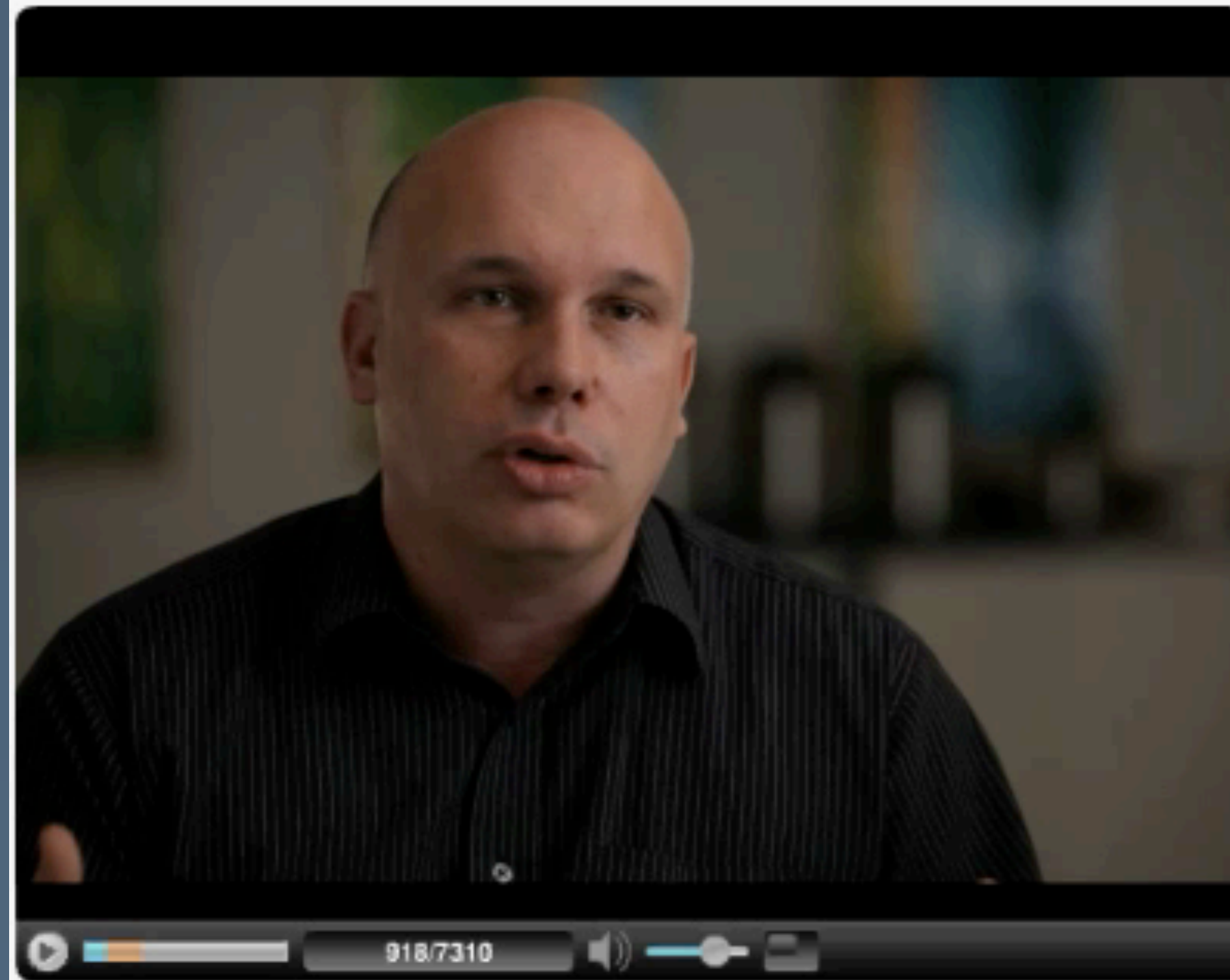
Musical underscoring

[Rubin et al., UIST '12]

The screenshot shows a software interface for musical underscoring. At the top, the title "Editor" is on the left, and "Composition name Great Expectations" is on the right. Below the title bar, there is a control panel with buttons for "Play", "Render", "Zoom(- +)", "Automate Underlay", and navigation arrows. A timeline at the top of the main workspace shows time markers from 00 to 01:05 in 5-second increments. A red vertical line indicates the current playhead position at 00:00. The main workspace contains a faint musical score with staves and notes. On the left side, there is a "Speech Library" panel with a list of audio files: "alice.wav", "great expectations.wav", and "sedaris.wav". A mouse cursor is hovering over "sedaris.wav". Above the library, there are radio buttons for "Tracks move" (selected), "Tracks clip", and a checkbox for "Mark lock". Below these is a "Status:" label.

Video

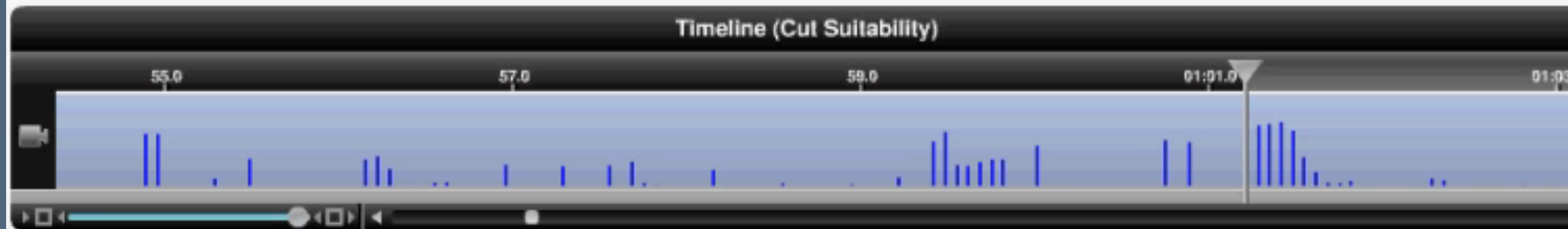
[Berthouzoz,
Li and Agrawala
SIGGRAPH '12]



Transcript View

MAN: Sure. **Um,** | some | of | our | customers, | that
have been working | in | the | print | for | **many,** | **many** |
years, | are | used | to be able to express their
ideas in, **uh,** very specific ways. **They, they**
are used to be able to control exactly what
goes **on, on** the page. They bring the story, |
they | bring the images, and they bring the
layout as well, which is a big part of making a |
story | **and, and** communicating that **story.** | And,
um with **the the** digital media and the
tablets that are used now to bring | **this** | content, |
uh, they've quickly | run | into some, | **uh,** |
limitations | with trying | to | express | the | same | thing |
with | the | HTML | and | CSS. So what we're trying

Load [] Cut Next Replay *



Our result

Video

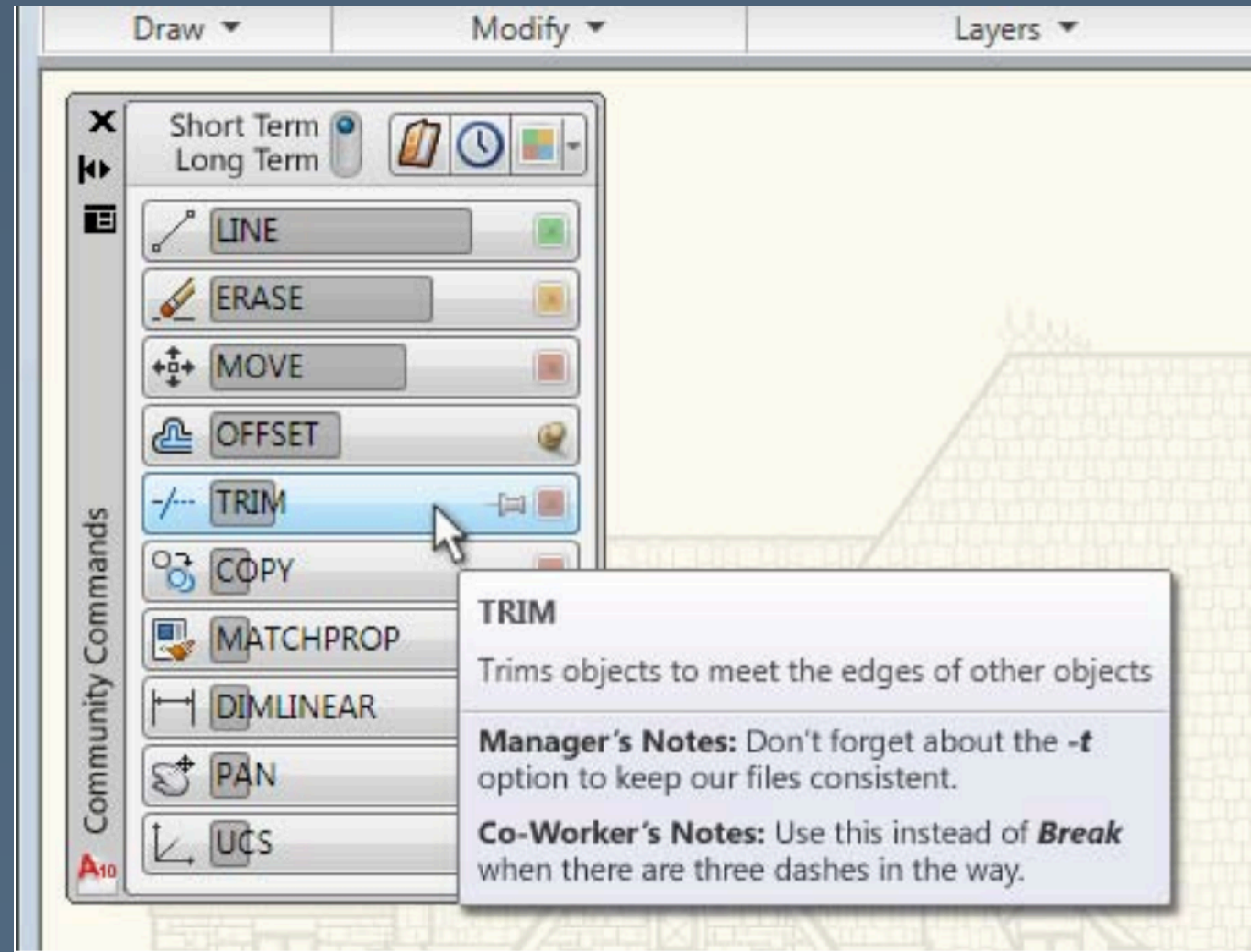
[Berthouzoz,
Li and Agrawala
SIGGRAPH '12]



Gaining Tool Expertise

- CommunityCommands [Matejka et al. 2009]

Applying collaborative filtering techniques to introduce new tools in Autodesk



Peer production

What is peer production?

[Benkler 2006]

- Self-organizing sets of individuals who create a common resource
 - YouTube
 - Etsy
- Also **commons-based** peer production, where there is explicit collaboration
 - Wikipedia
 - Reddit

Should we collaborate?

[Settles and Dow, CHI 2013]

- Regression predicting which pairs of February Album Writing Month users would collaborate on a song
- Keys: complementary skills, previous messaging (existing tie)

Path Variable	Coeff.
A ←follows— B	8.433
A —follows→ B	7.926
A ←messed— B	4.935
A —messed→ B	4.183
A —wrote→ 🎵 ←commented— B	4.160
A —commented→ 🎵 ←wrote— B	3.879
A ←follows— 👤 ←collabed→ 👤 —messed→ B	-0.434
A —follows→ 👤 ←collabed→ 👤 ←messed— B	-0.484
A —liked→ 🎵 ←liked— 👤 —liked→ 🎵 ←liked— B	-0.776
A ←follows— 👤 ←collabed→ 👤 ←messed— B	-1.334
A —liked→ 🎵 ←liked— B	-1.814
<i>(intercept)</i>	-3.707
A —wrote→ 🎵 —tag→ 🏷️ ←tag— 🎵 ←commented— B	0.868
A —commented→ 🎵 —tag→ 🏷️ ←tag— 🎵 ←wrote— B	0.504
A —wrote→ 🎵 —tag→ 🏷️ ←tag— 🎵 ←wrote— B	-0.388

The cost of collaboration

[Hill and Monroy-Hernández, 2013]

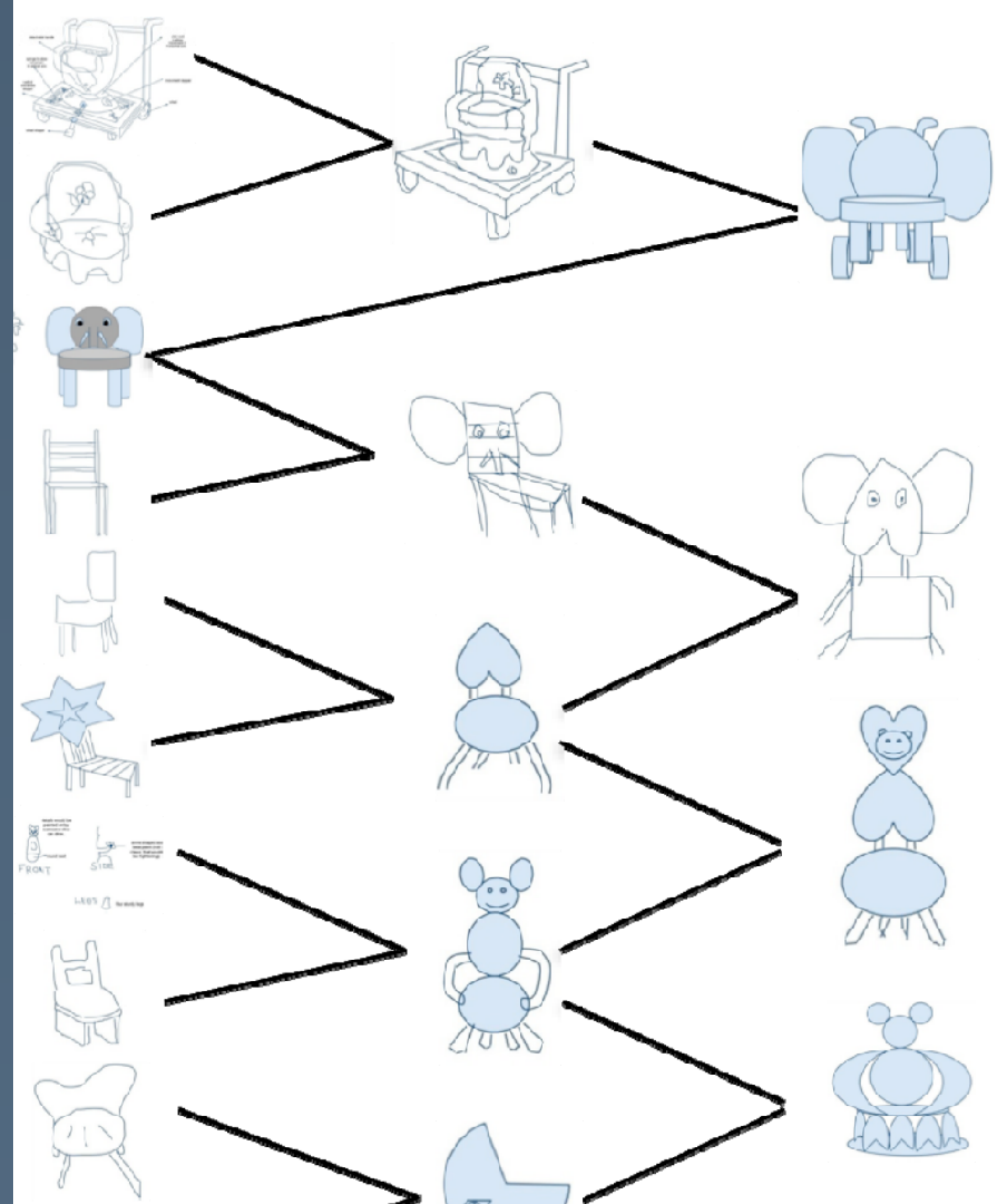
- Test common wisdom about creative collaboration
- Dependent variable: likes on the Scratch web site as a measure of quality
- Common wisdom: collaborations produce better results
 - On Scratch: remixes of prior projects got fewer likes
- Common wisdom: collaboration can improve functional items (e.g., code), not art (e.g., images, sounds)
 - On Scratch: remixes of code-heavy projects got more likes



Cooks or cobblers?

[Yu and Nickerson, CHI 2011]

- Can crowds be creative?
- 1047 workers collaborated in an iterative process of design, evaluation, and combination
- Genetic algorithm asks the crowd to recombine previous ideas



Mechanical Novel

[Kim et al., CSCW 2017]

- How might we enable crowds to achieve complex work such as writing short stories?
- Unlike most crowdsourcing workflows, creative work requires tight interconnections between different parts of a story, and between the high-level goal and low-level text

Reflect
choose a high-level goal



Revise
break into tasks and edit

Leadership

Redistributing leadership

[Luther, Fiesler and Bruckman CSCW 2013]

- Why do more than 80% of collaborations on Newgrounds fail?
- Theory: leaders are overburdened
- Solution: make it easier to *redistribute* leadership by decentralizing it and allowing leaders to give out responsibility



Poster evolution across many temporary leaders

Perils and opportunities

- Unlike other areas, these are extremely non-task oriented goals
- What perspective do you take?
 - Do you make existing creative actions easier?
 - Do you give people access to a palette of tools they didn't have?
 - Do you try to provide inspiration?

Project fair I