

# Design Process

Zhaowen Zou / Sean Hamilton

# Parallel Prototyping Leads to Better Design Results, More Divergence, and Increased Self-Efficacy

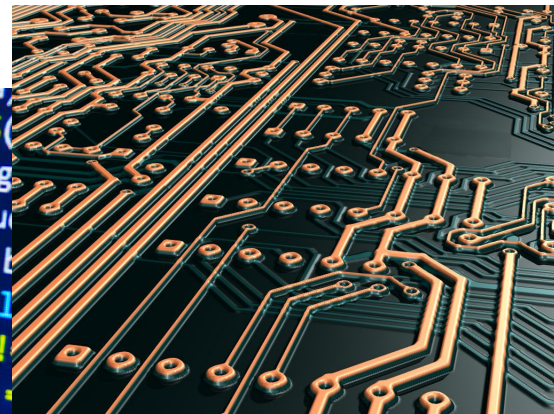
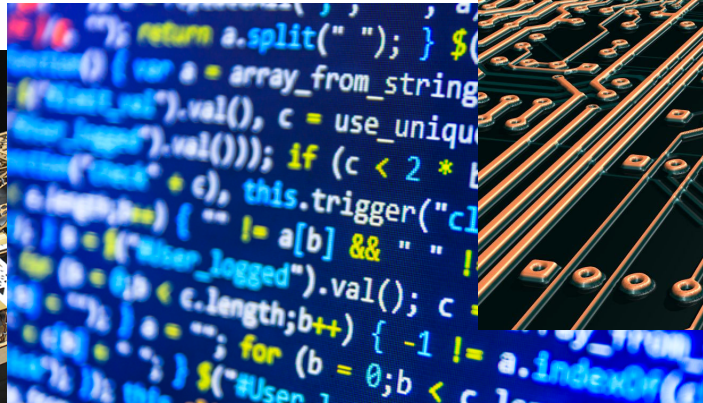
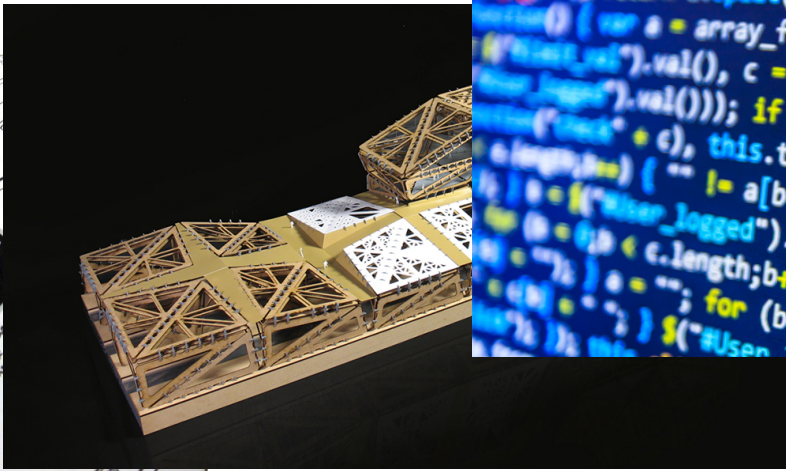
Zhaowen Zou

# Goals

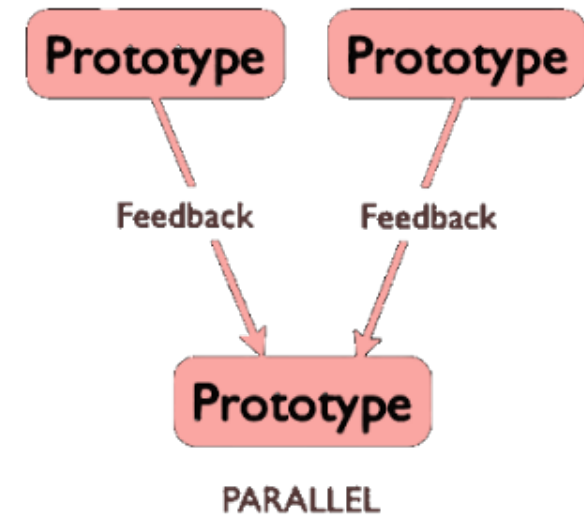
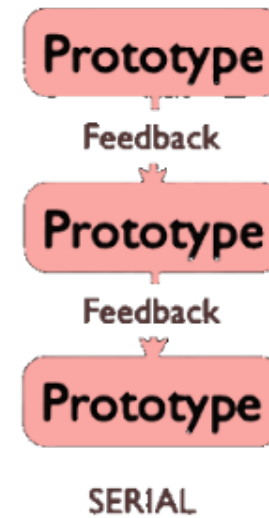
- Understand the how to raise hypothesis
- Understand and explore the measurements used to evaluate design work
- Explore the reason why parallel prototyping can produce better results than serial prototyping

# What is prototyping?

- A **prototype** is an early sample, model, or release of a product built to test a concept or process or to act as a thing to be replicated or learned from.



# Parallel vs. Serial Prototyping



# IDEO Shopping cart mockups



# Obama campaign website



# Hypothesis

- Feedback comparison and produces higher quality designs.
- More divergent concepts.
- Greater increase in design task-specific self-efficacy.



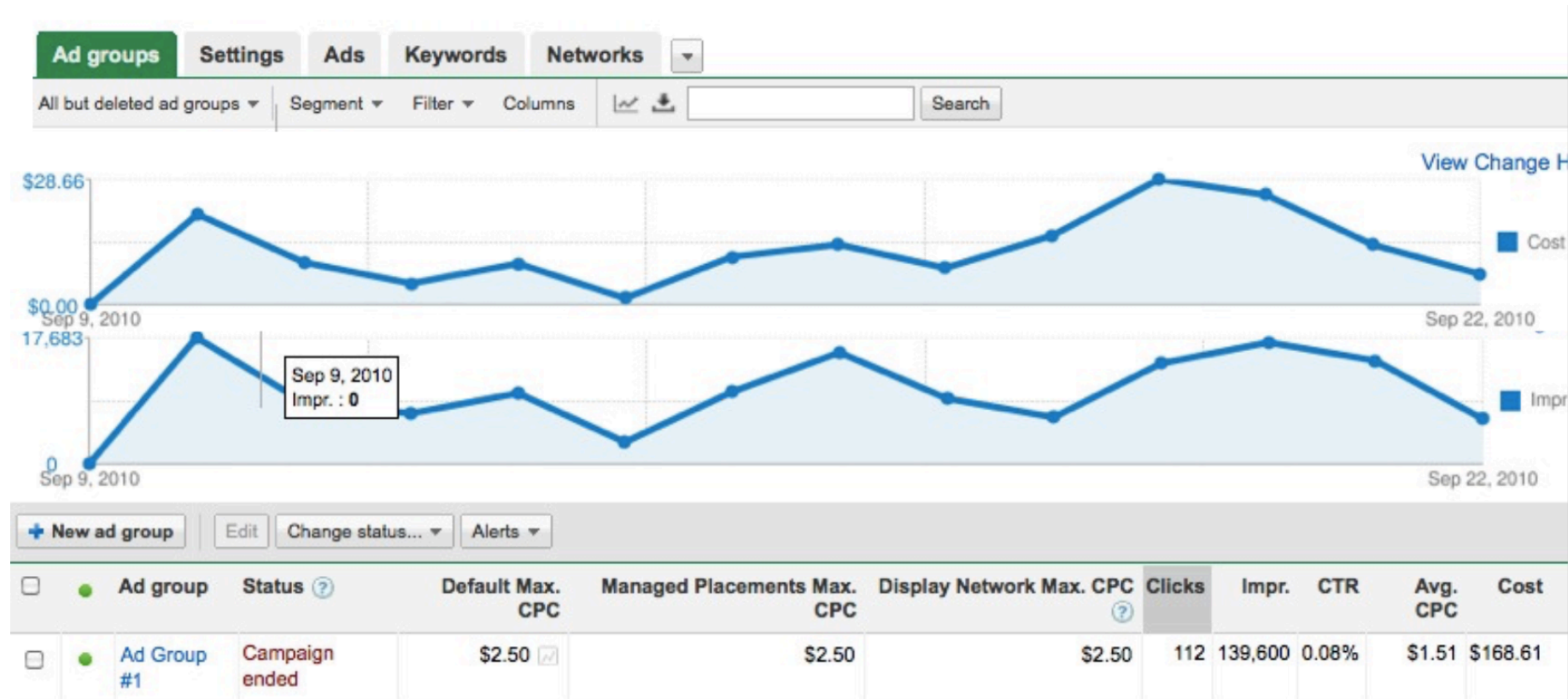
# Discussion

What is the hypothesis of your course project and where does it come from?

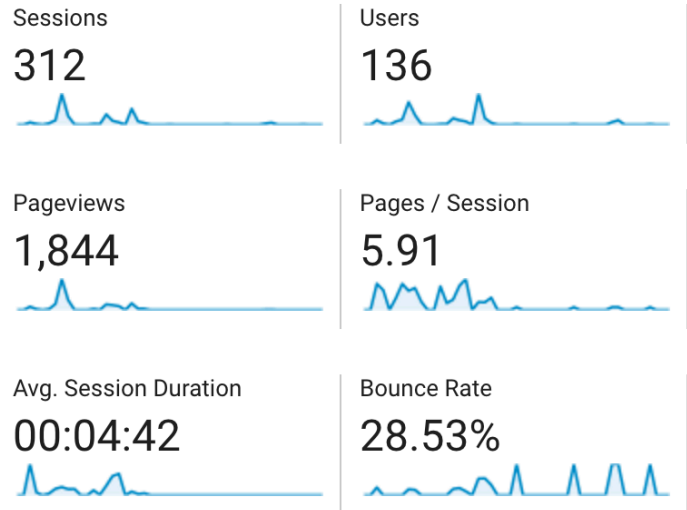
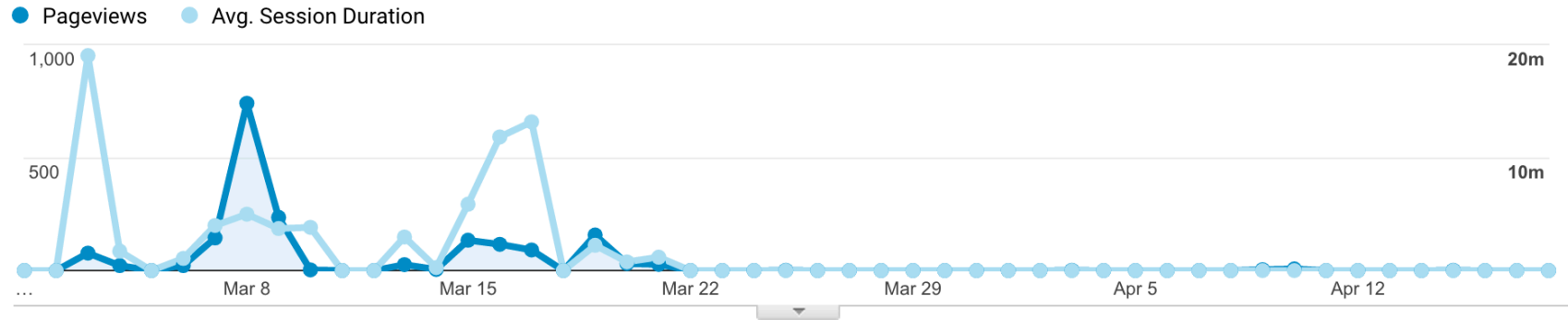
# Measurements

- Performance
  - Click through rates
  - Visitors, time spent and page visited on client Web site
  - Judged by magazine editors and ad professionals
- Divergence
  - Rates recruited from Mechanical Turk
  - Rate pairwise similarity on scale from 1 to 7
- Self-efficacy
  - Pre- and post-test questionnaires
  - Rate ability

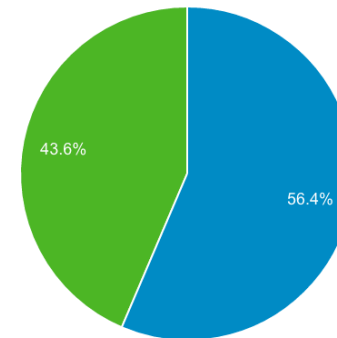
# Advertisement click-through



# Google Analytics



■ Returning Visitor ■ New Visitor



# Discussion

Do you think the evaluation of divergence is objective or subjective?

# From your commentaries...

- I think this is a subjective measure since there is no standardized criteria to quantify similarity. Raters evaluate the similarity for each prototype based on their own judgements. -- Xindi
- The measure of diversity ended up being objective in nature. -- Calvin
- Their measure of diversity was definitely subjective, but I believe that the authors tried (in their best ability) to make this measurement as objective as possible -- Ariana

# Discussion

Are the measurements of the performance of the ad (*CTR, Google Analytics measurements, editors and experts rating*) reasonable? Why?

# Discussion

What other measurements you can think of to evaluate the design of the ad banners?



# Can good design be measured?

- Think holistically
- Measure objectively
- Seek meaning
- Use multiple data sources
- Don't make it all or nothing

Pamela Pavliscak, Founder of Change Sciences

# Result

- Greater CTR
- More time spent on client website per visitor
- Higher rating from editors and experts
- Less similarity
- Designers gained more self-efficacy

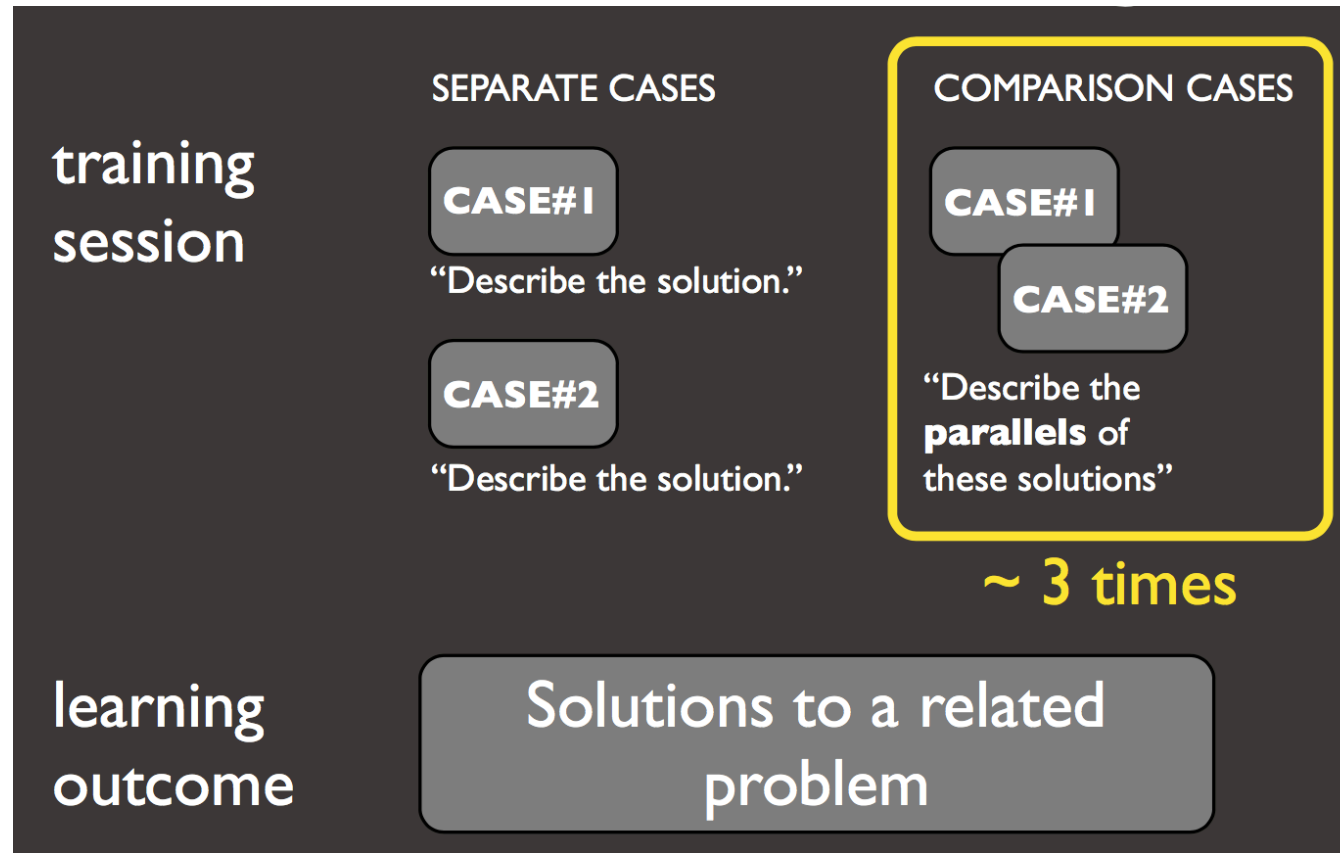
# Discussion

Why parallel prototyping outperforms serial prototyping?

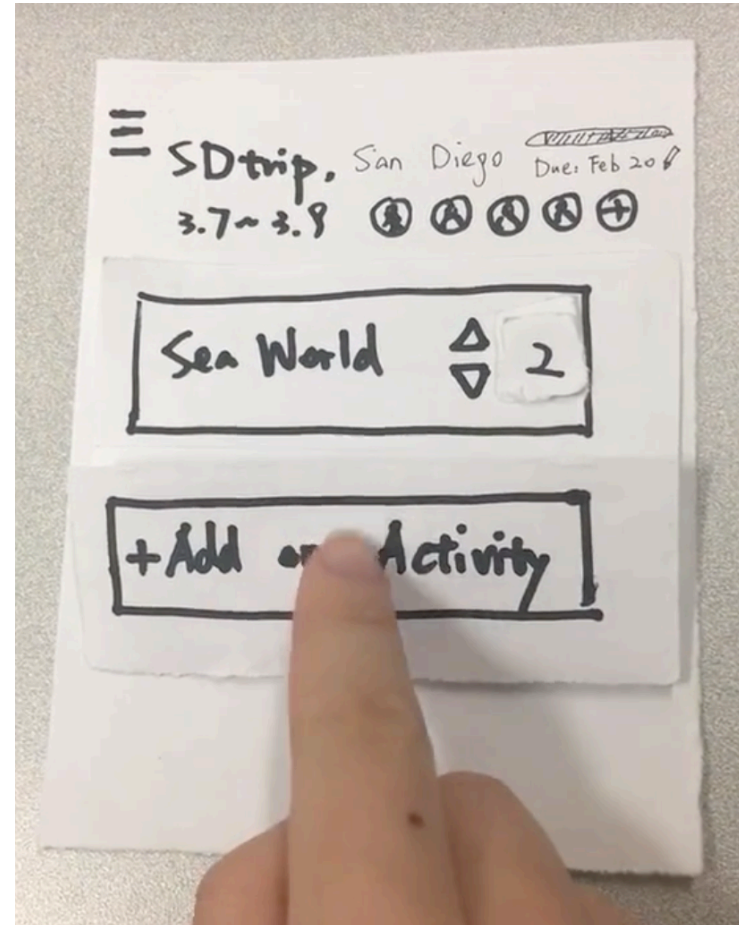
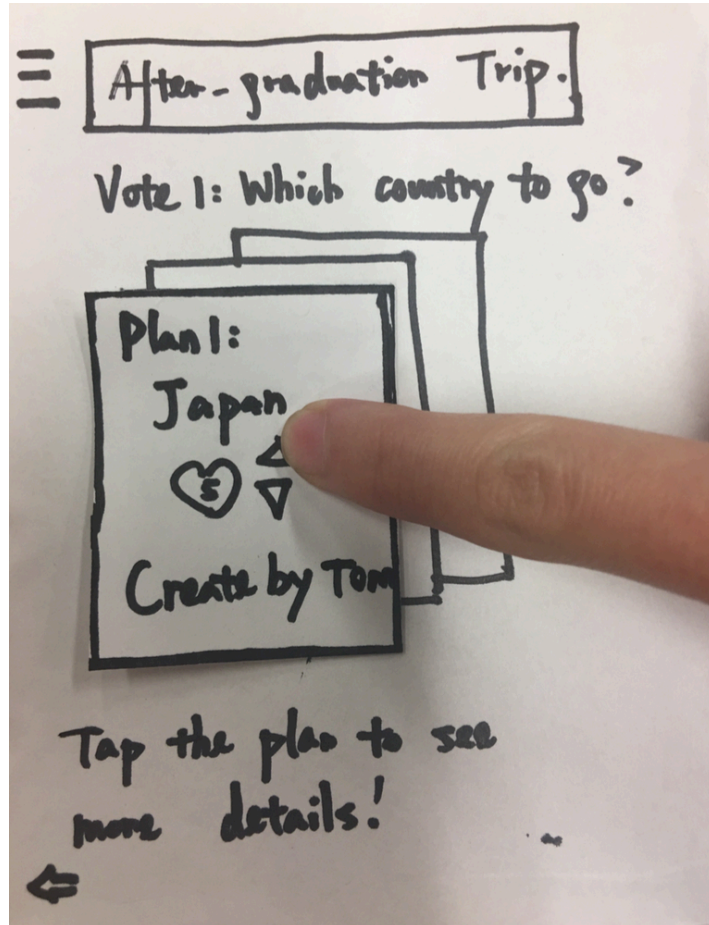
# Why parallel outperforms serial?

- Comparison helps learn design principles
- More generative thinking and reduces fixation
- Separate ego from artifact

# Insight in other domain



# Insight in education



# Experienced vs. Novice

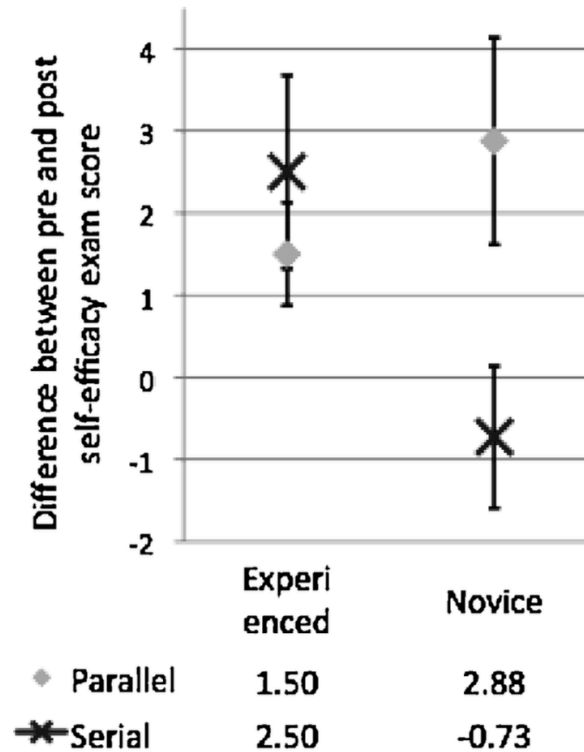


Fig. 10. Novice participants in the parallel condition reported an increase in self-efficacy from pre- to post-design task; self-efficacy for novices in serial decreased.

# Discussion

Why compare between experienced and novice designers?



# Discussion

What is an example when serial prototyping can outperform parallel prototyping?

# From your commentaries...

- On a similar note I also thought it was pretty cool how this problem aligns with the algorithm challenges that AI systems face in terms of exploration vs exploitation.  
-- Tushar
- For instance, software development usually follows an iteration of planning, implementation, testing and evaluation. This resembles serial prototyping and works well in software engineering. -- Xindi
- Having chosen an inherently 'creative' field such as web-ad design, instead of a more rigorous, mathematical field such as engineering design... -- Brahm

# Discussion

How can you apply the conclusion of the paper into the research project?

# Demo

[Google AdWords](#)

# Design-oriented Human—Computer Interaction

Sean Hamilton

# Goals

## Understand

- perspectives of design
- design-oriented research vs Research-oriented design
- design-oriented research in HCI

# Definitions

**Design**, *verb*: to create, fashion, execute, or construct according to plan : [devise](#), [contrive](#) *design* a system for tracking inventory (Merriam-Webster)

“To design, again not unlike carpentry, is to consciously aim to create and give form to previously nonexistent artifacts.”  
(Fallman)

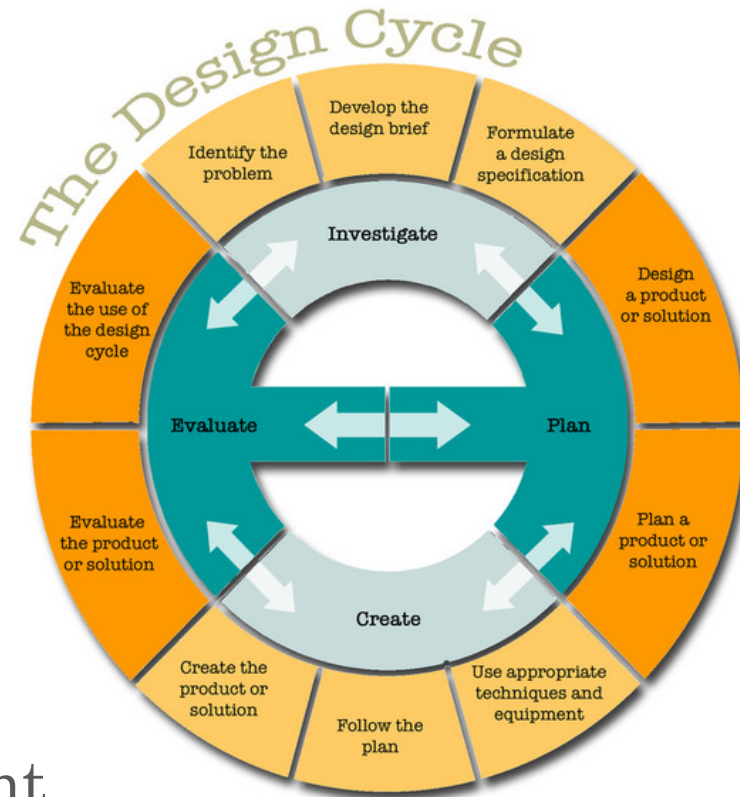
# Perspectives

**Conservative:** as a scientific or engineering endeavor

- Requirements driven
- Optimization
- Narrow-minded view of design

*Examples:*

- System and
- Software Engineering
- Commercial Product Development





# Perspectives

**Pragmatic:** design is a reaction to a context

- A Socratic process
- Conversation driven
- Non-linear progression
- Iterative

*Examples:*

Design by whiteboard

Sketching

# Perspectives

**Romantic:** “imaginative masterminds equipped with almost magical abilities of creation”

- An ideal approach, not realistic
- Not really for the real-world

## *Examples*

- A marketer's Design process
- Design method of a company named after a fruit, perhaps?

# Discussion

Are these three perspectives of design all-encompassing? Can you think of any more views that are orthogonal to those Fallman outlines?

# Discussion

Are the conservative and pragmatic views even orthogonal to one another?

# Design-Oriented Research

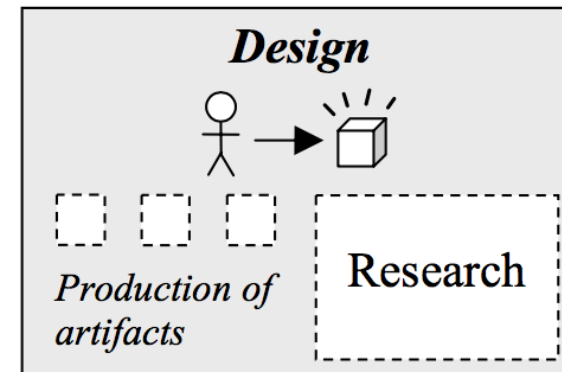
- Contributes truth or knowledge to a field of study
- Prototype or model required to obtain the outcome of the research

*Examples:*

Looking back on the papers we studied, I see how many of them (such as the MIT Media Lab work, and Skinput) can be categorized as design-oriented research.

- *Gabriel Ibagon*

An example of this kind of research is the Foldit game discussed before where the game is actually a means to study complex protein structures. -*Tahereh Masoumi*



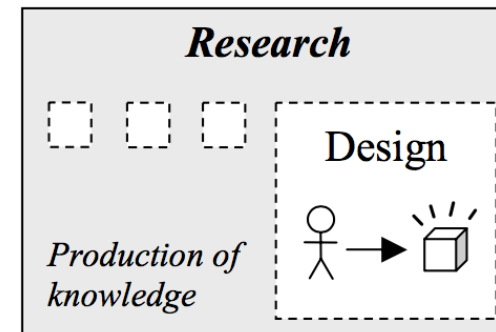
# Research-Oriented Design

- Provides an artifact that is a solution to a problem
- Research used ...
  - to better understand the problem, i.e. analysis phase of design
  - in synthesizing the parts of a solution
  - evaluating a solution

## *Examples:*

"Design a user interface that could improve users' efficiency when searching." - *Enhao Cui*

"Industry research efforts can be thought of as an example research-oriented design, because the motivation is the evolution of a solution to address a problem" - *Kandarp Khandwala*



# Discussion

Are design and research really different activities? Or are they like how the electric and magnetic forces are the same phenomenon observed from different contexts?

# HCI Research

HCI is distinct from natural or social sciences: its methodology is based in design

Rarely can interaction with a computer be studied without a prototype design



**Fin**