

# CS 352

# Introduction to Usability Engineering

Foundations & Strategies  
Attention Investment

# Attention Investment

- How users behave in problem-solving situations
- Deals with “deeper” problem-solving
  - Not how a user finds the right button given the goals/subgoals we wish he/she had
- One example of “deep” problem-solving:
  - Programming

# Attention Investment (cont)

- In getting things done, **attention** (not information) is a scarce resource
- **Cost** is in attention units (i.e. time)
  - Some costs are **investments**, with (hopefully) **payoff** of reduced future cost of your work
  - Not all costs are investments
    - Eg reading flash advertisements that appear while I'm doing something else
- **Risk**: probability that cost will be lost (i.e. no payoff)

# Attention Investment (cont)

- Based on attention units and probabilities:
  - (perceived) Cost = attention units to get work done
    - Investment: has a cost and potential reward
  - (perceived) Payoff = reduced future cost
    - There is also a reward for getting work done, but we have no units for this
  - (perceived) Risk = probability of no payoff, or a future cost imposed as a result

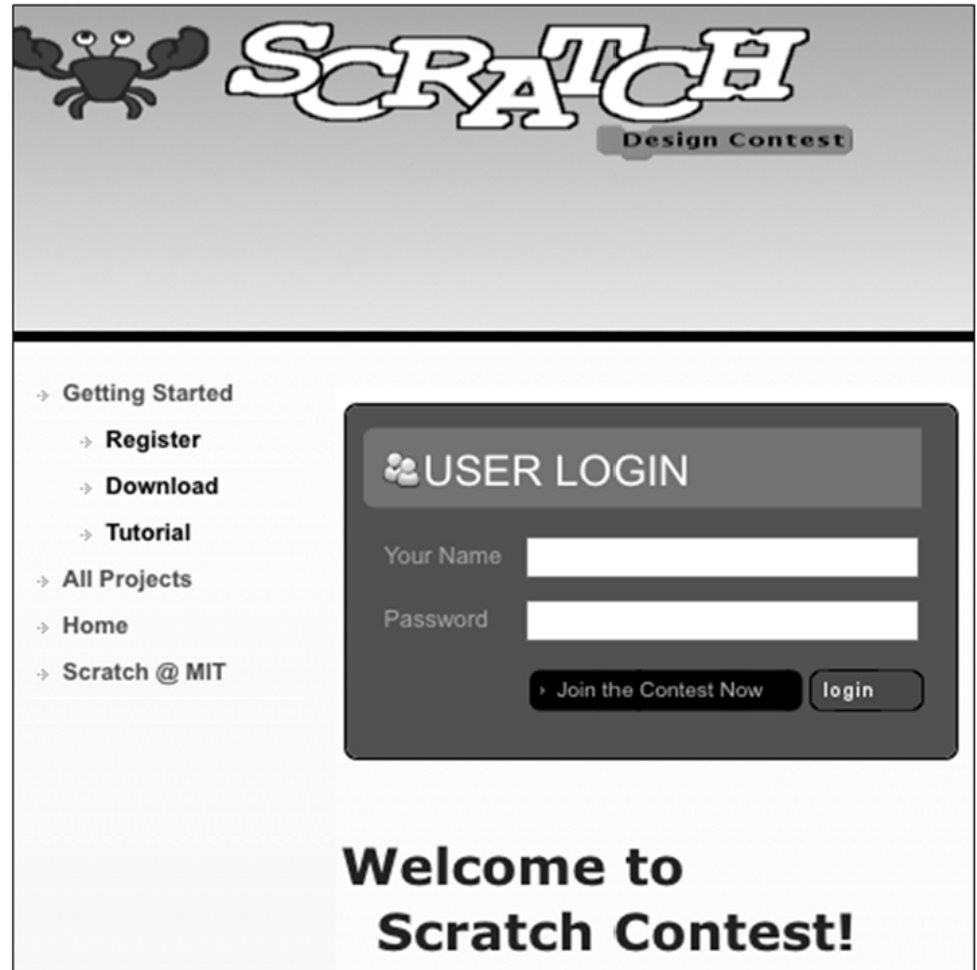
# Example #1

I am thinking of creating a spreadsheet

- This will **cost** me some **attention**
- This is an **investment** because there is a potential **payoff**:
  - Note the **units** of costs and payoffs
- There is a **risk** (probability) I'll get formulas wrong, costing future attention to fix.

# Example #2

- Early version of Scratch programming contest



The image shows a screenshot of the Scratch Design Contest website. At the top, there is a header with the Scratch logo (a crab) and the word "SCRATCH" in a stylized font, followed by "Design Contest" in a smaller font. Below the header, there is a navigation menu on the left with links: "Getting Started", "Register", "Download", "Tutorial", "All Projects", "Home", and "Scratch @ MIT". To the right of the navigation menu is a "USER LOGIN" form. The form has two input fields: "Your Name" and "Password". Below the "Password" field are two buttons: "Join the Contest Now" and "login". At the bottom of the page, there is a large text area that says "Welcome to Scratch Contest!"

SCRATCH Design Contest

→ Getting Started  
→ Register  
→ Download  
→ Tutorial  
→ All Projects  
→ Home  
→ Scratch @ MIT

USER LOGIN

Your Name

Password

Join the Contest Now login

Welcome to  
Scratch Contest!

## Example #2 (cont)

- Perceived amount of cost/investment (time)?
- Perceived payoff and/or external reward?
- Perceived risk (probability)?

# Example #2 (cont)

- Thought Experiment
- What would you change to improve the attention investment payoff?



# Conclusion:

## Attention Investment is...

- A way to understand user's action choices.
- A design-time mechanism for making informed design choices.
  - **Much cheaper than finding problems after building a system.**

# Activity

- In your team:
  - Use your prototype to walk through what a user would do to perform the task in your UI
  - At each step where a user has a choice list-
    - PERCEIVED cost of each choice
      - Is it an outright cost or an investment?
    - PERCEIVED payoff and/or external reward
    - PERCEIVED risk