

# Research Question and Solution Approach

10/14

# Feedback on motivation, claim

- Tighten, focus
- Be specific
- Logical flow
- Tell a story

# Related work and bibliography

Draft due next Wednesday, 10/19

~5-20 references

- Description of prior approaches

*“There has been a significant amount of work on controlling on-screen characters with input modalities such as body movement [], voice [], sketching[], and tangible interfaces [].”*

- How your approach is different, novel, better

*“However the use of handheld projectors to augment the immediate physical environment represents a largely different interaction scenario from fixed screen systems.”*

# Research question

- Focused question describing goals of research
  - Clear, focused, specific
  - Concise
  - Complex
- Example: [<http://writingcenter.gmu.edu/resources-template.php?id=59>]
  - **Unfocused:** *What is the effect on the environment from global warming?*
  - **Focused:** *How is glacial melting affecting penguins in the Arctic Circle?*

# Solution approach

- A plan for how to realize your proposed solution and test your hypothesis
  - Design
  - Implementation
  - Evaluation
- Goal: Answer your research question(s)

# Operationalization

## **operationalize**

*Define an abstract concept so it can be practically measured by empirical observations*

*“Previous studies have **operationalized** panic in terms of average time of group escape”*

*[<http://oxforddictionaries.com/definition/operationalize>]*

*[<http://en.wiktionary.org/wiki/operationalize>]*

# MotionBeam: Goals

A metaphor for character interaction with handheld projectors

Goals:

- Evaluate feasibility of approach (accuracy, latency)
  - Implement working prototype
- Explore application space
  - Design, implement applications
- Understand usability of system
  - Conduct user study

# MotionBeam: Questions, approach

1. Does the amount of projector movement and distortion make the screen difficult to watch?  
→ Measure difficulty of watching
2. How do users gesture with the device?  
→ Observe users' gestures, think-aloud
3. At what range do users interact? Why?  
→ Measure range
4. What are the participant's impressions?  
→ Ask participants
5. What future studies are needed?  
→ Analyze results to derive new questions

# Wherabouts Clock: Goals

- General goal:
  - Gain understanding of how location awareness is used in social groups
- Specific goal:
  - Gain understanding of how the Whereabouts Clock is used in families
    - Design and build working prototype
    - Conduct user study

# Whereabouts Clock: Questions, approach

- How did participants use the Clock?
  - Logging, interviews (diaries, surveys, observation)
- How did participants feel about being tracked?
  - Interview participants
- How did use of the Clock interleave with activities?
  - Interview participants
- What are the implications for design?
  - Ask participants for criticism, suggestions

# Structure of a research paper

- Introduction
- Background, related work
- Solution, implementation
- Methodology, evaluation
- Results
- Discussion
- Conclusion