

# Inside the Black Box of Tim Allen's Lab

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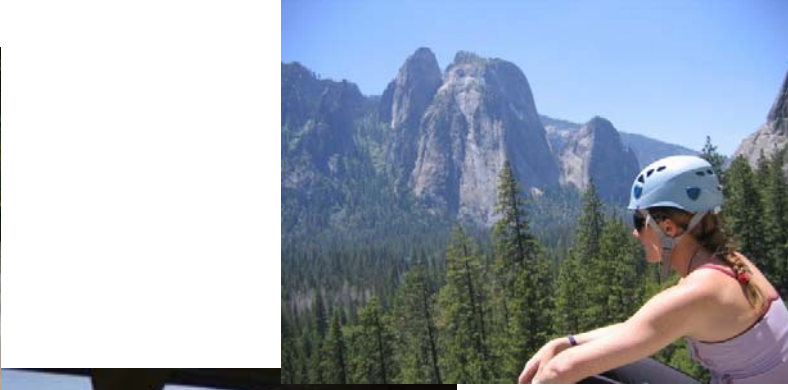
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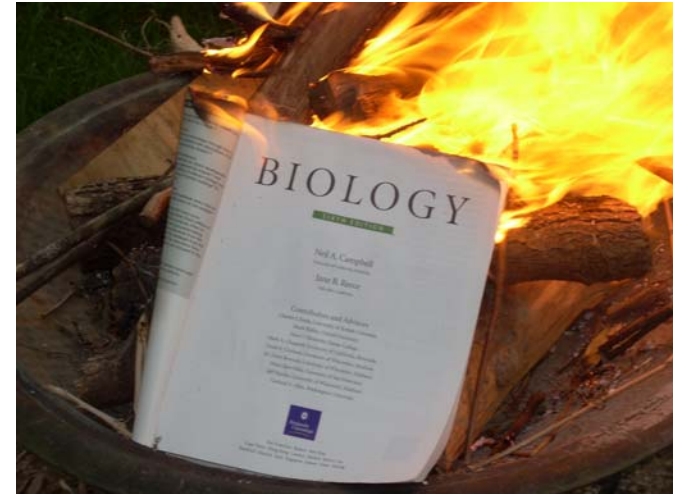
Nissa Enos



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# What's the Same When Everything's Different?

- Multiple disciplines
  - Each lab member has very specific areas of knowledge
- How does this work?
  - Conversations
    - At many scales
  - Sandbox
  - Conferences
  - Coursework
- Personal Relationships
  - Intellectual Vulnerability
    - Try out new ideas & applications
    - Flexibility in understanding



# Found an Interesting Phenomenon

- Problems are Complex
- Uncertainty
- Urgency
- Numerous Variables
- Organizing the Information
- Perspectives

# Identifying Common Themes

- Interdisciplinary Research:
  - Abstract the system to make decisions
  - Determine the focus
  - Bound the system- simplify the system
  - Model the system
  - Return to the material system
- Caution:
  - Understand the context of the tools
  - Conscious recognition of assumptions
  - Role of the Observer



# Research Question



- How can UPS design flexibility in the system, allowing adaptation to a changing context?
  - Investigated alternative fuels
- Why systems theory is necessary
  - Complex Problem
    - Uncertainty: changing context of resource acquisition
    - Lots of variables at multiple scales
    - Social values
- Alternative Fuels & UPS a Narrow Topic?
  - Multitude of replacement options & perspectives
  - Decision making process convoluted:
    - All alternative fuels have benefits and drawbacks
    - One choice doesn't outweigh another