

# Session 2: Dependability Assessment

Walt Heimerdinger

# Session 2 – Human Reliability Assessment Approaches (Harrison)

## Engineering

- Qualitative Decomposition  
Human as a system component
- Probabilistic  
Human Error Probabilities  
**X**  
Error Producing Conditions

## Cognitive

- Based on Cognitive Models
- Models immature
- Multiple levels
  - Automatic
  - rule-based
  - knowledge-based
- Norman's model
  - Perception -> action

## Session 2 – Human Reliability Tools and Techniques (Lots of Acronyms, LOA)

- HRA
- THEA
  - availability tool to represent work in context
  - Checklist to ask questions
  - Dyadic relations only
- THERP
  - actions
- HEART
  - generic tasks
- SLIM
  - expert panel
- CREAM
  - THEA + HEART
- CHLOE
  - collaborative issues
- GOMS

## Session 2 – Some Observations (Walt)

- Need to Factor Cognitive Space
  - How much information to present simultaneously
  - Are modes an attempt to control this?
- Modes can Cause Serious Problems
  - Mismatch between:
    - designer's model
    - user's model
    - real world
  - Cognitive burden
    - How much must the user remember
  - Navigation
    - Nested modes / submodes

# Session 2 – Validation of Human-Machine Partnership (Strigini)

## **Issues in Computer “Advisors”**

- “Do No Harm” Assumption
  - methodologically harmful
  - lack of prompts has an effect
  
- Diversity Desirable Goal
  - Machine should complement human
  - But machine can help even in similar cases
  
- Automation bias
  - Lack of prompts helpful