

# (A few) Top technical challenges (Roy Maxion)

- Scale
  - What, specifically, gets harder with scale, other than size - and why?
- Metrics and measurement
  - Devising / developing
  - Operational definitions, validation
- Data (maybe benchmarks)
  - Need ground-truth, calibrated data ... with meta-data
- Experimental methods
  - Not fully appreciated – report methodological details ... at your peril
  - Internal and external validity; merge theory and practice; repeatability
- Confidence in results
  - Assurance arguments
  - Arguments that anticipate failure
- Humans as system components
  - Performance-shaping factors, human error probabilities / reliabilities
- Interdisciplinarity
  - Cognitive science, statistics, ergonomics
- Education
  - It's a cultural issue
  - Need systematic approaches to problem solving
  - Get started; do at least something; don't shrink from rigorous standards