

Work Force Considerations in Automation

Human Factors

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How do human capabilities, limitations, and characteristics affect interactions with automation systems?



See Notes for References:

Aldelstein, et al., 2006
Bainbridge, 1983
Foroughi et al. 2023
Loft, et al. 2023.
Heatherly, Baker, Canfield, 2023
Parasuraman & Riley, 1997
Skitka, Mosier, & Burdjek, 1999

Human Factors in Automation

How do we mitigate known challenges in human-automation interactions?

- Over/Under Trust
- Skill Deterioration & Poor Recovery
- Detection Failure
- Loss of Situational Awareness

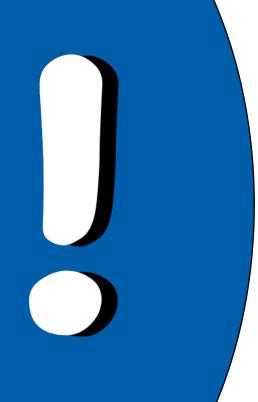


Mitigation...

Research suggests excellent hiring and top-notch training cannot fully overcome poor HF design.



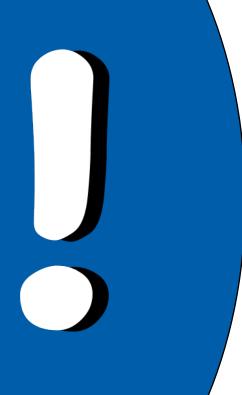
See Notes for References: Adelstein, et al., 2006 Bainbridge, 1983 Holden, 2009 Norman, D. 2013 Wickens, et al., 2004



Human Factors in Automation

Mitigation...Ask an SME

- Many Existing HF design principles related to automation.
 - Task fit, transparency, alerting, adaptiveness, skill practice, displays, etc.



Human Factors in Automation

Mitigation...Partner to Conduct HF Research

- Systematic,
- Human-centered,
- Upstream,
- Context-based.



Human Factors in Automation

Positive Outcomes of HF Design

- Improve safety
- Minimize errors
- Reduce learning time
- Reduce after-market work-arounds
- Increase user trust & buy-in

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