

# The Effect of Stress on the Decision to Rely on Automation



- Experiments will recruit and run approximately 100 participants each.
- Participants will be randomly assigned to a stress condition, either high or low stress.
- After stress induction, participants will then be asked to complete a repeated measures task in which they will have to decide whether or not to rely on automation.
- After the reliance measures are taken, objective and subjective measures of trust will be taken to assess whether they align with reliance.
- Throughout the experiments, measures of stress will be taken via saliva for cortisol, and wristband for heart-rate variability

- Current proposal is an extension of an existing line of CRUSER funded research with the goal of understanding the effect of stress on reliance decisions.
- Stress limits the amount of executive resources available to engage in deeper level, analytical thinking. This decline in executive resources leads to shift in decision making strategy. Reliance on automation is ultimately a decision.
- Does the decline in executive resources due to stress lead to shift in decisions related to reliance? How might this shift alter the relationship between trust and reliance? Additionally, how do various features of autonomy affect reliance decisions under stress?
- Research will be submitted to relevant journals

- Understanding the effect of various features of automation (e.g., transparency) on reliance decisions under stress will inform the design of automation in human-automation hybrid teams.
- The combined 3-experiment study will provide insight into reliance decisions when the human decision maker is under stress.
- This research effort will lay a strong foundation to start research human-automation hybrid teams with more complex and more applicable automation
- Assess the correlation of reliance and trust in automation under stress. Trust in automation is very important to ultimate reliance, however, the effect of stress on this relationship has been given very little attention.



FY19 Call for Proposals

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