Fiscal Year:	FY 2015	Task Last Updated:	FY 06/19/2015
PI Name:	Schreckenghost, Debra M.E.E.		
Project Title:	Quantifying and Developing Countermeasures for the Effect of Fatigue-Related Stressors on Automation Use and Trust During Robotic Supervisory Control		
Division Name:	Human Research		
Program/Discipline:			
Program/Discipline Element/Subdiscipline:	NSBRIHuman Factors and Perfor	mance Team	
Joint Agency Name:		TechPort:	Yes
Human Research Program Elements:	(1) HFBP:Human Factors & Behavioral Performance (IRP Rev H)		
Human Research Program Risks:	(1) HSIA:Risk of Adverse Outcomes Due to Inadequate Human Systems Integration Architecture		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
PI Email:	ghost@ieee.org	Fax:	FY
PI Organization Type:	INDUSTRY	Phone:	281-461-7886
Organization Name:	TRACLabs, Inc.		
PI Address 1:	1331 Gemini Street		
PI Address 2:	Suite 100		
PI Web Page:			
City:	Webster	State:	TX
Zip Code:	77058	<b>Congressional District:</b>	22
Comments:			
Project Type:	Ground	Solicitation / Funding Source:	2014-15 HERO NNJ14ZSA001N-Crew Health (FLAGSHIP & NSBRI)
Start Date:	06/01/2015	End Date:	05/31/2017
No. of Post Docs:		No. of PhD Degrees:	
No. of PhD Candidates:		No. of Master' Degrees:	
No. of Master's Candidates:		No. of Bachelor's Degrees:	
No. of Bachelor's Candidates:		Monitoring Center:	NSBRI
Contact Monitor:		<b>Contact Phone:</b>	
Contact Email:			
Flight Program:			
Flight Assignment:	NOTE: Period of performance char 5/31/15-5/30/17)Ed., 6/25/15	nged to 6/1/2015-5/31/2017 per N	SBRI (original period of performance was
Key Personnel Changes/Previous PI:			
COI Name (Institution):	Billman, Dorrit Ph.D. ( San Jose St Klerman, Elizabeth M.D., Ph.D. ( 1	tate University Research Foundat Brigham And Women's Hospital,	ion ) Inc. )
Grant/Contract No.:	NCC 9-58-HFP04201		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	<ul> <li>Sleep deprivation (SD) is a situational stressor experienced by most astronauts and many flight controllers. Astronauts on the International Space Station (ISS) must adapt to circadian misalignment and commonly report sleep issues during the mission; sleep aids are some of the most used medications in space. These issues will be exacerbated for longer duration exploration missions. ISS flight controllers must adapt to non-standard schedules and consequent insufficient sleep when working with international partners. Crew with SD is even more likely for missions with non-standard day length.</li> <li>Sleep deprivation degrades performance in several ways. Of particular concern is degradation of tasks that cannot be automatedspecifically requiring higher-level cognitive tasks that may be seriously impacted by SD. Our orposed research will quantify SD-associated impairments in human regulatory processes that provide flexibility, intentional search for relevant information, weighing and integrating information, and assessing merit of response.</li> <li>Sleep deprivation also may cause users to become complacent and inappropriately rely on automation. Thus it is important to assess the effects of SD on user trust in automation and what effect proposed countermeasures have on automation trust. Appropriate level of trust by an operator relics on assessing the relative competence of automation resus. Multiple factors therefore influence what appropriate trust would be for a specific context.</li> <li>Recent research on trust of robotic autonomy identifies a range of contributors to trust, including robot reliability and performance, robot competency, perceived risk, and user self-assessment of competency. Our proposed research will extend and contribute to this research os due to insufficient sleep.</li> <li>We propose to quantify the effect of sleep deprivation on multiple tasks involving human-automation-robotic (HAR) systems. We will develop measures and interventions for sleep deprived</li></ul>
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	
Task Progress:	New project for FY2015.
Bibliography Type:	Description: (Last Updated: 03/25/2025)