

<b>Fiscal Year:</b>	FY 2016	<b>Task Last Updated:</b>	FY 12/14/2016
<b>PI Name:</b>	Kozlowski, Steve Ph.D.		
<b>Project Title:</b>	Team Cohesion Monitoring Badge: Development of Galvanic Skin Resistance Modality		
<b>Division Name:</b>	Human Research		
<b>Program/Discipline:</b>			
<b>Program/Discipline--Element/Subdiscipline:</b>	HUMAN RESEARCH--Behavior and performance		
<b>Joint Agency Name:</b>	<b>TechPort:</b>	No	
<b>Human Research Program Elements:</b>	(1) <b>HFBP</b> :Human Factors & Behavioral Performance (IRP Rev H)		
<b>Human Research Program Risks:</b>	(1) <b>Team</b> :Risk of Performance and Behavioral Health Decrements Due to Inadequate Cooperation, Coordination, Communication, and Psychosocial Adaptation within a Team		
<b>Space Biology Element:</b>	None		
<b>Space Biology Cross-Element Discipline:</b>	None		
<b>Space Biology Special Category:</b>	None		
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<b>Zip Code:</b>	33620	<b>Congressional District:</b>	12
<b>Comments:</b>	I moved from Michigan State University to the University of South Florida in August 2020.		
<b>Project Type:</b>	GROUND	<b>Solicitation / Funding Source:</b>	2015-16 HERO NNJ15ZSA001N-Crew Health (FLAGSHIP, NSBRI, OMNIBUS). Appendix A-Crew Health, Appendix B-NSBRI, Appendix C-Omnibus
<b>Start Date:</b>	08/25/2016	<b>End Date:</b>	08/24/2017
<b>No. of Post Docs:</b>		<b>No. of PhD Degrees:</b>	
<b>No. of PhD Candidates:</b>		<b>No. of Master' Degrees:</b>	
<b>No. of Master's Candidates:</b>		<b>No. of Bachelor's Degrees:</b>	
<b>No. of Bachelor's Candidates:</b>		<b>Monitoring Center:</b>	NASA JSC
<b>Contact Monitor:</b>	Williams, Thomas	<b>Contact Phone:</b>	281-483-8773
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<b>Flight Program:</b>			
<b>Flight Assignment:</b>	NOTE: Element change to Human Factors & Behavioral Performance; previously Behavioral Health & Performance (Ed., 1/18/17)		
<b>Key Personnel Changes/Previous PI:</b>			
<b>COI Name (Institution):</b>	Biswas, Subir Ph.D. ( Michigan State University ) Chang, Chu-Hsiang Ph.D. ( Michigan State University )		
<b>Grant/Contract No.:</b>	NNX16AR52G		
<b>Performance Goal No.:</b>			
<b>Performance Goal Text:</b>			

Task Description:	<p>This proposal is for ground-based, technology development research designed to address: PRD (Program Requirements Document) Risk: Risk of Performance Decrements Due to Inadequate Cooperation, Coordination, Communication, and Psychosocial Adaptation within a Team.</p> <p>IRP (Integrated Research Program) Gap – Team2: We need to identify a set of validated measures, based on the key indicators of team function, to effectively monitor and measure team health and performance fluctuations during autonomous, long duration, and/or distance exploration missions.</p> <p>Research Plan: Our current research (NNX13AM77G) is developing a technology system that is designed to unobtrusively measure and support team collaboration and cohesion. One key component of the system is a monitoring badge – a wearable body sensor array – that is designed to assess the frequency, duration, and quality of collaborative interactions between team members as they work together to accomplish team tasks, as well as physiological metrics (i.e., heart rate [HR]; heart rate variability [HRV]).</p>
	<p>In prior research, we have evaluated the high frequency interaction data streamed by the badges, which are highly reliable and valid. In addition, we have promising experimental evidence indicating that positive and negative affective reactions to specific team member interactions can be predicted from the HR and HRV data streams. Although promising, we believe it is critical to add an additional sensor – galvanic skin response (GSR) – to the current sensor array to improve reliable detection of crew anomalies using badge data streams.</p> <p>Specific Aims and Deliverables: The purpose of this proposal is to extend technology development of the monitoring sensor system. The proposed work has been developed in consultation with the Element Senior Scientist responsible for our current NASA research. Specifically, the proposed research will (1) extend technology development of the sensor platform to integrate a GSR sensor, develop relevant software, and redesign the badge casework, and (2) validate the utility of the GSR sensor to improve discrimination of positive and negative affective states.</p>
	Rationale for HRP Directed Research:
	Research Impact/Earth Benefits:
	Task Progress: New project for FY2016.
Bibliography Type:	Description: (Last Updated: 07/05/2023)