

Fiscal Year:	FY 2012	Task Last Updated:	FY 11/17/2011
PI Name:	Miller, Christopher Ph.D.		
Project Title:	AD ASTRA: Automated Detection of Attitudes and States through Transaction Recordings Analysis		
Division Name:	Human Research		
Program/Discipline:	HUMAN RESEARCH		
Program/Discipline--Element/Subdiscipline:	HUMAN RESEARCH--Behavior and performance		
Joint Agency Name:	TechPort:	No	
Human Research Program Elements:	(1) BHP :Behavioral Health & Performance (archival in 2017)		
Human Research Program Risks:	(1) BMed :Risk of Adverse Cognitive or Behavioral Conditions and Psychiatric Disorders (2) Team :Risk of Performance and Behavioral Health Decrements Due to Inadequate Cooperation, Coordination, Communication, and Psychosocial Adaptation within a Team		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
PI Email:	cmiller@sift.info	Fax:	FY
PI Organization Type:	INDUSTRY	Phone:	612-716-4015
Organization Name:	Smart Information Flow Technologies, LLC		
PI Address 1:	211 N 1st St, Suite 300		
PI Address 2:			
PI Web Page:			
City:	Minneapolis	State:	MN
Zip Code:	55401-1480	Congressional District:	5
Comments:			
Project Type:	GROUND	Solicitation / Funding Source:	2010 Crew Health NNJ10ZSA003N
Start Date:	11/01/2011	End Date:	10/31/2014
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: NASA JSC		
Contact Monitor:	Leveton, Lauren	Contact Phone:	
Contact Email:	lauren.b.leveton@nasa5.gov		
Flight Program:			
Flight Assignment:			
Key Personnel Changes/Previous PI:			
COI Name (Institution):	Wu, Peggy (Smart Information Flow Technologies, LLC)		
Grant/Contract No.:	NNX12AB40G		
Performance Goal No.:			
Performance Goal Text:			
Task Description:	Long duration missions present unique challenges to the behavioral health of astronauts. Factors such as lack of team coherence, workload, social monotony, access to family and psychosocial support, and interpersonal and cultural differences can affect both crew welfare and task performance. Metrics and methods for assessing these factors are difficult to obtain because some are inherently qualitative, while others may not be amendable to self reports. Since these factors are affected, even largely the product of, interpersonal communication, it is not surprising that interpersonal communications are our primary key to them. There are already rich sources of interpersonal communication data--both intra-crew and between flight crew and ground-- which are created and archived during International Space Station (ISS) missions. Recent research suggests that verbal and non-verbal communications can be automatically processed in a variety of ways to provide insight into team cohesion, affective and cognitive states and team performance. We		

Task Description:		propose to leverage prior work of our own and of others in cultural and socio-linguistic theory to develop standardized, non-intrusive and largely automated methods for data collection and knowledge extraction about factors salient to crew psychosocial well being from existing communications data streams. We will propose candidate assessment techniques for relevant team coherence and performance factors, develop them for ISS operations and then test, tune and validate them in a series of experiments involving first ground-based archival data but culminating in an ISS Flight Definition study. The assessment technologies created will enable the identification and tracking of serious threats to individual and group behavioral health and task performance, providing empirical data with which countermeasures and training and crew selection approaches can be systematically created.
Rationale for HRP Directed Research:		
Research Impact/Earth Benefits:		
Task Progress:	New project for FY2012.	
Bibliography Type:	Description: (Last Updated: 12/08/2015)	