

Fiscal Year:	FY 2009	Task Last Updated:	FY 07/23/2009
PI Name:	Sebok, Angelia M.S.		
Project Title:	Space Human Factors and Habitability MIDAS-FAST: Development and Validation of a Tool to Support Function Allocation		
Division Name:	Human Research		
Program/Discipline:	HUMAN RESEARCH		
Program/Discipline--Element/Subdiscipline:	HUMAN RESEARCH--Space Human Factors Engineering		
Joint Agency Name:	TechPort:	Yes	
Human Research Program Elements:	(1) SHFH :Space Human Factors & Habitability (archival in 2017)		
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		
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Zip Code:	80301-2560	Congressional District:	2
Comments:			
Project Type:	GROUND	Solicitation / Funding Source:	2008 Crew Health NNJ08ZSA002N
Start Date:	09/01/2009	End Date:	08/31/2012
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		
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Flight Program:			
Flight Assignment:			
Key Personnel Changes/Previous PI:			
COI Name (Institution):	Sarter, Nadine (University of Michigan) Gore, Brian (San Jose State University Research Foundation)		
Grant/Contract No.:	NNX09AM81G		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	<p>This proposal describes a plan to develop and validate a computer-based tool to allow researchers to evaluate various function allocation strategies in space missions. The purpose of this tool is to enable researchers to evaluate novel human-automation systems early in the design process. The tool will leverage the Man-Machine Integration Design and Analysis System (MIDAS, developed for NASA Ames), and provide the MIDAS-FAST (Function Allocation Simulation Tool). In this project, the team will develop a research-based module of human-automation interaction. The team will develop human performance models of scenarios of interest. These models will be based on task analyses performed in cooperation with subject matter experts (SMEs). Various validation studies will be performed throughout this project. The team will validate the task analyses by talk-through sessions with SMEs. Human performance model and human-automation interaction module predictions will be validated in empirical, human-in-the-loop studies. Results of the validations will be used to refine the models. One particular focus of the project is on developing a prototype tool that is both usable and useful for researchers, allowing them to easily modify scenarios and evaluate different potential automation conditions. This tool will provide for data entry screens that guide the user through the process of building a scenario. It will allow the researchers to specify numerous relevant factors, e.g., operators, tasks, environmental conditions, and function allocation strategy. It will offer a visualization capability that provides a virtual video of the scenario, showing operators interacting with equipment and each other. The output of the model run will include, in addition to the video file, parameters of interest such as situation awareness, workload, time to initiate tasks, time to complete tasks, and task accuracy.</p>
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	
Task Progress:	New project for FY2009.
Bibliography Type:	Description: (Last Updated: 09/07/2020)