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| Human Research Program Riskie() HSLA: Risk of Adverse Outcomes Due to Inadequate Human Systems: paration ArchitectureSpace Biology SteinerNonSpace Biology Special CategoryNonePI Email:kmen feiphiliginethedulFax:PT Organization Type:UNIVERSITYPhone:40-00000000000000000000000000000000000 | Joint Agency Name: | | TechPort: | Yes |
| Space Biology Element: None Space Biology Cross-Element: None Space Biology Special Category: None Space Biology Special Category: Nome Pl Email: karen field/úgatech.edu Fax: FY Pl Email: Karen field/úgatech.edu Fax: FY Pl Organization Type: UNIVERSITY Phone: do4-385-7686 Organization Name: Georgia Institute of Technology UNIVERSITY Phone: do4-385-7686 Pl Address 1: School of Aerospace Engineering UNIVERSITY Phone: do4-385-7686 Pl Address 2: 207 Ferst Drive Congressional Distric: 5 Goments: Gosonal Ostary Gosonal Ostary Gosonal Distric: 5 Goments: Source: Appendix Acrew Health (PALAGSHIP) NSIBXI, ONNIBUSS. Project Type: Ground Solicitation / Fund Mis Bealth (PLAGSHIP) NSIBXI, ONNIBUSS. No. of Phot Desc: No. of Master' Degrees: No. of Master' Scandidates: No. of Master' Degrees: No. of Master' Degrees: No. of Master' Degrees: No. of Master' | Human Research Program Elements: | (1) HFBP:Human Factors & Behav | ioral Performance (IRP Rev H) | |
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| Discipline: " None Space Biology Special Category: None PI Email: Avern Gielp/Grantech.edu Fax: PI Canalization Type: UNIVERSITY Pho:: Organization Type: Georgia Institute of Technology 404-385-7686 Organization Name: Georgia Institute of Technology 404-385-7686 PI Address 1: Georgia Institute of Technology UNIVER STY PI Address 2: Color Aerospace Engineering US PI Meb Page: Stabol of Aerospace Engineering Georgia Institute of Technology PI Web Page: Stabol of Aerospace Engineering Georgia Institute of Technology Pi Modress 2: Q10 Fest Drive Georgia Institute of Technology City: Atlanta State: GA City: Atlanta State: GA Contaert S: Ground Solicitation / Fundig Bealth (FLACSBIR), NSBRI, ONNIBUS), Appendix Porpendix Porpendi | Space Biology Element: | None | | |
| Piemainkaren, feigh/@etech.eduFxFYPI Organization Type:UNIVERSITYPhone404-385-7686Organization Name:Georgia Institute of TechnologyUPI Address 1:School of Aerospace EngineeringUPI Address 2:270 Ferst DriveUPI Meb Page:StateGAZip Code:30332-0150Congressional DistriGAZip Code:30332-0150Congressional DistriSolicitation / FundingProject Type:GroundSolicitation / FundingNonebrack Solicitation / FundingSolicitation / SungSolicitation / FundingSolicitation / FundingSolicitation / FundingNo of Post Docs:IIIINo. of Post Docs:IIIINo. of PhD Candidates:INo. of Master' Degrees:INo. of Bachelor's Candidates:INo. of Master' Degrees:IFight Program:IIIIFight Program:IIIIFight Program:IIIIContact Email:Willams, Thomas govIIIFight Program:IIIIIFight Program:IIIIIContaret Email:IIIII (2005)IIIGroundMilams, Thomas govIIIIFight Program:IIIIIFight Program:IIII< | Space Biology Cross-Element Discipline: | None | | |
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| 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: Williams, Thomas Contact Email: thomas.j.will1@nasa.gov Flight Program: Image: I | Start Date: | 10/07/2016 | End Date: | 10/06/2019 |
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| No. of Bachelor's Candidates: Monitoring Center: NASA JSC Contact Monitor: Williams, Thomas Contact Phone: 281-483-8773 Contact Email: thomas.j.willi@nasa.gov Elight Program: Flight Program: | No. of PhD Candidates: | | No. of Master' Degrees: | |
| Contact Monitor: Williams, Thomas Contact Phone: 281-483-8773 Contact Email: thomas.j.willi@nasa.gov Flight Program: | No. of Master's Candidates: | | No. of Bachelor's Degrees: | |
| Contact Email: homas.j.will1@nasa.gov Flight Program: | No. of Bachelor's Candidates: | | Monitoring Center: | NASA JSC |
| Flight Program: Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Pritchett, Amy Sc.D. (Georgia Institute of Technology) Grant/Contract No.: NNX17AB08G Performance Goal No.: Vitable Sector | Contact Monitor: | Williams, Thomas | Contact Phone: | 281-483-8773 |
| Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Pritchett, Amy Sc.D. (Georgia Institute of Technology) Grant/Contract No.: NNX17AB08G Performance Goal No.: Vector Sector Sec | Contact Email: | thomas.j.will1@nasa.gov | | |
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| Performance Goal No.: | COI Name (Institution): | Pritchett, Amy Sc.D. (Georgia Ins | titute of Technology) | |
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| Task Description: | To develop effective Human-Automation/Robotic (HAR) systems, NASA requires the development of methods and tools to inform the decisions regarding function allocation between robots and crew members that are able to objectively assess the implications of the assignment of these roles for the human-system performance trade space. This research will establish a validated method for the evaluation of function allocation between robots and automated systems and their human crew mates for use in deep space exploration missions. It will further produce computational models of different possible combinations of a three person human crew and various classes of robots for a variety of tasks which can be used as-is for additional analysis or modified for future concepts of operation. The method for function allocation will apply fast-time simulation, which will be validated by ground-based human-in-the-loop experimentation. It may also include human-in-the-loop simulation in an analog environment. The proposed research addresses three main research questions: First, how should roles and responsibilities be optimally assigned to robots and humans based on a combination of task demads, robotic capabilities and available crew resources, with special attention to the capabilities inherent to classes of robots? Second, what is the human-robot system performance trade-space that serves as the basis for the allocation? Third, how can this function allocation method be validated as creating appropriate function allocation for both nominal and off-nominal operations? We will use a computational framework called Work Models that Compute (WMC), which allows us to model dynamical systems (such as space vehicles and robots, and dowing systems (such as the automated rendezvous and docking system) and human agents working together to achieve common goals. WMC was custom designed to model function allocation and to measure eight metrics of function allocation previously established by the proposers. In the second year we will explore the |
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| Rationale for HRP Directed Research: | |
| Research Impact/Earth Benefits: | |
| Task Progress: | New project for FY2017. |
| Bibliography Type: | Description: (Last Updated: 02/11/2021) |