



NASA SBIR 2011 Phase I Solicitation

X14 Behavioral Health and Performance

The Behavioral Health and Performance topic is interested in developing strategies, tools, and technologies to mitigate Behavioral Health and Performance risks. The Behavioral Health and Performance topic is seeking tools and technologies to prevent performance degradation, human errors, or failures during critical operations resulting from: fatigue or work overload; deterioration of morale and motivation; interpersonal conflicts or lack of team cohesion, coordination, and communication; team and individual decision-making; performance readiness factors (fatigue, cognition, and emotional readiness); and behavioral health disorders. For 2011, the Behavioral Health and Performance topic is interested in the following technologies: Virtual reality and world technologies for team training approaches.

Subtopics

X14.01 Virtual Reality and World Technologies for Team Training Approaches

Lead Center: JSC

This subtopic is to develop a virtual reality training environment to support pre-mission and just-in-time training for exploration crews and controllers. The training should encompass individual interactions with other team members as well as with the environment.

NASA wishes to identify how virtual reality and world technologies could be used to train crews and controllers on topics such as cross-cultural interactions, leadership, psychological support, and effective interactions with other team members or artificial intelligent agents while attempting to complete complicated, multi-agent (human or robotic) tasks.

The proposal should provide a framework describing:

- The virtual environment to be developed.

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- Platform in which training will be experienced.
 - How the training will allow the interaction with others (multi-player online or artificial intelligent agents), specific suggestions as to how to evaluate the training module's effectiveness and prediction of team performance and other important team outcomes and an assessment to determine the feasibility of the proposed training modules in the technical skill domains.

NASA Deliverables: Phase I deliverable should yield a proof of concept which includes both a literature review that encompasses an assessment of current knowledge of virtual reality technologies and its use in team training. In addition, the following deliverables will be required:

- A requirements document for such a training module.
- An evaluation plan for assessing the effectiveness of the training module on team outcomes.

The subsequent Phase II deliverable would provide a prototype of specific training modules that can demonstrate improved team performance (including task performance metrics) by utilizing these training technologies.