

Cognitive Assistant

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Development of Cognitive Assistant to Support Human Problem-Solving on Aerospace Missions

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On proposed deep space missions, crews will not have access to real-time ground support. Therefore, spaceflight systems and procedures will rely much more on real-time decision making by the space crews, and likely they will have to rely on more automation. But the design of this automation must not only support flight functions but also the cognitive functions of astronauts. Space crews have a bank of procedures to cope with normal and non-normal events. But it is not possible to anticipate all possible off-nominal events, and so space crew will likely face situations for which there are no procedures. This research project aims to develop a “cognitive assistant” module. The space crew should work with the module to cope with unanticipated events. The Cognitive Assistant system should be able to support the human problem-solving process by analyzing relevant procedures/protocols to develop guidance for the flight crew. The researchers will evaluate the fundamental functions of the prototype under different conditions by running participants.