THE DEVELOPMENT OF AN EXPERT SYSTEM FOR THE COMMAND AND CONTROL OF AN ORBITING SPACECRAFT

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ABSTRACT

The operation of a large spacecraft in Earth orbit containing many experiments controlled remotely from the ground is a difficult problem which requires a very interactive environment to be successful. Compound the problem by separating the scientist and engineers who designed and built the complex probe from any real time interactions with their orbiting instruments and a real dilemma emerges. How is a complicated space mission controlled, where possible failure of subsystems, or unpredictable effects in a dynamic, changing environment can risk the very success of the mission? This describes a space mission being designed for the late 1980's for which the speaker is the Mission Design and Operations Manager. A proposed solution is the subject of this talk: the development of an expert system for the command and control of a scientific spacecraft. The solution is described in the context of space mission previously flown and work in AI currently being done by the speaker.

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