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Using Continuous Planning Techniques to Coordinate Multiple Rovers

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Abstract

This paper describes a dynamic planning system for coordinating multiple rovers in collecting planetary surface data. A distributed planning system is shown to generate rover plans for achieving science goals, coordinate activities among rovers, monitor plan execution, and perform re-planning when necessary. Specifically, we describe how rover command generation can be automated to help relieve some of the burden on human operators. We describe the issues inherent in planning for a distributed set of rovers and discuss how these issues can be addressed in a dynamic and uncertain environment. Finally, we describe a prototype system for automatically generating low-level commands and monitoring their execution for a team of rovers with the overall goal of achieving a set of geology-related science requests.

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