

# Using Games for Improved Diagnosis in Trustworthy Design of Autonomic Systems \*

Tiziana Margaria, Christian Wagner, Marco Bakera  
Chair Service and Software Engineering  
University of Potsdam, Germany  
margaria, wagner, bakera@cs.uni-potsdam.de

The GEAR game-based model checker has been used successfully to investigate properties of space systems that must function largely autonomously in inhospitable and far away environments, like the ESA ExoMars Rover. In this paper we summarize the adoption of game-based verification technologies for the long-running Voyager II space mission – long-running in this case means more than thirty years. To this aim, we are currently enabling GEAR’s game-based verification techniques via systematic model extraction from a behavioral subset of a DSL for autonomous system specification.

---

\*This work has been partially supported by the European Union Specific Targeted Research Project *SHADOWS* (IST-2006-35157), exploring a *Self-Healing Approach to Designing cOmplex softWare Systems*.