Paper ID: 13384
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student

SPACE OPERATIONS SYMPOSIUM (B6)
New Operations Concepts and Commercial Space Operations (2)

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# AUTOMATIC PLANNING TECHNOLOGY OF AREOSPACE CONTROL MISSION

**Abstract**

Traditional plan operating mode bases on theoretical planIt arranges all events or actions to TTC swaths in terms of theoretical orbit of spacecraft and tracking prediction of ground stationsThis mode needs unchangeable requirements of aerospace controlotherwise will adjust theoretical planSo it is impossible to adjust theoretical plan frequently in the coming missionsTraditional plan operating mode can't meet the requirements very wellthey are mainly manifested in the following aspectscomplexity of flight systems and control modesthe need for flexibilitydistributed planning Howeverin recent yearssatellitesmanned spacelunar or deep space exploration and so on present some new characteristicsvarious functionsflexible deployments and complex combinationsThese traits need an automatic planning system to pick up speed of responseimprove efficiency of decisionoptimize procedure of controldeploy ground resources rationally and reduce risks of human factorfinallyachieve intelligent management of aerospaceThis paper indicates the application of AI technology in space domain We describe mission with PDDLPlanning Domain Definition LanguageIt includesobjectspredicatesfunctions and actionsObjectspredicates and functions express static characters of mission planningActions indicate Agents how to change mission statisticsA planning mission is made of two filesdomain.pddl and problem.pddlDomaim.pddl will define object typepredicate typefunction type and action modelProblem.pddl describes the set of objectsinitial and objective statistics of missionThen these two files are input conditions of Mission Automatic Planning SystemFinallywe achieve our plan and translate it to aerospace mission control planAt presentwe have tried to realize a planning problem with this method in Chang'e missiontelecontrol management of on-orbit aerocraftIt is a temporal planning problem with periodic tasksIn the futurewe will fulfill to perform science data downlink planning etc.