

IAF SPACE EXPLORATION SYMPOSIUM (A3)  
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## ROBOTICS IN SPACE: A REVIEW

**Abstract**

The paper deals with the developments in the applications of robots in the space sector. Robotics play a crucial role in space exploration and research. With the recent advancements in robotic technology, robots are now being used in a wide variety of space missions. From asteroid mining to planetary exploration, robotics is being used to explore and operate in some of the most extreme environments in the universe. Robotics' capacity to function in hostile environments where humans cannot live is one of the most important benefits of using them in space exploration. Robots can function in zero-gravity conditions, as well as in conditions of extreme heat, radiation, and pressure. This allows for much more research and experimentation than with human astronauts. Robots can also work for long periods without fatigue, making them ideal for precision and accuracy jobs. Robots can also act autonomously by making choices and taking actions. In order to effectively use robots in space exploration, several obstacles must be overcome. Earth-robot contact delay is a major issue. Robotic spacecraft are more expensive to deploy and maintain than human missions. Lastly, because they are still susceptible to mechanical issues and malfunctions, the dependability of robots in space is unclear. Despite these obstacles, robots are expected to play a bigger part in space travel in the future. This review paper will discuss the current state of robotics in space, the advantages and challenges associated with using robots in space exploration, and the potential applications of robotics in the future.