Paper ID: 57929
student

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Virtual Presentations - IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (VP)

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THE MONASH NOVA ROVER TEAM'S INVOLVEMENT IN THE UNIVERSITY ROVER CHALLENGE - BOOSTING YOUNG WOMEN INTO STEAM CAREERS

Abstract

The Monash Nova Rover team's approach to space and engineering education through involvement in the University Rover Challenge inspires and empowers undergraduates to pursue a wide range of careers including roles within the growing space economy. The competition requires each team to build a Mars rover which can complete various tasks, similar to that of a NASA rover. The four competition tasks completed at NASA's Mars Desert Research Station are: extreme retrieval and delivery; equipment servicing; autonomous; and science. There is a strict schedule for teams to follow which gives students structure. Prior to the field competition teams are required to submit several documents over a series of months. Each stage provides teams with milestones designed to give feedback and advice whilst also ensuring teams will be competition ready. Monash Nova Rover is divided into six sub-teams: robotic arm; chassis; electrical; operations; science; and software. The diverse nature of this competition has led students from a range of courses to participate including students studying Engineering, Commerce, Design, Information Technology, Medicine and Science with the majority studying Engineering. Monash Nova Rover is a pioneer group in working to address the underrepresentation of women in the STEAM fields. Only three years after its founding, the team is over 30 percent female, with female members participating in all six sub-teams. The team not only aims to empower women but also empower and support young girls with connections to the senior high school FIRST Robotics Competition program. Monash Nova Rover values sharing knowledge and community which fosters an environment in which students feel comfortable to ask questions as they gain knowledge and grow their experiences. The realistic project-based approach nurtures a passion for space and design within the students. The outreach which the Monash Nova Rover team undertakes, allows its' members to work with high school students to share their passion and engage more of the younger generation with space. This paper describes the experiences of a female undergraduate student and analyses the benefits of participating in the Monash Nova Rover team.