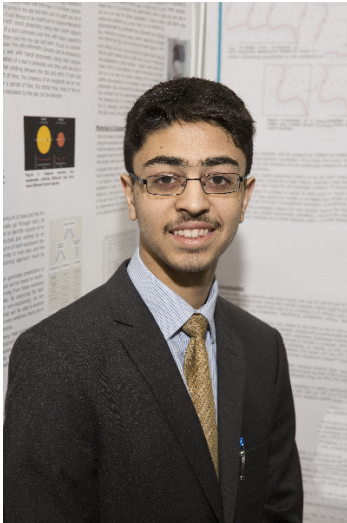


CWSF 2019 - Fredericton, New Brunswick



Ali Rizvi

Detecting Exoplanets Using Supervised Machine Learning

Challenge: Innovation

Category: Intermediate

Region: Regina

City: Regina, SK

School: Campbell Collegiate

Abstract: This project used machine learning to determine if data from NASA's Kepler Telescope contained exoplanets. Using previously archived data, a machine learning classifier to detect exoplanets using transit photometry was built using the support vector machine algorithm, and then validated on Kepler data. In the future, this classifier could be applied to unexamined Kepler data to discover previously undetected exoplanets.

Biography

My name is Ali Rizvi and I am a grade 10 student from Regina, Saskatchewan. I attend Campbell Collegiate and am actively involved in a variety of activities, including the badminton team. I also enjoy playing soccer and basketball, and I hold a 2nd Dan black belt in taekwondo. I have an interest in astronomical science and was inspired to do this project after learning about how the Kepler mission had concluded, yet there were still lots of undiscovered exoplanets present in the data. The goal of this project was to create an effective algorithm to detect the presence of exoplanets in data from the NASA Kepler Telescope, to help aid researchers in future discoveries. For any students looking to do a science fair project, my advice would be to choose a subject that you are interested in and then think critically about the problem before choosing a solution.

Awards

Value

Excellence in Astronomy Award - Intermediate Sponsor: Royal Astronomical Society of Canada	\$750
Excellence Award - Intermediate - Gold Medal Sponsor: Youth Science Canada	
Western University Scholarship Gold Medallist - \$4000 Entrance Scholarship Sponsor: Western University	\$4 000
Total	\$4 750