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EXPLORING NEW WORLDS: ADVANCES IN EXOPLANET DETECTION TECHNIQUES AND
MACHINE LEARNING ALGORITHMS

Abstract

The Exoplanet detection is the most exciting and challenging field of astronomy. The discovery of many exoplanets has revolutionized our understanding of the formation and evolution of planetary systems and has showed us new ways to search for extra terrestrial life. In recent years, several missions like Kepler, TESS, and Gaia have played a important role for the discovery of exoplanets. Here we explored the latest techniques and methodologies used to detect exoplanets from data collected by different missions. We present an overview of the primary detection methods including the transit method, radial velocity method, gravitational microlensing method, astrometry and direct imaging. We also sharing our machine learning algorithm and explored different machine learning algorithms for exoplanet detection. Finally, we conclude with the significant discoveries made by these missions, our discoveries and their implications on our understanding for the properties and importance of exoplanets in the universe.