

EXPLORING THE SOLAR SYSTEM WITH MACHINE LEARNING AGENTS VIA DEEP REINFORCEMENT LEARNING

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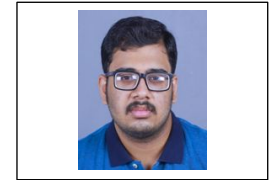
Project Domain

VIRTUAL REALITY, MACHINE LEARNING

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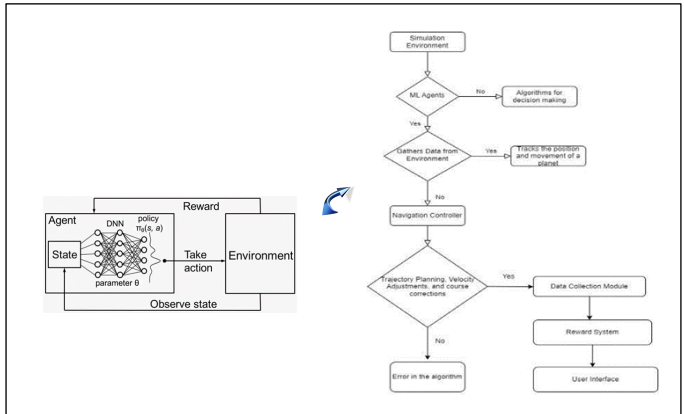
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Abstract

In this ground breaking research, we take a trip to space with a ground breaking project that combines modern AI with realistic virtual environments to mimic scrutiny of space. We create an autonomous spaceship agent by utilizing deep reinforcement learning and unity's potent platform for machine learning. Through smart decision-making, this agent gains the ability to operate through digitally rendered solar system, dodging hazards, and arriving at predetermined planetary destinations. The spaceship represents the fusion of AI's adaptability with the limitless possibilities of space exploration by nipping its trajectory based on dynamic interactions within the virtual cosmos through a novel reward-based system.

Architecture Diagram



Significance of the Project

A Solar System Adventure application holds societal importance as it serves as an educational and inviting immersive platform that promotes scientific caution, awareness, environmental consciousness, cultural understanding, and inspiration. By providing gist of accessible learning opportunities, fostering curiosity, and encouraging exploration, the application provides contributions to science literacy, inspires future scientists, and cultivates a sense of wonder about the universe. It also facilitates global collaboration, encourages STEM education, and offers entertainment value, making a positive impact on individuals and society as a whole.

Conclusion

The spacecraft agent can now learn and adapt on its thanks to our successful use of machine learning capabilities in a virtual environment. The spacecraft agent has demonstrated during the project that it is capable of making calculated navigational judgements, planning the best possible route, and modifying its behaviour to maximise mission success. The carefully designed celestial bodies and dynamic relation scene in the simulation's complex structure provide an ideal environment for the AI to show off its capabilities.

Conference/Journal Publication Details (If Any)

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