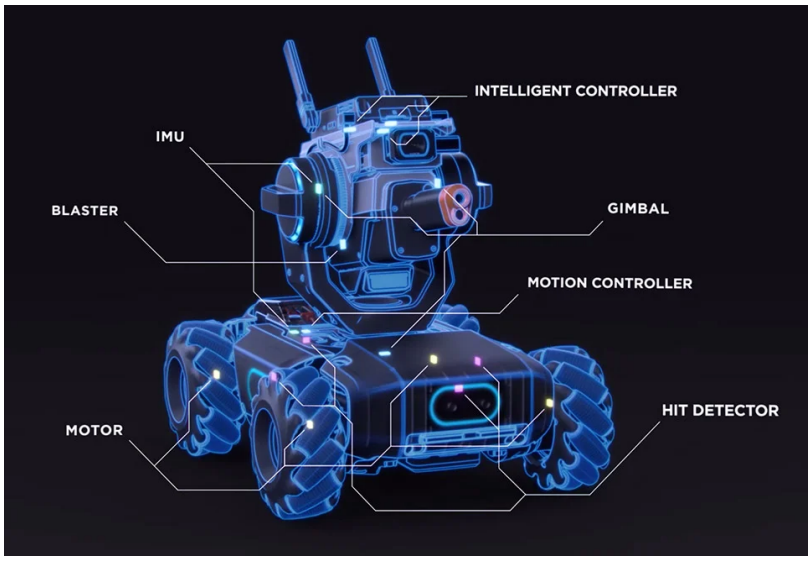
ROBOMASTER S1 REINFORCEMENT LEARNING PROJECT

The DJI RoboMaster* is an intelligent, educational wheeled drone that allows for the intersection between robotics, programming, and artificial intelligence.

A machine learning project proposal involving the DJI RoboMaster S1 robot is comparing various reinforcement learning algorithms by training our model to complete a certain task, and exploring the impact of hyperparameters on training outcomes. 1-3 Robomaster Devices are available to the student team.

Students can train the robot to navigate and avoid obstacles in its environment using computer vision and reinforcement learning techniques. Students can use the robot's camera and sensors to gather data and train a model that can make decisions about how to navigate and complete tasks based on the information it receives from the environment. This can involve using computer vision techniques to detect and track obstacles, and then using machine learning algorithms to train the robot to take actions to avoid collisions. Other possibilities include training the robot to follow a specific object or person, or to recognize and respond to different types of objects or commands.

Students can investigate different types of reinforcement learning algorithms and try to improve the performance of the model by experimenting with different architectures.



Resources
https://www.dji.com/robomaster-s1
https://github.com/HKU-ICRA/Pulsar

Contact: @staff (idea by Amanda Kwong)