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Autonomous Drone

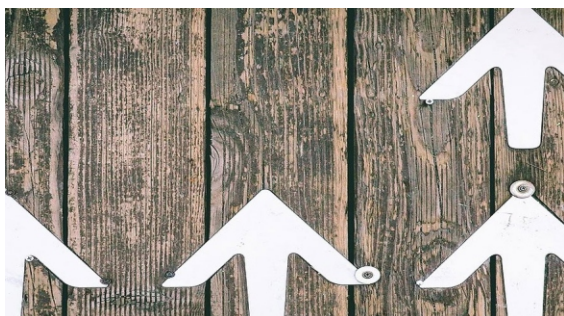


Project Goals

Our team used reinforcement learning frameworks and techniques to train a quadcopter to fly in a simulated indoor environment. This type of machine learning approach enables the agent to learn by trial and error and act under various surrounding complexities. We used **Unreal Engine** and Microsoft's **AirSim**, which acts as the interface between our python code and the

Solution Design

The drone had multiple front cameras that helped our agent make decisions based on the image depth (how far the drone/agent is from an object). This information was then fed into an algorithm called **Q-learning**, which provides positive reward if the drone does not collide, and a negative reward if it gets really close or clashes with an object/wall.



Outcomes

After 100 hours of training, our agent was able to navigate itself in an indoor environment without colliding for a few minutes.

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