# Reinforcment Learning for Agile Robotics

Reinforcement Learning (RL) is a machine learning framework for optimizing the behavior of an agent interacting with an unknown environment. Reinforcement Learning empowers a robot to autonomously discover an optimal behavior through trial-and-error interactions and positive behavior rewarded based on a goal-directed objective function. The goal of the Reinforcment Learning for Agile Robotics project is to use reinforcement machine learning to train a robot to perform kitting planning and execution. Using the Fanuc LRMate robot and vision system found in the agility lab, RL will be used as a planning mechanism to control the robot as opposed to the current PDDL scheme. PyTorch will serve as the AI/ML RL engine whose objective function is to pick parts from a tray and place these parts into a kit. Experiments include using reinforcement machine learning to train a simulated and actual Fanuc LRMate robot to do kitting.

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