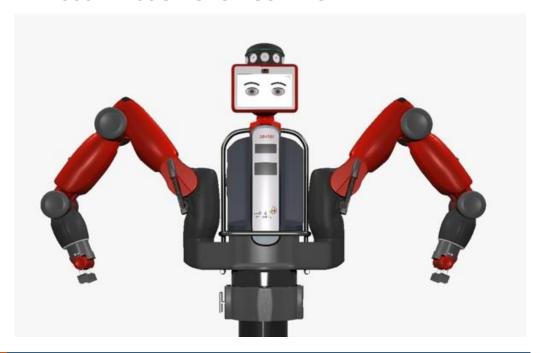PDE4833 – VISUOMOTOR CONTROL WITH BAXTER

January 19

Card Recognition with Baxter

Git Repo: https://github.com/chibike/PDE4833-Robotics-Project

Website: https://www.chibuikepraise.com/projects

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INITIALIZE APP

Load CNN models

Start User Interface (GUI)

Wait for Connect Button

Connect with Baxter

Wait for Detect Button

Ask Baxter to Detect Card Tray

This includes using the previously discussed card recognition algorithm to classify the cards on the image returned.

https://github.com/chibike/mdx_cards_recognition

Inform User About Card Tray's status

Wait for Disconnect Button

Wait for Detect Button

Wait for Fetch Button

Disconnect App from Baxter

Fetch Selected Card from Card Tray

INITIALIZE ROBOT

Untuck Arms

Move Right Arm to a safe location

Move Left Arm to default pose

Calibrate Grippers

Wait for the search command

FIND CARD TRAY

Load Camera Scan Positions

Scan each position for Aruco Markers

Calculate the 3D position of each marker relative to the robot's base

Store the marker position and REPEAT

Calculate the average 3D position of all the markers found

Use the markers to estimate the position of the card bin relative to the robot's base

SCAN POSITION

Move to Scan Position

Fetch an image from Baxter's left-hand camera

Locate the markers in the image

Transform the marker positions from the camera's frame to the robot's frame

REPEAT until stopped

RETURN marker positions found