#### 12/4 Notes

* Now integrate the mask RCNN with the autonomous image acquisition.
* With each image that you take using the robot arm, run it through the RCNN to
* Look into the autonomous image acquisition and do research
  + Keep a journal and take notes
  + See what methods work and what excites you
  + JMoon uses notion

#### 

#### 11/8 Notes

* Need to find transformation between the corner of the endefactor (the box) and the optical center of the camera lens
  + Can be done mechanically or by software, debating which route to take
  + Process is called hand eye calibration
* Alan’s roundtable precision testing, will do an initial test to determine basic precision and movement. Still waiting on parts though
* Read academic paper JMoon sent about finding a trajectory to cover a plant using ur5e robot
  + Then discuss my project goal for next of semester
* Try and find general path for robot

#### 

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#### 11/3 Notes

* Focus of the project shifted to data acquisition, so JMoon takes lead on that, meanwhile the engineering side (us undergrads) focus on the automation of the process.
* ~~Install ROS noetic~~
* http://wiki.ros.org/noetic/Installation/Ubuntu
* (Long term) Make documentation page on Confluence Page that describes how to use robot and program it. See notes below
* Clean up this page and make a new doc that lists notes taken below. Organize haha
* ~~GAANT CHAAARTTTS~~
* ROS 2 used for azure kinect and ROS 1 for the robot arm
* Need to communicate between the robot arm and the azure kinect so that the kinect knows when to take pictures when in position, and so that you can have information about the position of the kinect to be used in point cloud creation.
* In order to communicate, use the ROS 2 package called ros1\_bridge. Without this bridge, topics in either ROS1 or ROS2 cannot be seen in the other.
* Goal of semester: given an arbitrary subject, and a general idea of the volume and shape, can you determine the path the arm needs to take in order to obtain proper angles for camera for good images
* For Saturday, can you determine a general path for the arm given the current subject plant in the lab.

#### Confluence Page

<https://confluence.cornell.edu/plugins/servlet/samlsso?redirectTo=%2Fpages%2Fviewpage.action%3FpageId%3D452375322>

* Guide to control robot arm from external device

<https://github.com/UniversalRobots/Universal_Robots_ROS_Driver/blob/master/ur_robot_driver/doc/usage_example.md>

* Robot’s ip: 192.168.0.101
* JMoon’s ip: 192.168.0.102
* Legion Laptop: 192.168.0.103

#### 10/22 Work Session Notes

* Look into ROS 1 and ROS 2 bridge
* Preparation for next wednesday
  + 1. Think about how to generate waypoints, should it be manual or generated by algorithm. Do we want there to be a general trajectory and program chooses waypoints from that path
  + 2. What to do with waypoints. Who asks for data, who receives and how they’re processed.

#### 

#### 10/1

<https://www.techspot.com/article/2422-dual-boot-windows-ubuntu/>

* ~~Partition hard drive~~
  + ~~Might have to decrypt data first (turn off bit locker)~~
  + ~~Then partition~~
  + Then re-encrypt (jmoon said no need)
* ~~Download ubuntu 20.04 onto flash drive~~
* ~~Plug drive in and reboot computer~~
  + ~~Upon reboot, computer will prompt to load ubuntu~~
  + ~~Carry through~~
  + ~~Go back to Jmoon~~

Notes

* On rufus, creating bootable drive for ubuntu, set cluster size to 16kB (default), tutorial has 4096 bytes
* Ubuntu had trouble upon boot up, black screen with no response, Jmoon got rid of some config file. Seems to be okay