main.py

main:

Setup environment option

Initialization

Parallel thread: process\_actions

process network output, execute action

Start main thread: training/testing loop

Prediction results

Height map

Grasp/Push result

Setup options

Setup environment option

Algorithm options

Testing options

Pre-loading and logging options

is\_sim

Path + Numb obj

IP + Port to robot

N

Y

Supervised or reinforcement method?

Do we use reward for pushing task?

Discount? Explore rate? Grasp only?

heuristic\_bootstrap: user defined algorithm to handle the failure

is\_test

Max test run per scenario

Path to test scenario

Y/N

Use pre-trained model?

Do you need to log the testing? 🡪 slow the test

Do you need to save visualization? 🡪 slow the test

Parallel thread

nonlocal\_variables

State variable:

executing\_action: syn variable

primitive\_action: Push or Grasp? best\_pix\_ind: Best pixel?

Action success?

executing\_action?

Push > Grasp?

primitive\_action = Push

primitive\_action = Grasp

explore or exploit?

Write log

Heuristic bootstrap check

Heuristic best pix based on height map

Best pix based on prediction result

Write log

Compute 3D position

Check safety of z value

Execute action

Write log

Execute primitive

Training/testing loop

Check sim sys

Get image from camera

Convert and check

Write log

Count objects by height map