

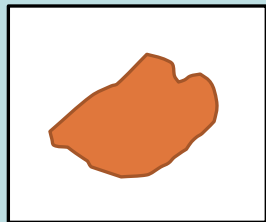
Weekly Review

23/03/21

- **Tasks**
 - Updated output organization folder structure for evaluation ✓
 - Created a GUI to observe env and rewards, actions, states for each step ✓
- **Problems**
 - Results of experiment unexpected
- **To-Do Items for Next Week**
 - Conduct experiments and evaluate results using GUI and plots
 - Compare organization of current repo with RLPYT original repository
 - Update states, values, rewards till you get
 - Define more reward functions, states, actions for our use case
- **To-Do Later**
 - Explore usage of intermediate testing on simulation before sim-to-real transfer
 - Define use-case (for different type of towels (colour, texture, etc.) / one type)

Cloth Manipulation using SAC

23/03/21



Observation
(64*64 img)



Reward
(Overlap with goal state)



Agent



Environment (Mujoco)

Action

Pick point and place point
From random pixel points
Inside segmented mask

RL Problem for obtaining one flat seam

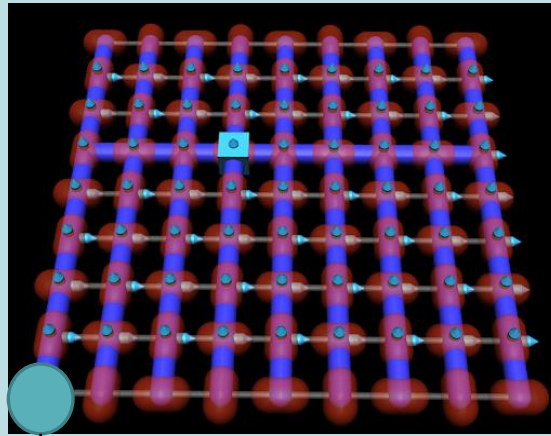
23/03/21

Goal

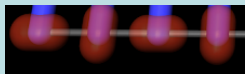
Obtain one flat seam

Given

Cloth in mujoco represented by 64 particles in 8×8 grid



Observations



Corner 1

$[x, y, z]$ positions of 4 points adjacent to corner 1

Actions

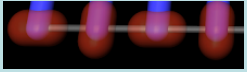
Random $[x, y]$ movement of corner 1

RL Problem for obtaining one flat seam

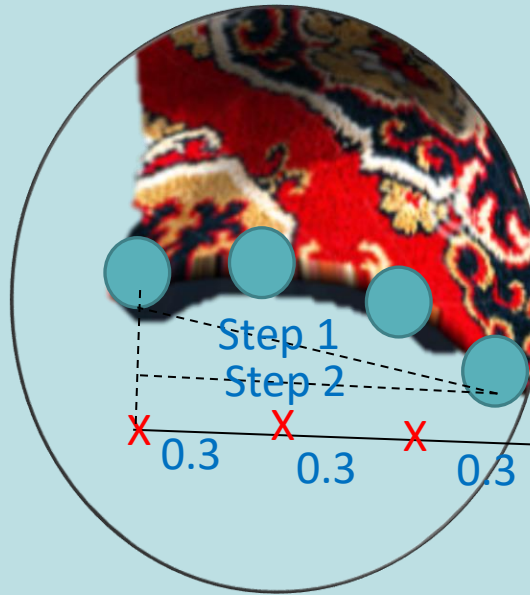
23/03/21

Goal

Obtain one flat seam -> Corner particle + 3 adjacent particles in a straight line



Reward



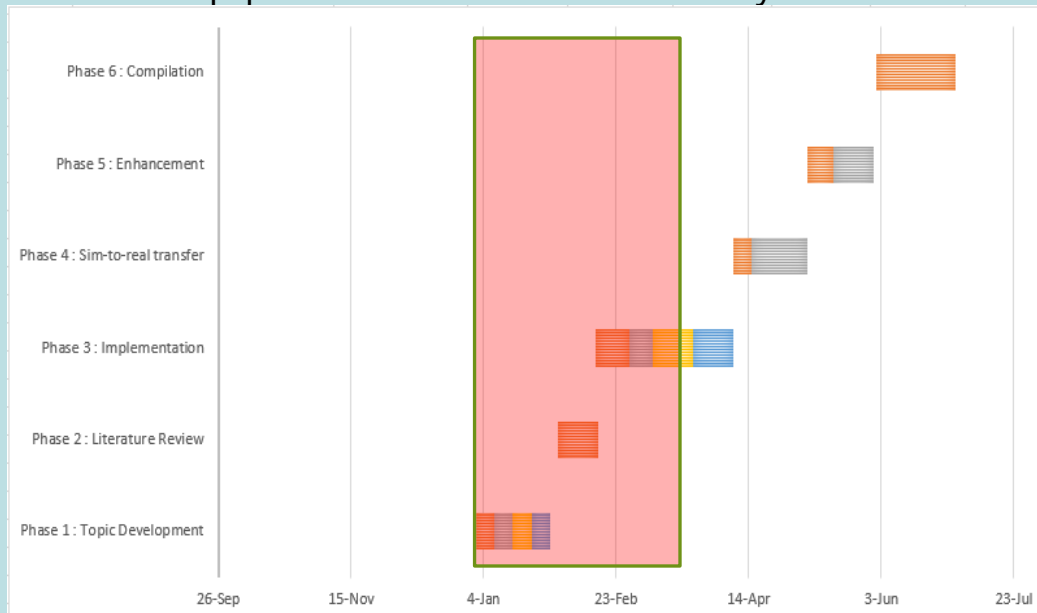
1. Join 1st point and last point
2. Project on x,y plane
3. Reward is proportional to :
 $-1 * (x,y,z) \text{ distance from the ideal line}$

0.3 0.3 0.3 Step 3 $z = 0$

Plan

23/03/21

- Phase 3 : Implementation : 52 days (mid Feb- early Apr)
 - a) Setting up the Reinforcement Learning Platform and Simulation environment : 13 days
 - b) Prepare a custom implementation taking existing states, actions, rewards : 9 days
 - c) **Redefine actions and rewards for our use case : 15 days**
 - d) Test the pipeline and iterate : 15 days



THANK YOU