



INTERNSHIP PROGRESS

Modeling curriculum learning



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WEEKLY OBJECTIVES

	FEBRUARY	MARCH	APRIL	MAY
W1	/	Level 2: accuracy RL Level 2: learning progress RL	Level 3: integrate all LVL2 and manually set weights	Compare performances Written report
W2	/	Unify level 1 Compare different versions of the model	Fix LP + learn about policy gradient	Written report
W3	Level 1: implement tasks and neural network	Prepare the presentation	Hyperspace/Grid search + simple policy gradient exercise	(exams)
W4	Finish 3 models for Level 1 Level 2: accuracy RL learning	LAB PRESENTATION Integrate all suggestions	Level 3: policy gradient	(exams)



Past week



Upcoming week

LAST WEEK'S OBJECTIVES



① ADD PERCENTILE (95)
CLOUD TO GRAPHS
Instead of standard deviation clouds

CLEAN UP CODE
TO MAKE IT
EASIER TO LOOP



CREATE A GRID
SEARCH

Loop over a grid of 10



OPTIMISE GRID
SEARCH TIME

Train parameter 1 in
parallel + add a sum
condition



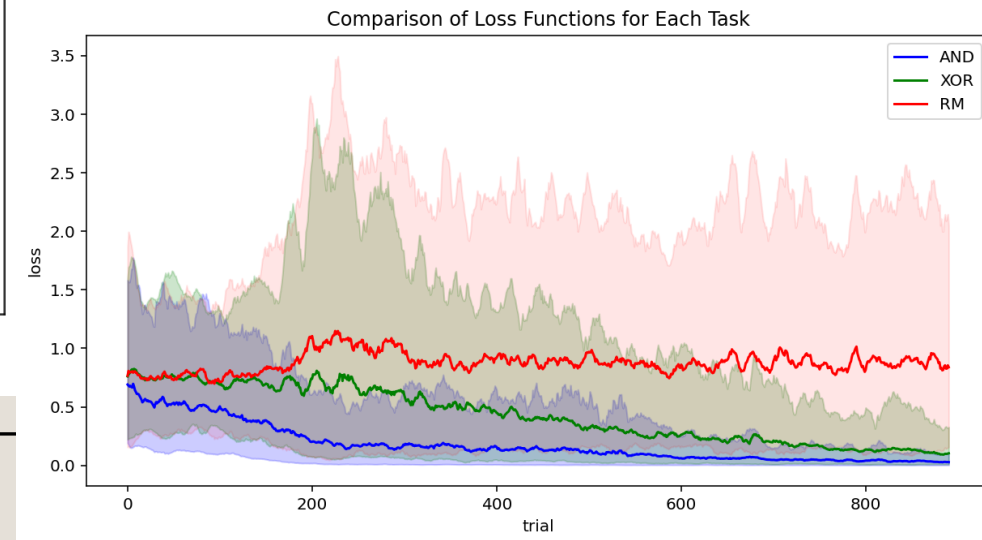
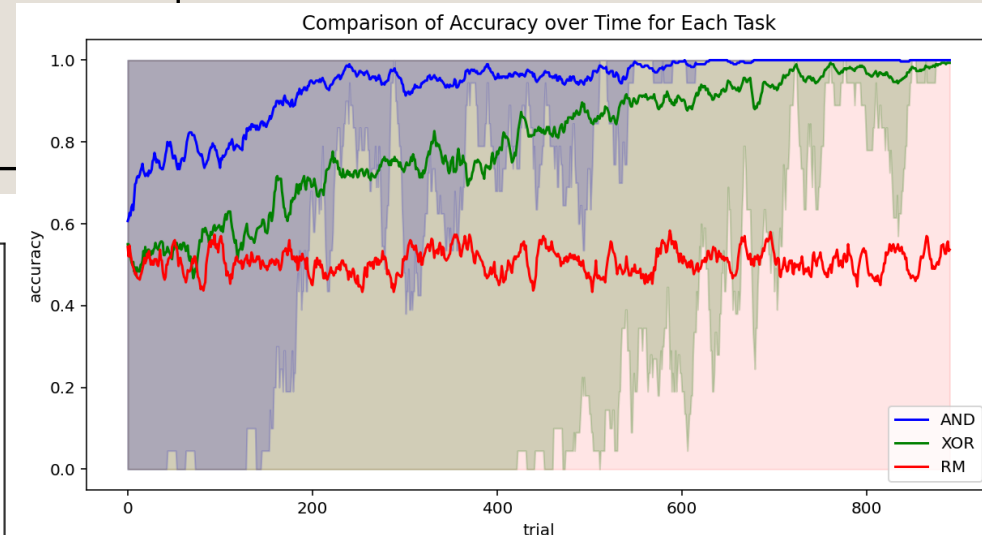
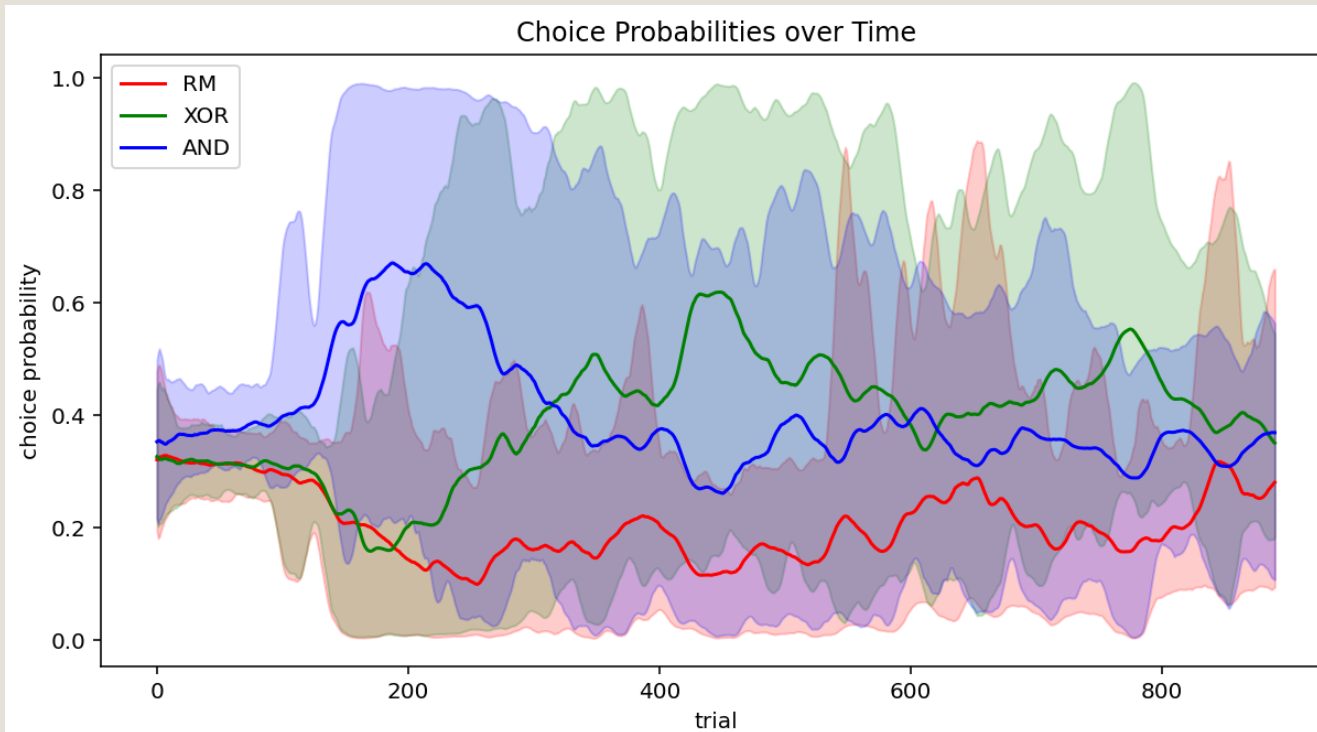
SUMMARISE
FINDINGS

Write a short summary of
findings, questions and
plan for next week.



Performance of combined criteria compared to iid
+ 2 different windows

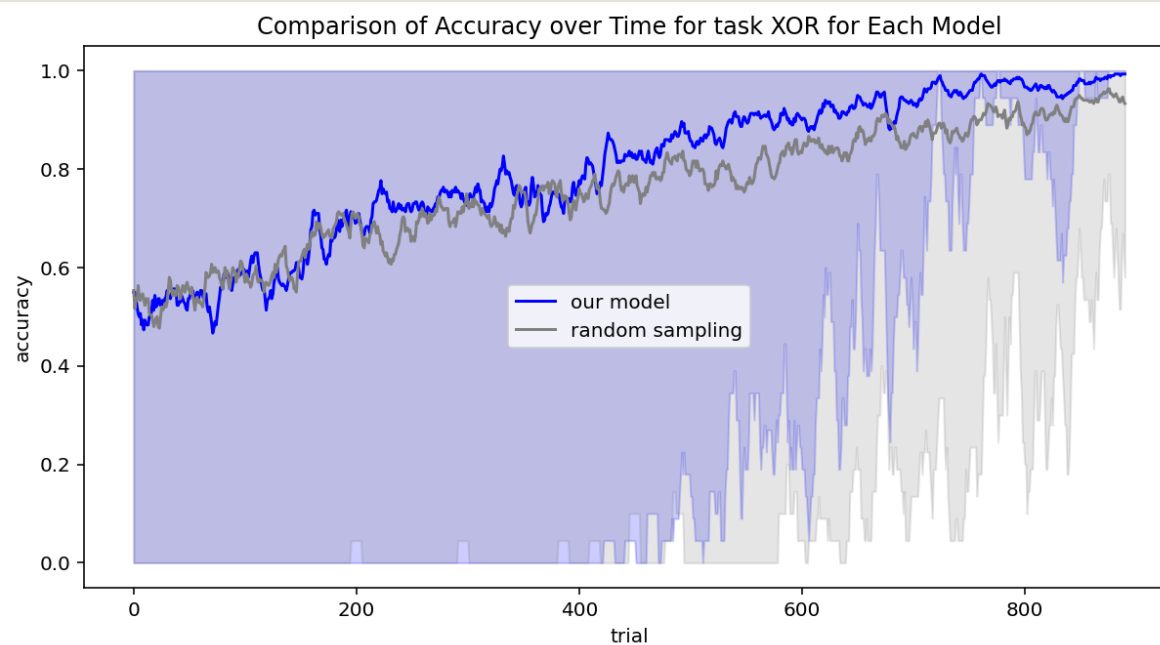
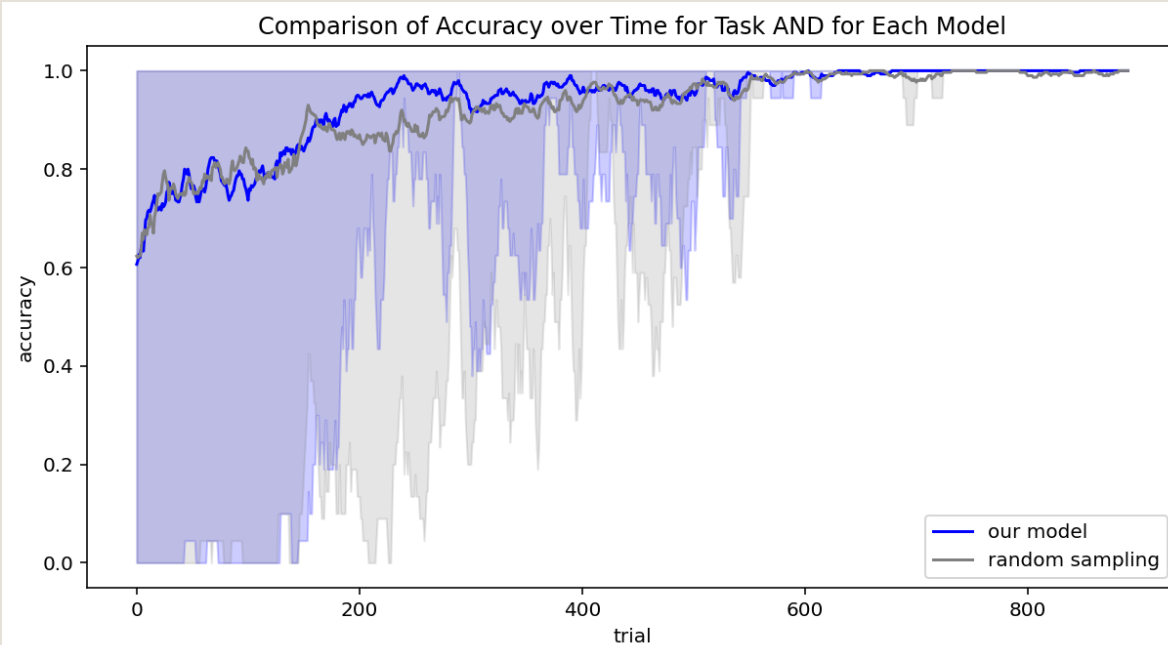
Combined criteria, manual weights (window = 60)



What the models look like

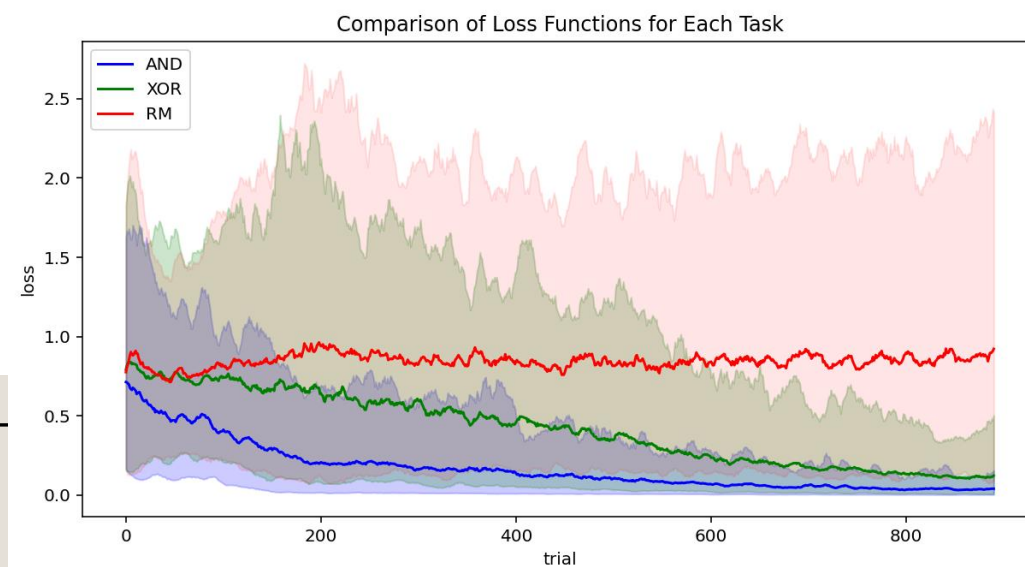
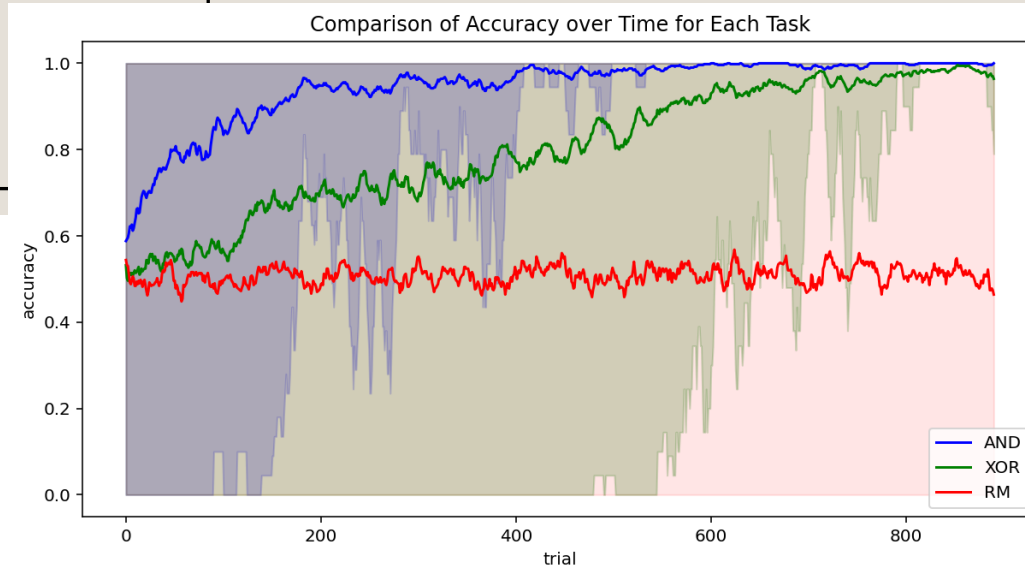
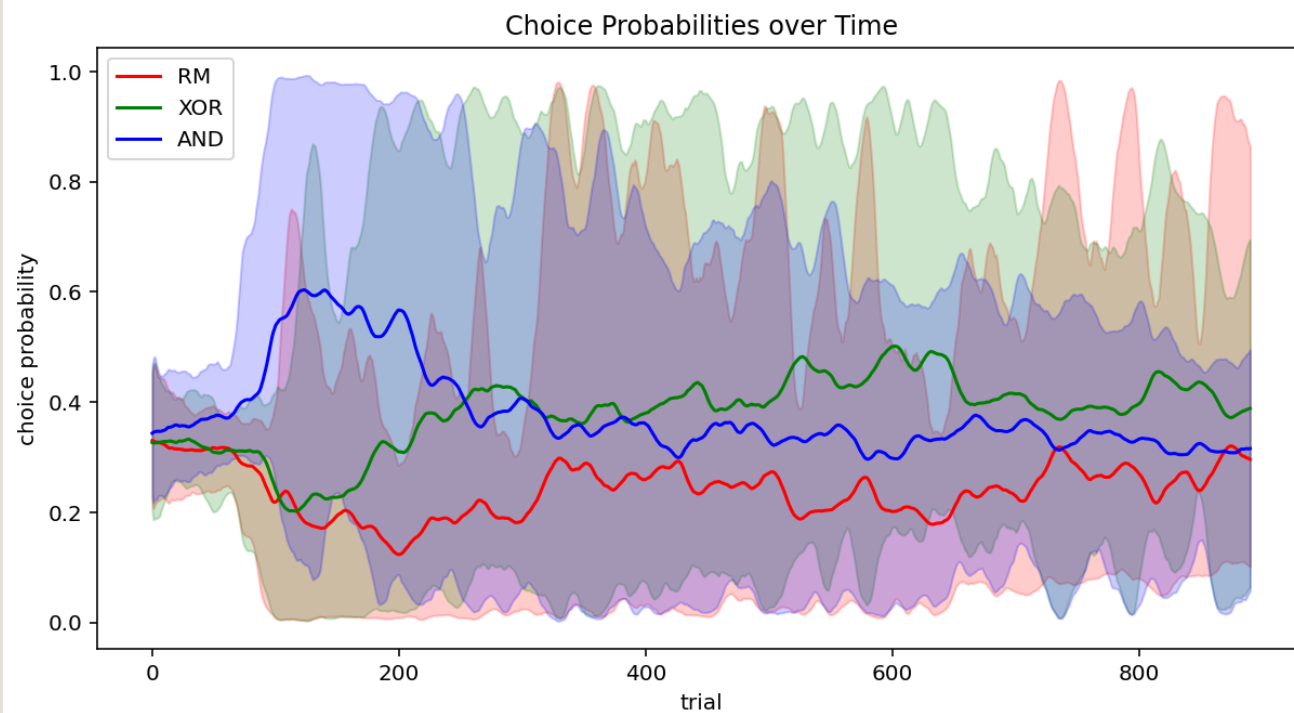
```
weight = {  
  'LP_signed': 10,  
  'LP_unsigned': 10,  
  'acc': 1,  
  'novelty': 1  
} #manually set for now
```

Combined criteria, manual weights (window = 60)



What the models look like

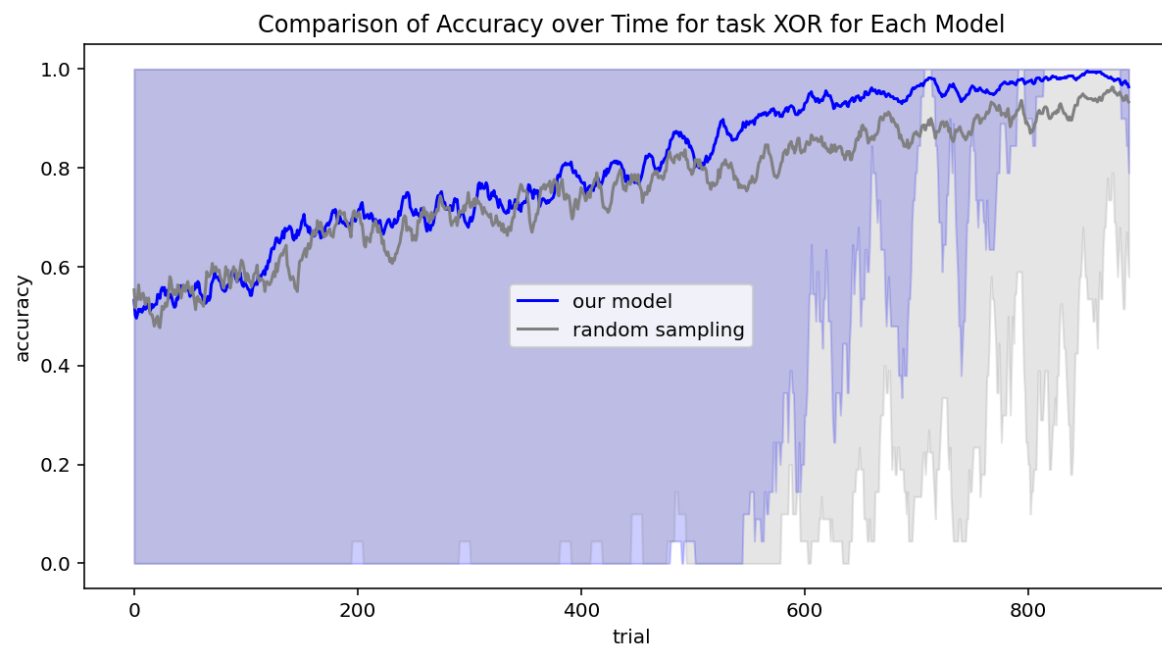
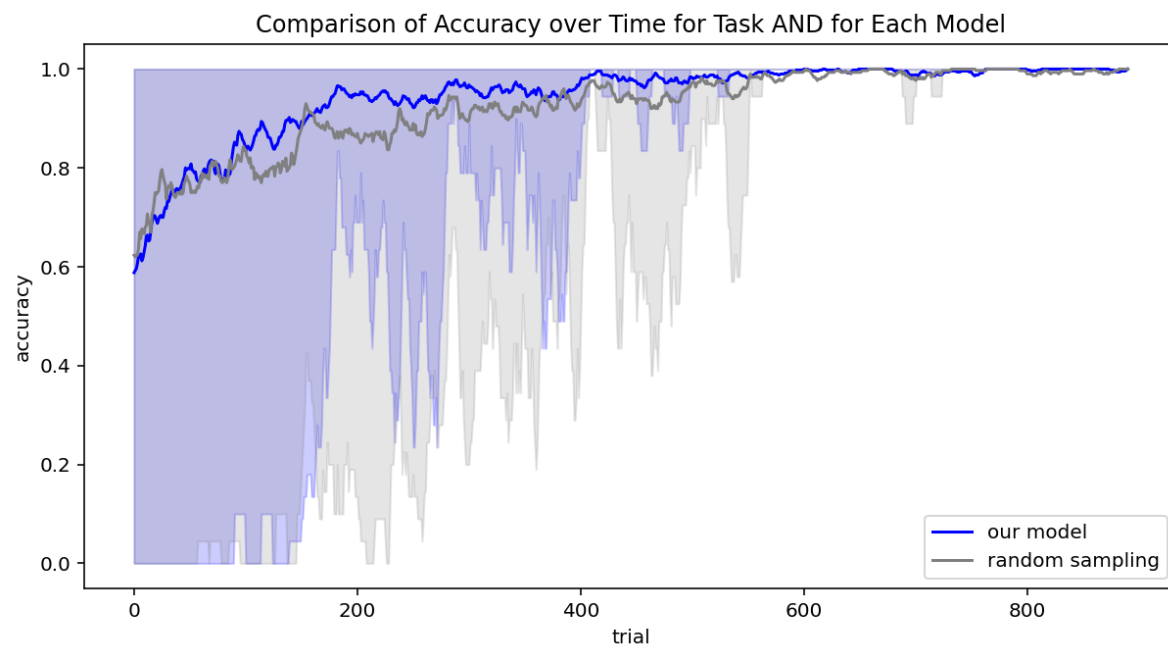
Combined criteria, manual weights (window = 40)



What the models look like

```
weight = {  
  'LP_signed': 10,  
  'LP_unsigned': 10,  
  'acc': 1,  
  'novelty': 1  
} #manually set for now
```


Combined criteria, manual weights (window = 40)



Note: change to single value comparison

Grid search

Grid is on a range of 11 (0 - 10)

```
grid_range = range(0, 11) #values from 0 - 10
total_weight = 10
w1 = int(sys.argv[1])

for w2 in grid_range:
    for w3 in grid_range:

        #the 4th weight depends on the others (fixed total)
        w4 = total_weight - w1 - w2 - w3

        #check and skip negative weights
        if w4 < 0:
            continue

        #run the search
        weight_task = {
            'LP_signed': w1,
            'LP_unsigned': w2,
            'acc': w3,
            'novelty': w4
        }

        complete_run(weight_task, parameters, w1, w2, w3, w4)
```

```
#!/bin/bash
#PBS -l nodes=11:ppn=16
#PBS -l mem=16gb
#PBS -l walltime=240:00:00

#PBS -m ae
#PBS -M andrea.burda@ugent.be
#PBS -N grid_search_criteria_weights

module load Anaconda3/2024.06-1
module load TensorFlow/2.15.1-foss-2023a

cd $PBS_O_WORKDIR

python ./grid_search_criteria_weights.py 0 &
python ./grid_search_criteria_weights.py 1 &
python ./grid_search_criteria_weights.py 2 &
python ./grid_search_criteria_weights.py 3 &
python ./grid_search_criteria_weights.py 4 &
python ./grid_search_criteria_weights.py 5 &
python ./grid_search_criteria_weights.py 6 &
python ./grid_search_criteria_weights.py 7 &
python ./grid_search_criteria_weights.py 8 &
python ./grid_search_criteria_weights.py 9 &
python ./grid_search_criteria_weights.py 10 &
wait
```

Note:

Window = 40

Learning rate = 0,3

Inverse temperature = 1

Objective: to allow
parameters to be at
0 or 10

QUESTIONS

QUESTION 1

- Time limit? How high can I set it? (72 hours)

QUESTION 2

- Are files saved as it goes?

NOTES

- Should I add CPU cores for parallel training? (1 -> 11), what about memory

QUESTIONS

NOTES

- Grid range of 11? What about inverse temperature and learning rate?

NOTES

- The results will be based on the average mean accuracy accross all trials and conditions (cause accounts for both quality of minima and speed of conversion)

NOTES

- Mean accuracy will be the reward used for LVL3 policy gradient (but on a single-trial basis)

NEXT WEEK'S OBJECTIVES



① MAKE A SIMPLE POLICY GRADIENT MODEL

APPLY POLICY GRADIENT
To the complete model

②

CREATE A ANALYSIS SCRIPT
For the grid search

④

OPTIMISE AND RUN THE GRID SEARCH
...

③

SUMMARISE FINDINGS
Write a short summary of findings, questions and plan for next week.

⑤