

Assignment 4: Model-Based RL and Exploration

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Collaborators: None

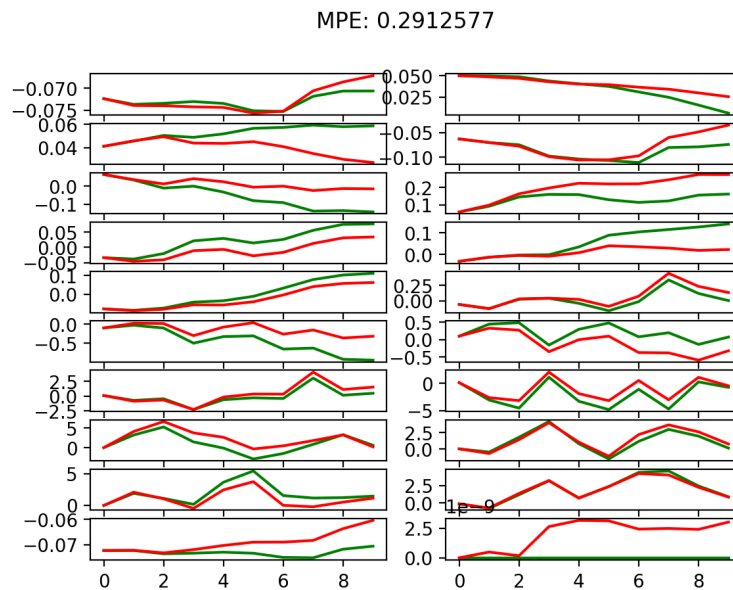
NOTE: Please do NOT change the sizes of the answer blocks or plots.

1 Problem 1: Dynamics Model Training – [10 points total]

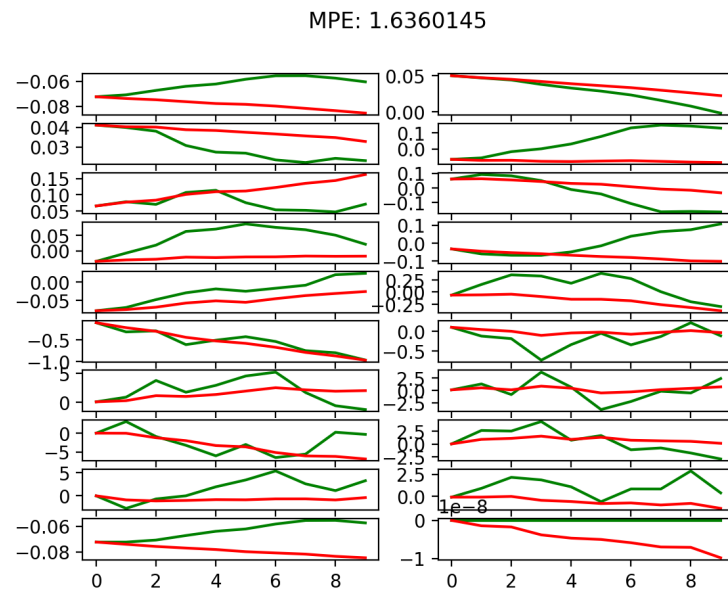
Theory questions

Analyzing the results, Configuration 3 (2 layers, 250 units, 500 steps) achieves the best performance with MPE 0.07804489, leveraging both deep architecture and sufficient training time. Configuration 1 (1 layer, 32 units, 500 steps) shows moderate performance (MPE 0.2912577) due to architectural limitations despite adequate training, while Configuration 2 (2 layers, 250 units, 5 steps) performs worst (MPE 1.6360145) due to insufficient training despite good architecture. This demonstrates that optimal model performance requires both appropriate network capacity and sufficient training iterations.

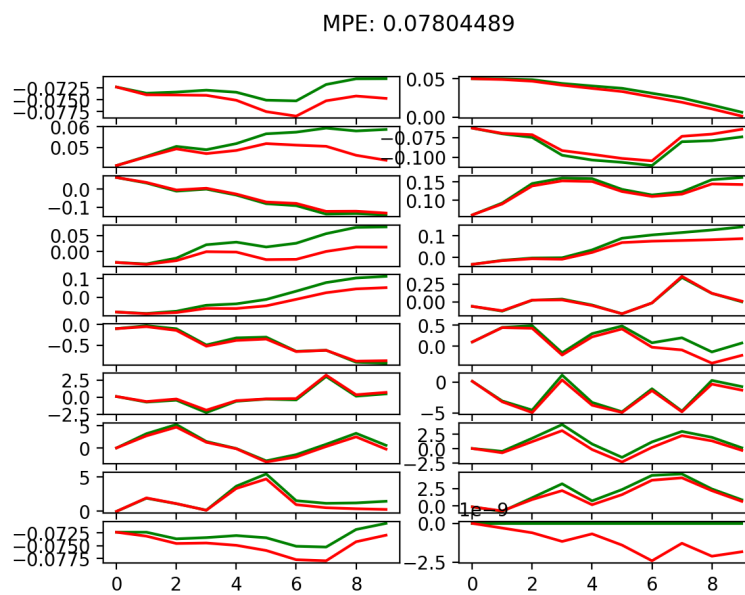
Plot



Plot

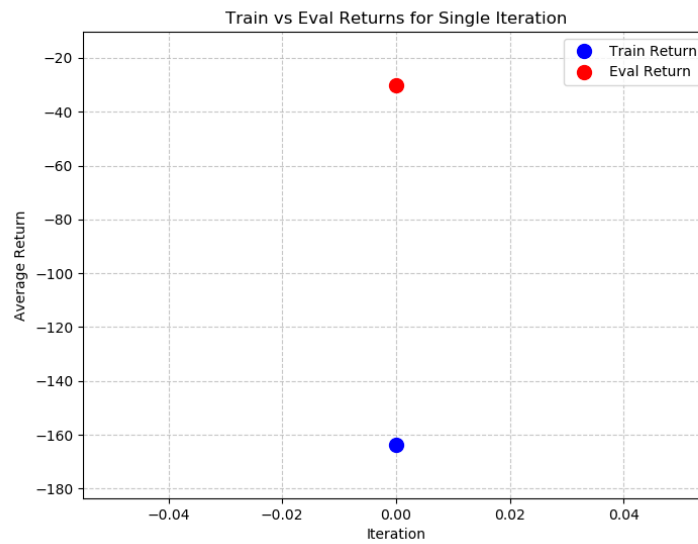


Plot



2 Problem 2: Action Selection

Plot

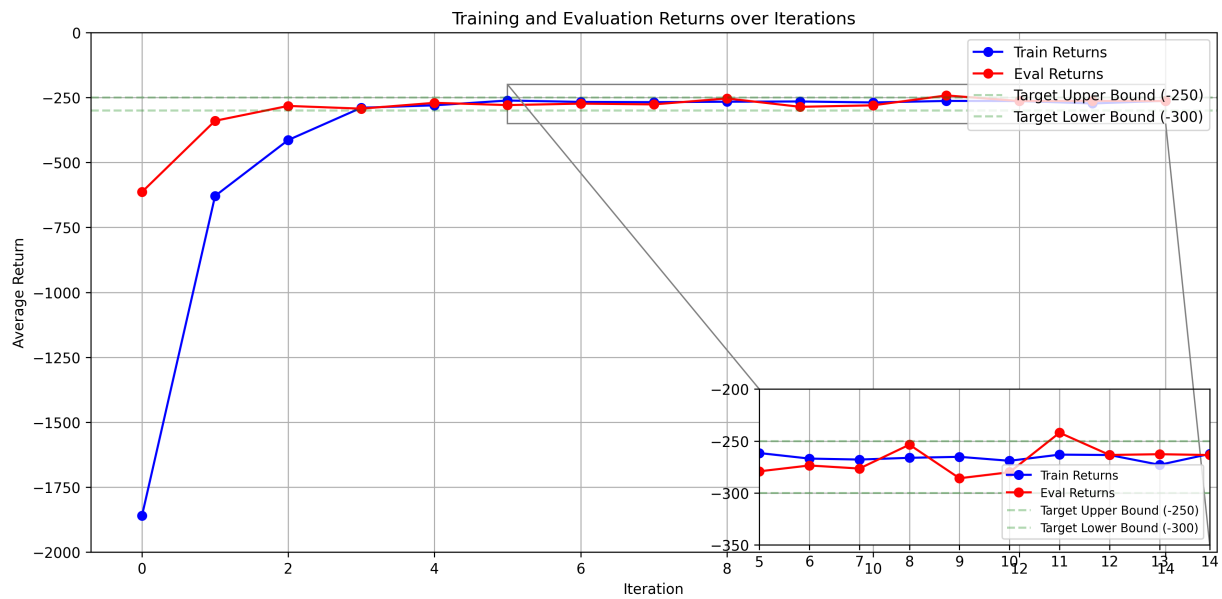


3 Problem 3: Iterative Model Training

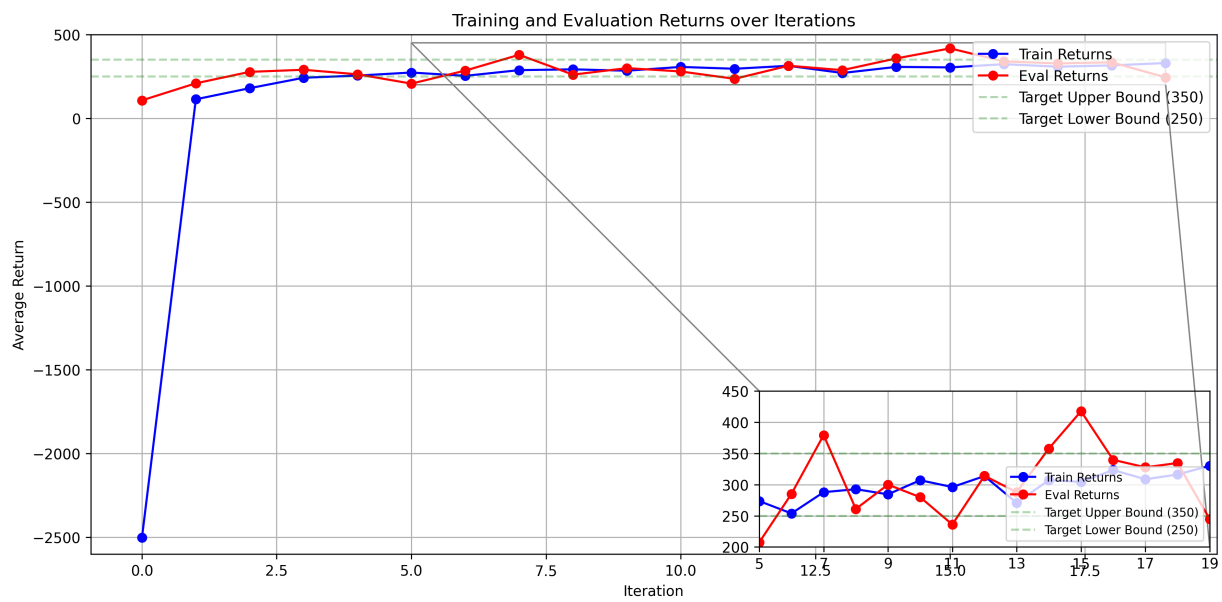
Plot



Plot



Plot

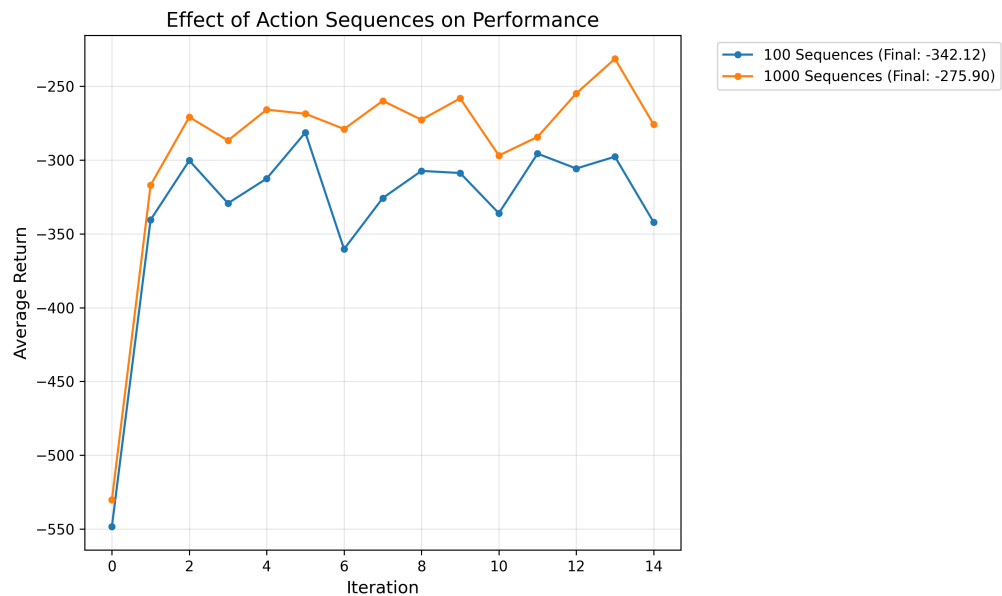


4 Problem 4: Hyper-parameter Comparison

Plot



Plot

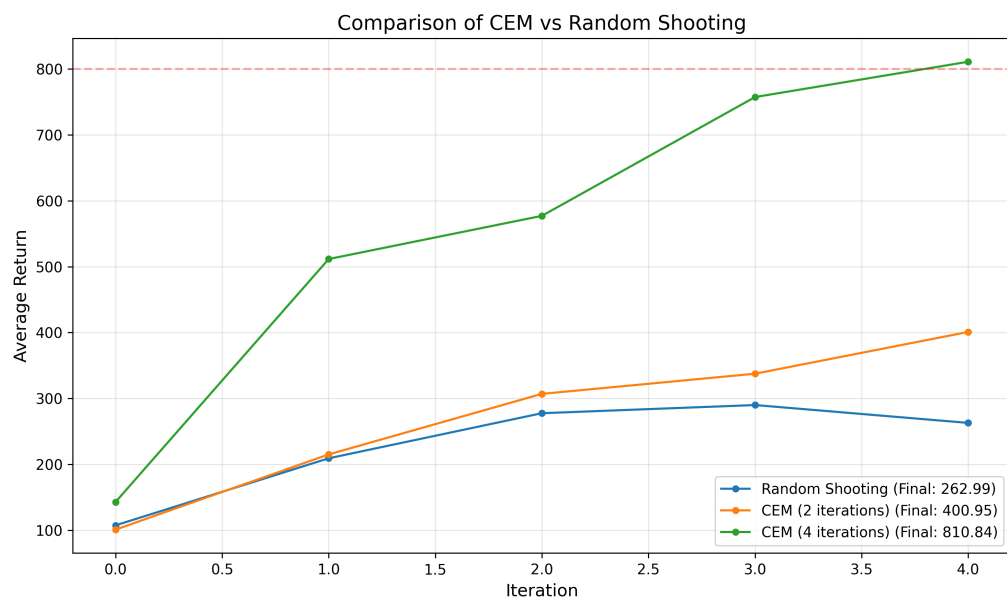


Plot



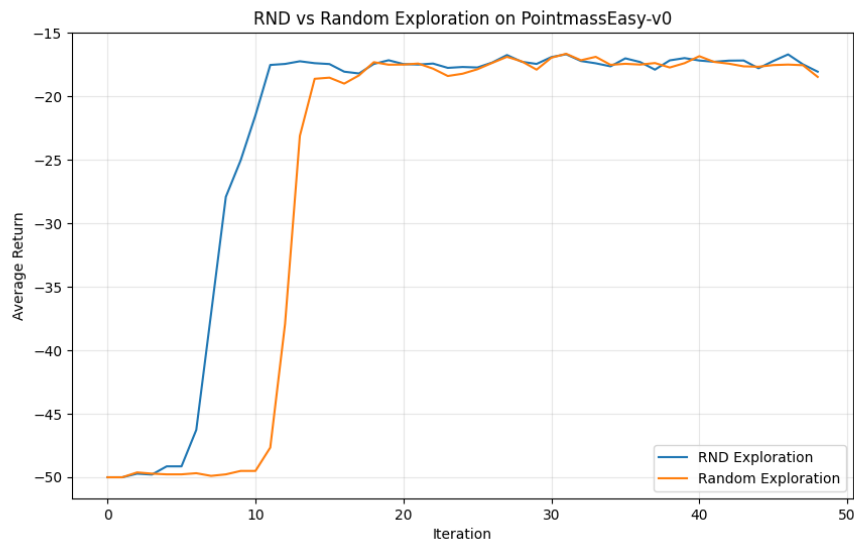
5 Problem 5: Hyper-parameter Comparison (Bonus)

Plot

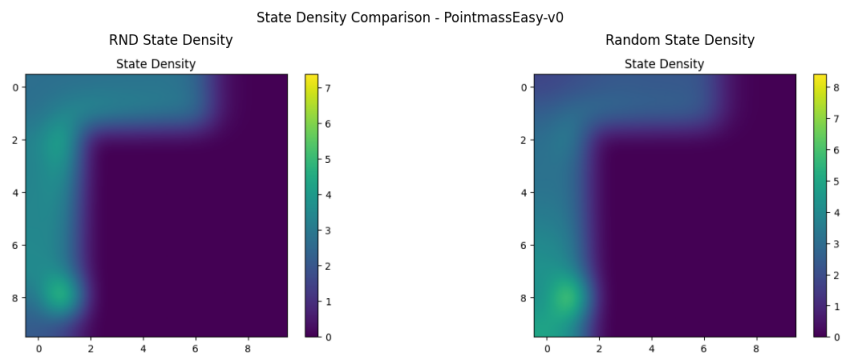


6 Problem 6: Exploration (Bonus)

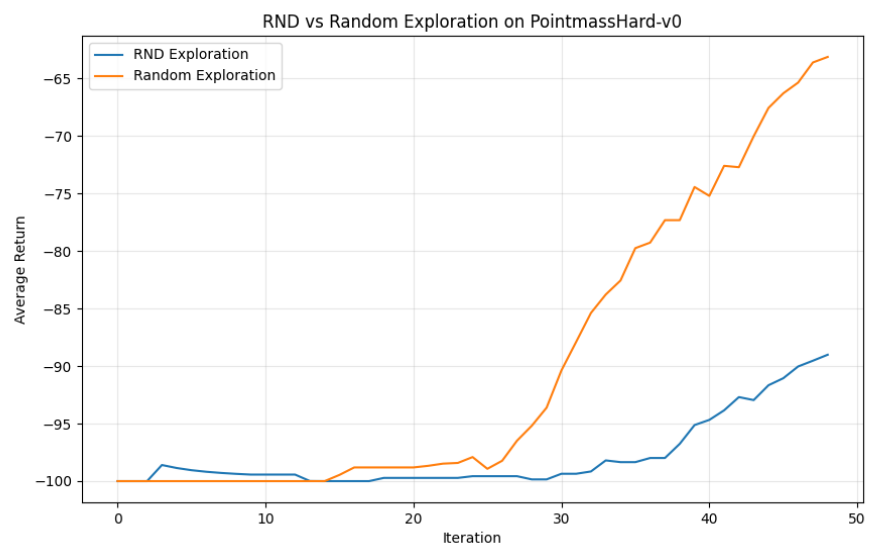
Plot



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Plot



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