Project Proposal - ADRL

Curiosity / Intrinsic Rewards

- **Baselines:**

    - Implement a PPO agent as baselines on the Crafter env

    - Use the imposed reward structure from the Crafter repo

- **Objective:**

    - Compare the baselines with a curiosity/curriculum learned agent

    - Recalculate prioritization weights across the buffer to mitigate possible catastrophic forgetting

    - Optional: Try to improve the learned Animal behavior

- **Challenges:**

    - Limited Compute

    - Results could not show any improvement

Approach and Future Directions

- **Implementation of Crafter Env**

  - Implement Crafter Env using proposed reward structure

  - Implement PPO with Curiosity Replay Buffer

  - Implement frequent recalculations of prioritization weights and compare results with Curiosity Agent

  - Optional: Implement the approach on Animal behavior

- **Benchmarking and Results:**

  - Compare Losses from implementations (PPO, PPO with Curiosity, Curiosity Replays)

- **Further improvements**

  - Try Curiosity Replay on Minecraft, as it is based on DreamerV3 which was already successful learning Minecraft milestones