

Evolutionarily-Curated Curriculum Learning For Deep Reinforcement Learning Agents

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WHAT?

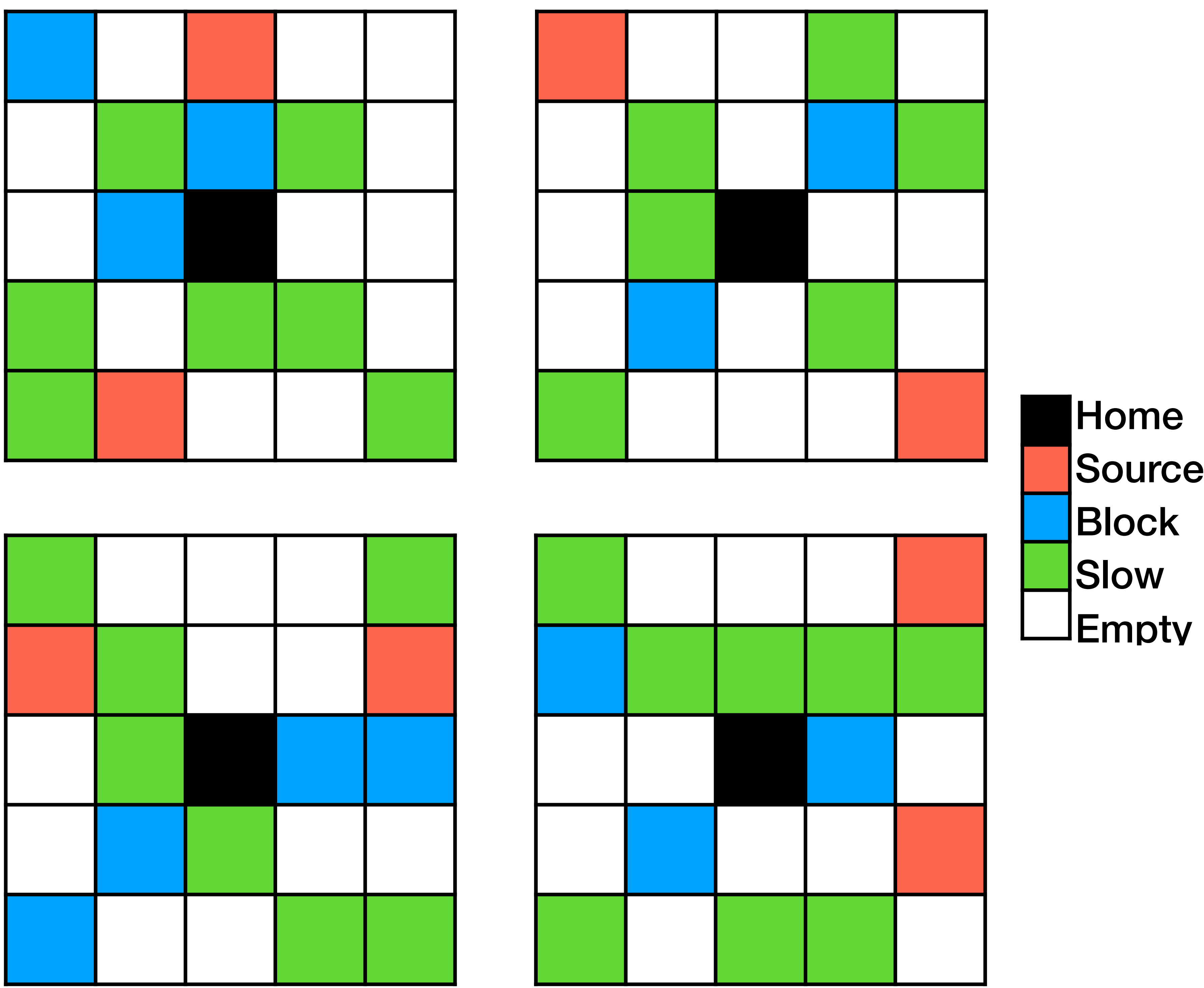
We generate a training set during training, by evolving training data in real time to maximize network loss.

WHY?

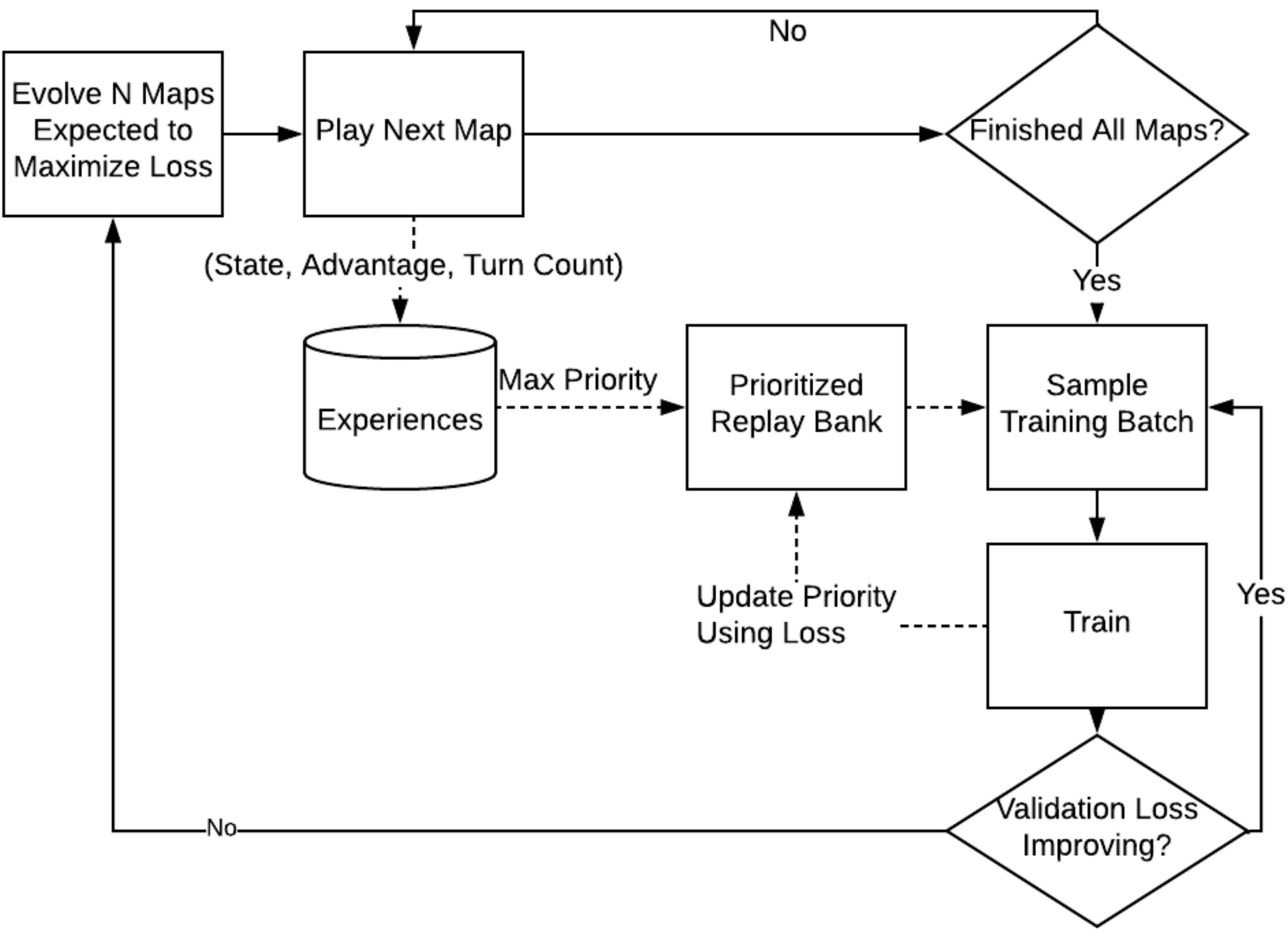
Traditional training of neural networks involve a training set of a uniform random sampling of data, hoping that the network generalizes from this set.

ATTACKERS & DEFENDERS EXPERIMENT

- Tower defense game with a discrete, large action space
- Place a defender, slow, or block tile on the game map.
- **Source** tiles spawn attackers, which will advance toward the home tile.
- Defenders can damage attackers.
- If an attacker runs out of HP, it will be destroyed.
- If an attacker moves onto the home tile, game over.

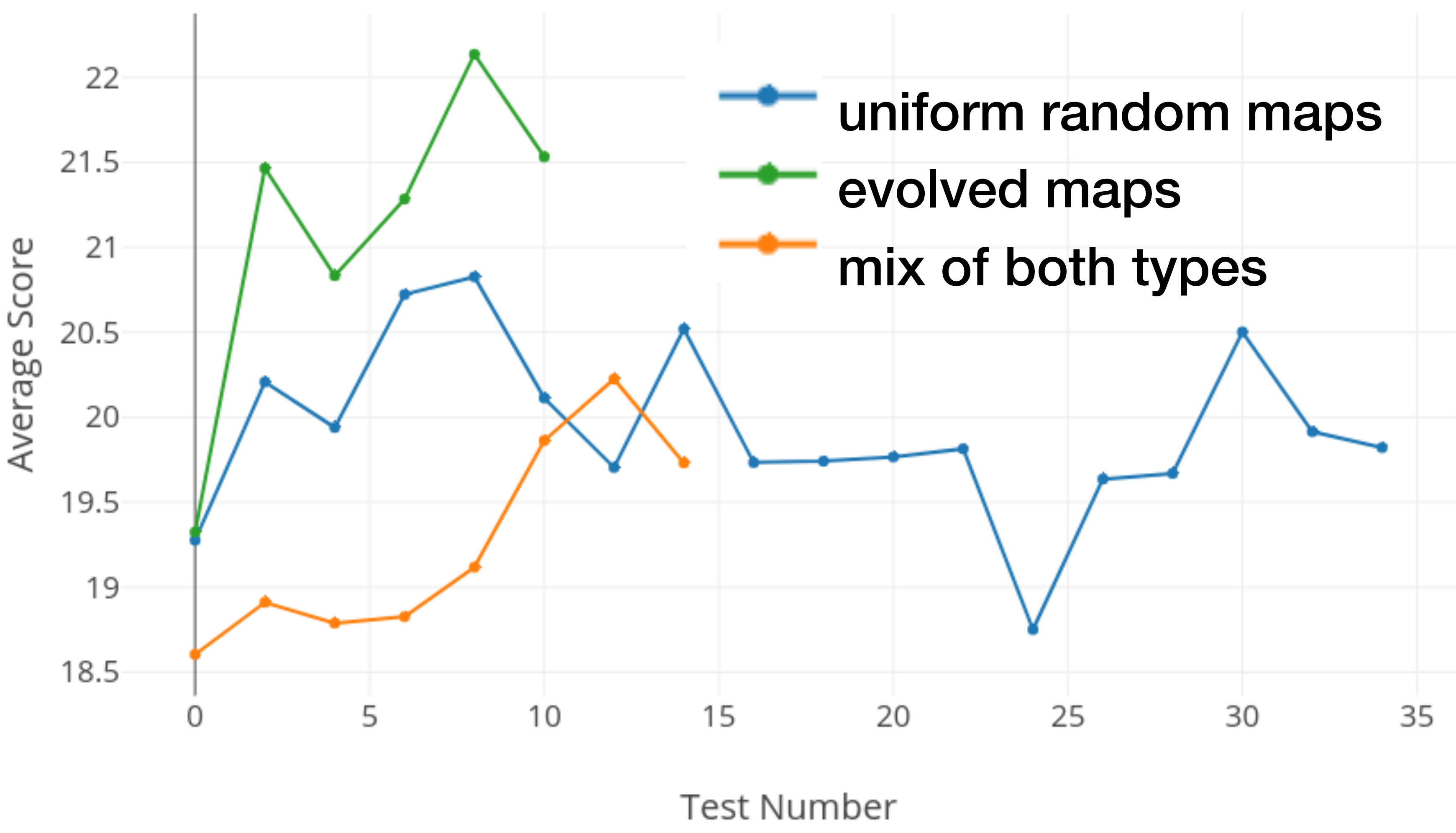


TRAINING METHOD



During training, the agent's loss network informs an evolutionary generator which evolves maps to maximize loss. These maps are then consolidated into the training batch for training.

RESULTS



Training a network on an evolutionarily curated curriculum of maps expedites training and improves generalization.