Evolutionary Optimization of Deep Learning Agents for Sparrow Mahjong
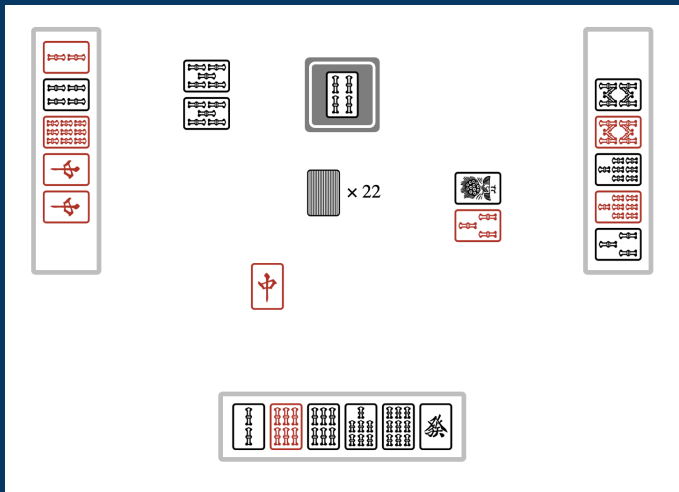
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AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment
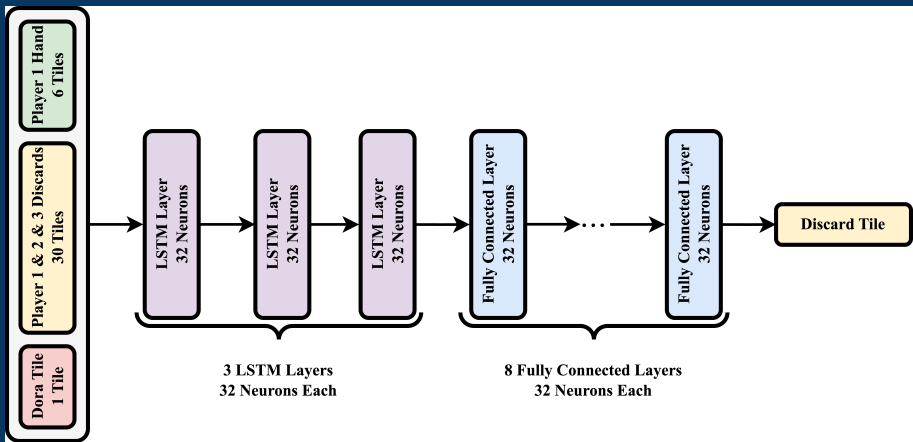
Mahjong & Sparrow Mahjong

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Evo-Sparrow Agent

Baseline Agents

► Random Agent

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- Random Agent
- Rule-Based Agent

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► Random Agent
► Rule-Based Agent
► PPO-Optimized Agent

Results

|	Avg. Score	Win %	Draw %	Loss %	Deal-in %
Evo-Sparrow	**0.8687**	**28.55**	44.17	**10.97**	**16.31**
Rule-Based	0.5051	20.91	44.17	12.65	22.28
Random	-1.3738	6.64	44.17	18.66	30.54
Evo-Sparrow	**0.1934**	**22.80**	36.08	**17.60**	**23.52**
PPO-Sparrow	0.1868	22.62	36.08	17.74	23.57
Rule-Based	-0.3802	19.07	36.08	9.98	34.87
Evo-Sparrow	-0.0027	19.20	42.81	10.79	27.20
Evo-Sparrow	0.0062	19.25	42.81	10.77	27.17
Evo-Sparrow	-0.0035	19.17	42.81	10.75	27.27

Results
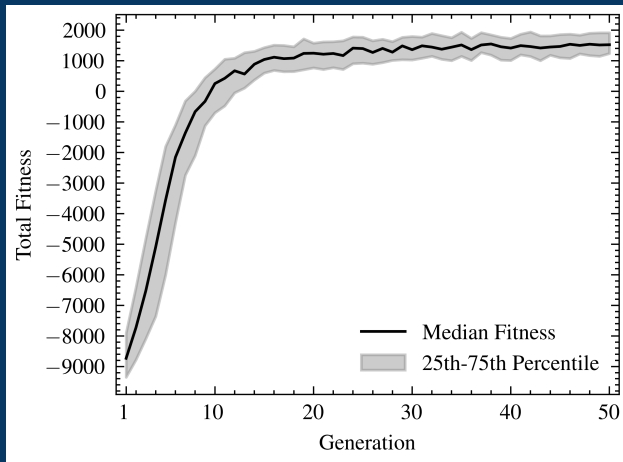
Figure: Median and 25th - 75th percentile fitness progression for 100 independent training runs

Future Work

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► Apply the proposed methodology to other stochastic, hidden-information games.

Thank You!

Questions?