Comp320 Research Artifact

Alastair Rayner

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Research Questions

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- Can visualizing the actions an agent may take in the competition lead to insights about the strengths and weakeness of each tree search algorithm
- How can the scaling of different metrics within the competition affect the performance of different tree search algorithms
- Could a hyper-heuristic be created from the strengths of multiple tree search algorithms

The Goal of this Research Artifact

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- To create a hyper heuristic agent that has been modified from the strengths and weaknesses found in different tree search techniques.

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- To create a hyper heuristic agent that has been modified from the strengths and weaknesses found in different tree search techniques.
- The strengths and weaknesses may be found by visualizing and analyzing the search space of a tree search algorithm.
- Also by looking at how the scaling of different metrics within the competition frame work and seeing how they affect the performance of different agents.

Preliminary results

Visualizations for the GVG-AI Competition

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- Competition time
- MCTS iterations & Exploration vs Exploitation ratio, and other tree search equivalents

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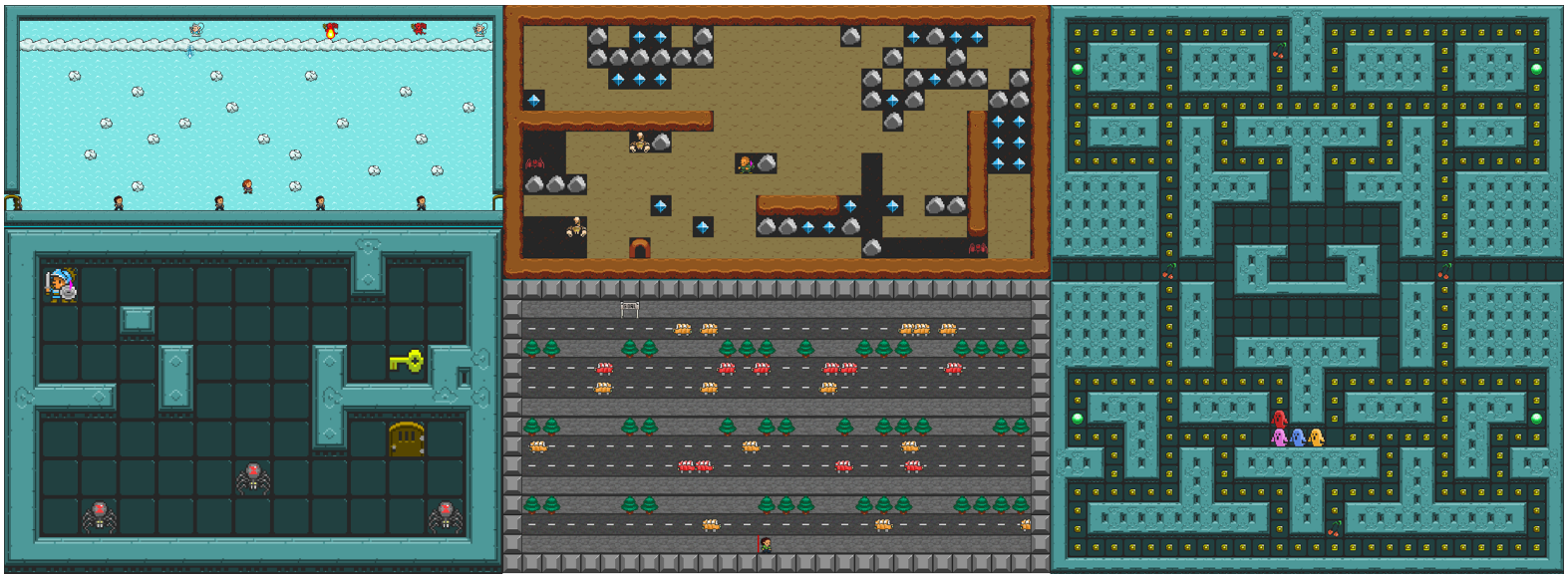
- Gather the data about where different tree search techniques succeed and what are their limitations
- Use that data to start creating a hyper-heuristic agent that can take advantage of different tree search strengths
- Submit that agent to the GVG-AI competition

Demo of the GVG-AI competition

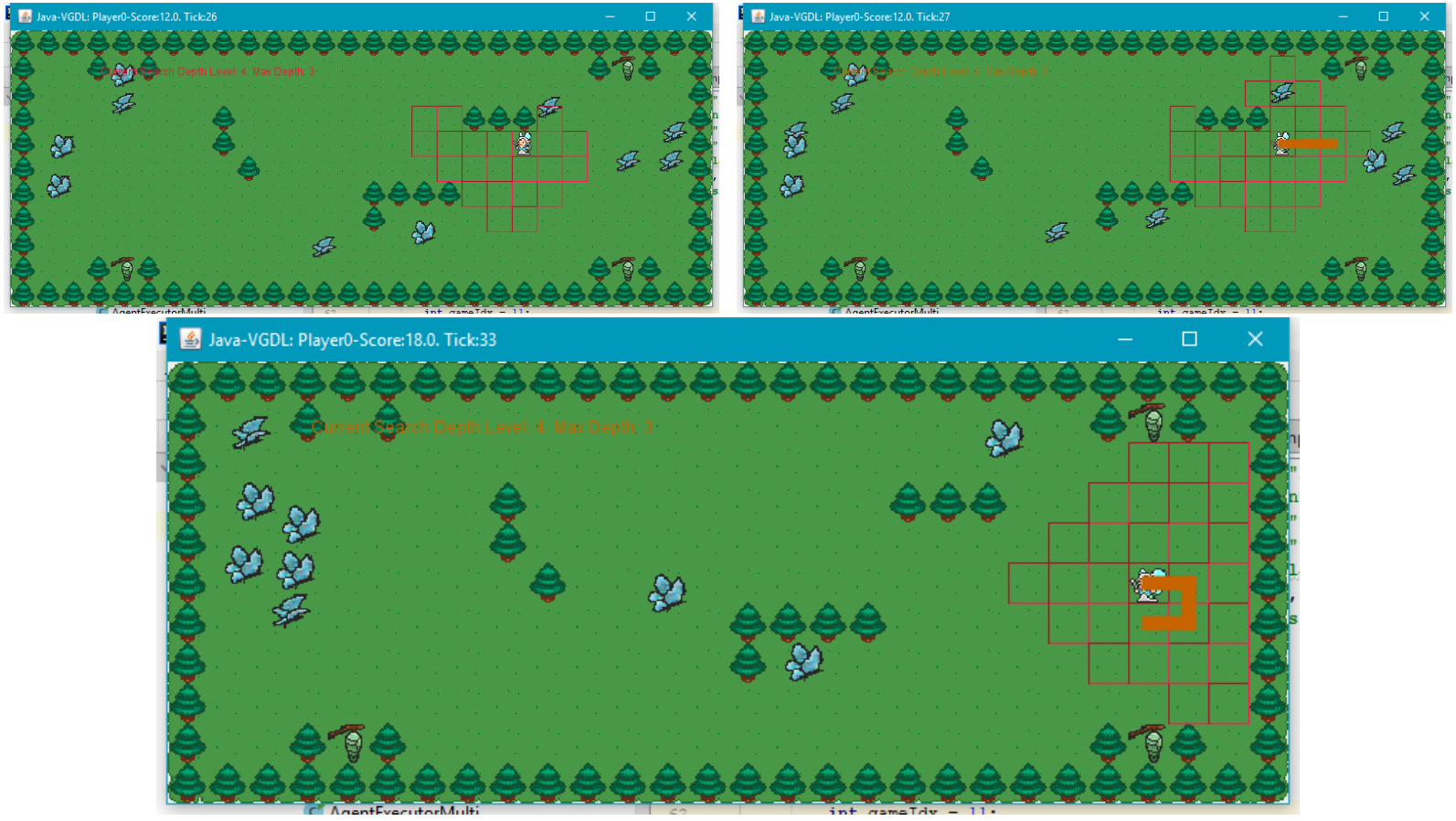
Example Games



Angles, BoulderDash, Pac-man, Zelda, Frogger.

Demo of the GVG-AI visualizations

Example of MCTS visualisations



Demo of the GVG-AI competition and visualizations

Live Demo!

Questions?