Indie Game

Production Diary

IMMERSIVE STUDIOS

ASSESSMENT 3

Xihao Chen | 30053752

2022

Table of Contents

[Part 1 – Research and Analysis 2](#_Toc99958111)

[Definitions 2](#_Toc99958112)

[References 3](#_Toc99958113)

# Part 1 – Research and Analysis

A\* is a pathfinding algorithm with similarities to Dijkstra’s algorithm. It uses an additional heuristic function that improves its computation speed.

## Definitions

|  |  |
| --- | --- |
| **Term** | **Description** |
| **F Cost** | The F Cost is a function used in the A\* pathfinding algorithm. The function is of the form , which determines the total estimated cost through path node .  and are two parameters of the F Cost function:   * is the actual cost to move from the starting node to a specific node * is the heuristic function estimating the cost from to the destination node |
| **Heuristic** | A heuristic is a problem-solving technique that finds an approximate solution when traditional methods are too time consuming or cannot find an exact solution.  In terms of the A\* pathfinding algorithm, the heuristic is represented as a function that estimates the cost to move from a node to the destination. |
| **Priority Queue** | A priority queue is a queue variant that assigns a priority value to each element. The priority queue processes elements based on their assigned priority, serving higher priority elements first.  The A\* pathfinding algorithm uses a priority queue that removes nodes with the lowest F Cost value at each node, |

* <https://www.researchgate.net/publication/267809499_A-based_Pathfinding_in_Modern_Computer_Games>
* <https://www.youtube.com/watch?v=ySN5Wnu88nE>

# References

GeeksforGeeks. (2022, February 6). *A\* Search Algorithm*. Retrieved from GeeksforGeeks: https://www.geeksforgeeks.org/a-search-algorithm/

Programiz. (n.d.). *Priority Queue*. Retrieved from Programiz: https://www.programiz.com/dsa/priority-queue

Roy, B. (2019, September 29). *A-Star (A\*) Search Algorithm*. Retrieved from Towards Data Science: https://towardsdatascience.com/a-star-a-search-algorithm-eb495fb156bb

Thaddeus Abiy, H. P. (n.d.). *A\* Search*. Retrieved from Brilliant: https://brilliant.org/wiki/a-star-search/

Wikipedia. (2022, February 23). *A\* search algorithm*. Retrieved from Wikipedia: https://en.wikipedia.org/wiki/A\*\_search\_algorithm