

# AI4Games 2021

## Exercise 3

### Jump Point Search

8 points  
Deadline: 22.11+29.11

Your task in this exercise is to implement the JPS+ pathfinding algorithm<sup>1</sup>.

Deadline for the first two tasks is **22.11**, for the second two: **29.11**.  
Late days apply separately for both these deadlines.

#### **50% Preprocessing [2p.]**

Reach a 50% score on Jump Point Search – Preprocessing puzzle<sup>2</sup>.

#### **100% Preprocessing [2p.]**

Reach a 100% score on Jump Point Search – Preprocessing puzzle.

#### **50% Runtime [2p.]**

Reach a 50% score on Jump Point Search – Runtime puzzle<sup>3</sup>.

#### **100% Runtime [2p.]**

Reach a 100% score on Jump Point Search – Runtime puzzle.

#### **Late days [-1p.]**

You can still send your solution one week after the main deadline, but the number of received points will be reduced by 1.

---

<sup>1</sup>Steve Rabin, Fernando Silva. "An Extreme A\* Speed Optimization for Static Uniform Cost Grids",  
Game AI Pro 2: Collected Wisdom of Game AI Professionals, pp. 131-143, 2015  
(Note that in Listing 14.3 when checking diagonal direction conditions, there has to be additional condition `minDiff > 0`.)  
<sup>2</sup><https://www.codingame.com/training/hard/jump-point-search—preprocessing>  
<sup>3</sup><https://www.codingame.com/training/hard/jump-point-search—runtime>