

A.I. Assignment 2

Pathfinding in a simple environment. Preparing the setup for future work.

For the next assignment you have two tasks.

- I. Pathfinding in a simple environment - for 90points
- II. Preparing the setup for the next environments - 10 points

Consider a similar setup with the previous task. We have the drone, placed in a known environment. We want to drive this drone between two points. We still consider the movement only in plan.

Task 1

Using a **A*** and **Greedy** types of algorithms, design two functions that can be used by a drone to find the path between two points on a map of a rectangular area of size $n \times n$ units u starting and ending from an empty square. The area is known to the drone. From each position the drone can move in one empty adjacent empty square.

For both methods compute and display the execution time. The application must have a layered architecture.

Consider a proper heuristic function for these methods.

Task 2

Install the *PyOpenGL* and *PyOpenGL_accelerate* packages. For example with pip:

```
$ pip install PyOpenGL PyOpenGL_accelerate
```

There are many issues that can appear when working with these packages, be sure you get the right ones for your operating system. With pip usually you get the right ones. Anaconda will install the ones for linux even if you are using windows, so you will get errors on some other packages that are used with these (for example on numpy).

!!! Run the *cube.py* to see if the packages are installed properly.

Observation: These packages are for the display and visualisation tools to work, they are not used for our AI computations. For these we will install other packages later - like *tensorflow* for example. In our applications you will get the graphic part already implemented.

For this assignment one can get a maximum **100** points.

Extra **50** points can be earned for a function that implements an extra method from the first lecture.

Due time:

1 week to present an almost finished version of the code

2 weeks for the final solution

IF nothing is done in the first week you will have a penalty of 10 points.

The solution can not be turned in after the 2 weeks.