

CSCI 48700: Artificial Intelligence

Programming Assignment 1

Instructor: Dr. Snehasis Mukhopadhyay

Due date: September 23, 2025

The purpose of this assignment is to implement two search algorithms (the breadth first search and the A* algorithms) to solve the 8-puzzle problem (See our text-book). The goal state is given by:

1	2	3
4	5	6
7	8	

For the A* algorithm use the number of misplaced tiles as the heuristic function and assume that the cost of every move is 1.

Generate 3 possible initial conditions randomly. Note that the problem is not solvable from every initial condition. By varying the seeds of the random number generator, make sure that your implemented algorithms can find solutions to at least 2 of the 3 initial conditions.

Submit your source code (including well-documented comments) and a 1-page write-up on the results and analysis. Mutual consultation is OK, but you should not copy codes from each other or from any other source. Your implementation should be entirely your own.