Proposed state space that can solve problems/scenarios with varying initial/goal locations:

• Greediest proposition: always store 5x5 grid. Huge amount of combinations, most of which are impossible or extremely unlikely to occur but brings the question of how to optimize the state space.

• Greedy proposition: All Blocks between Initial and Goal states: State includes the rectangle defined by the diagonal formed by connecting the initial and goal locations for 2D ; the cuboid for 3D. If we set maximum distance to be 5, the largest rectangle would be 5x5. A binary 5x5 matrix has 25x24=600 initial+goal pairs and 223 ~ 8.4 million combinations for the rest of the 23 blocks. But since we shrink the state representation with each move, there are no variations for a 5x5 grid with initial or goal location outside the borders of the grid. The initial+goal pair locations on the border are 28-1 combinations = 255 resulting in a 57.5% reduction in states. The first action results in a 4x5 grid with 20\*19 = 380 pairs and ~262k combinations for the rest of the 18 blocks versus 14\*13=182 pairs for ~52% reduction.

• Ideas: Store X Y Z distances between agent and goal and some adjacent to the agent blocks.