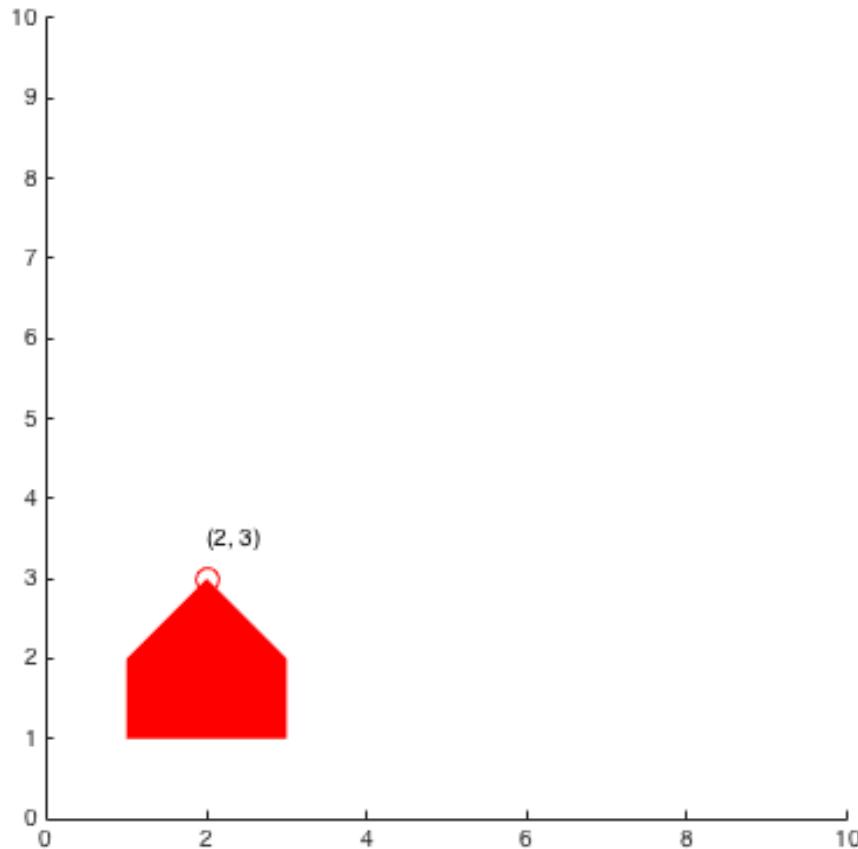


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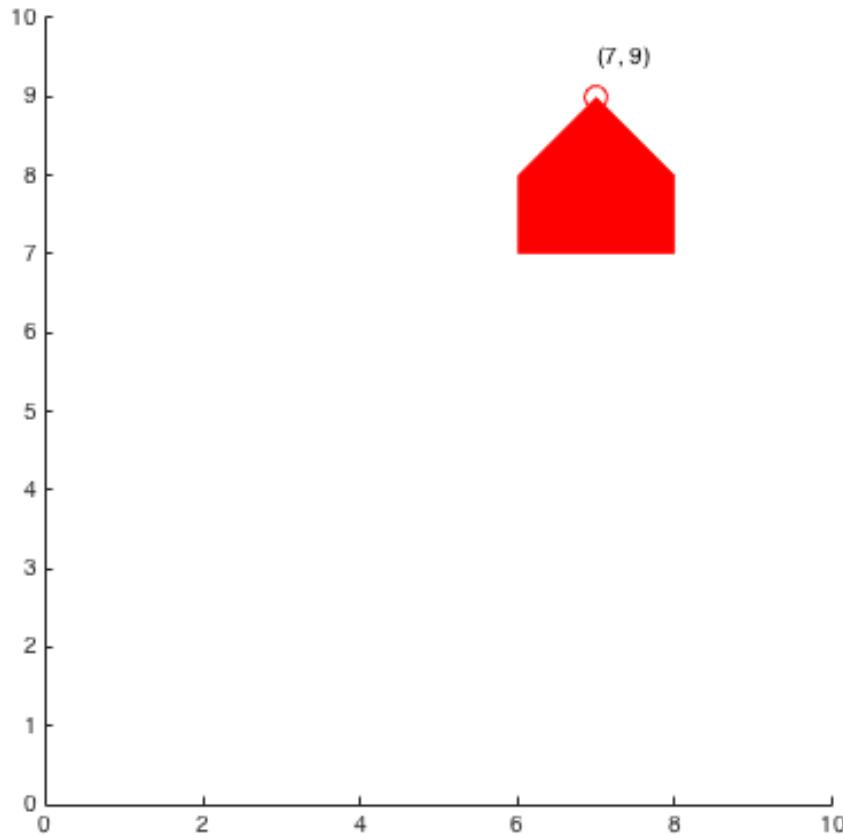
Video 10.1

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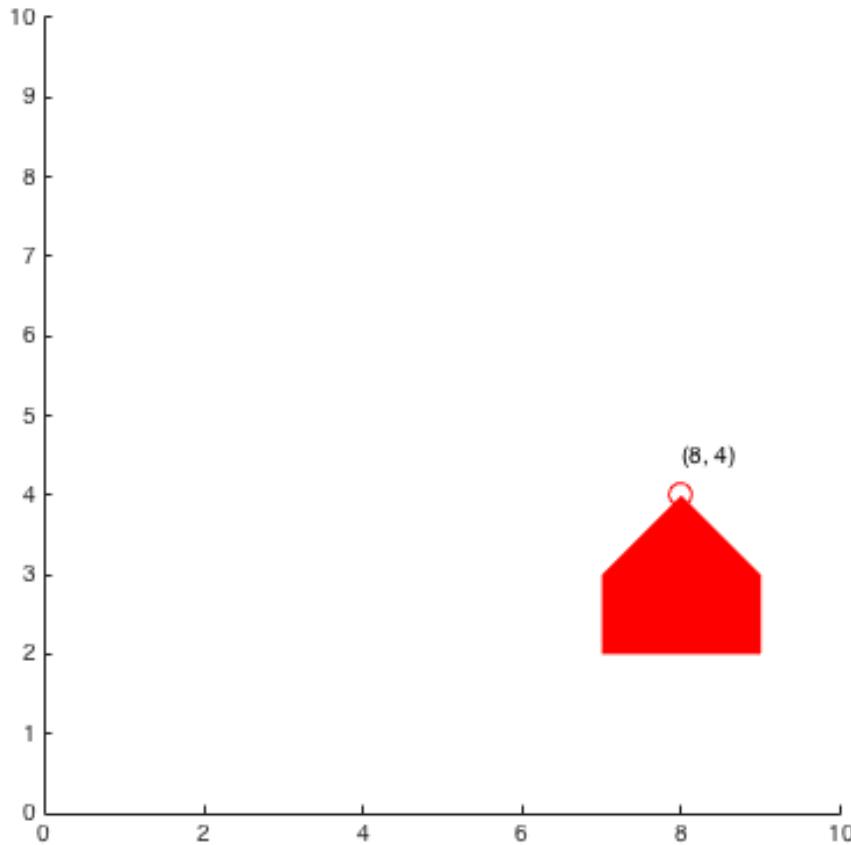
Simple Robot – Translation in the Plane



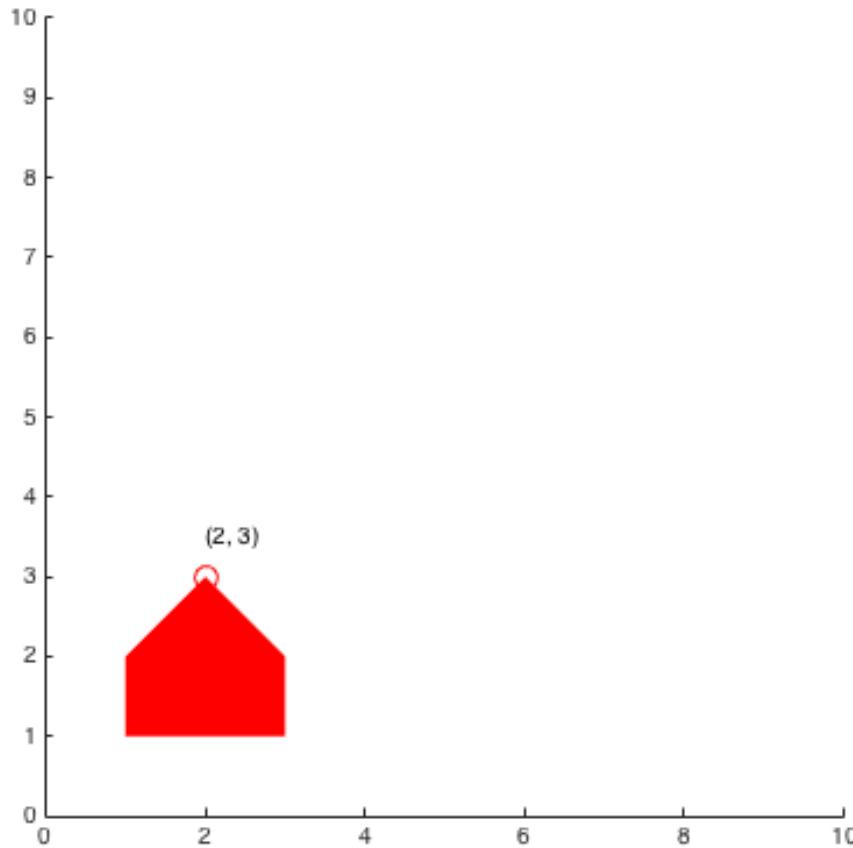
Simple Robot – Translation in the Plane



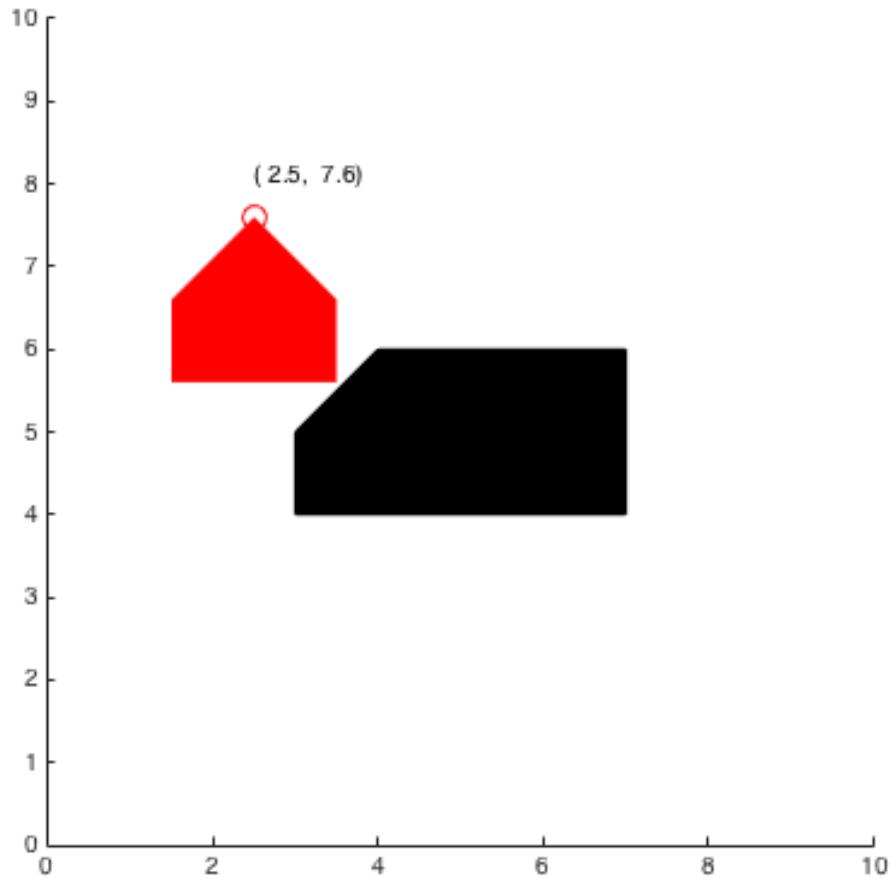
Simple Robot – Translation in the Plane



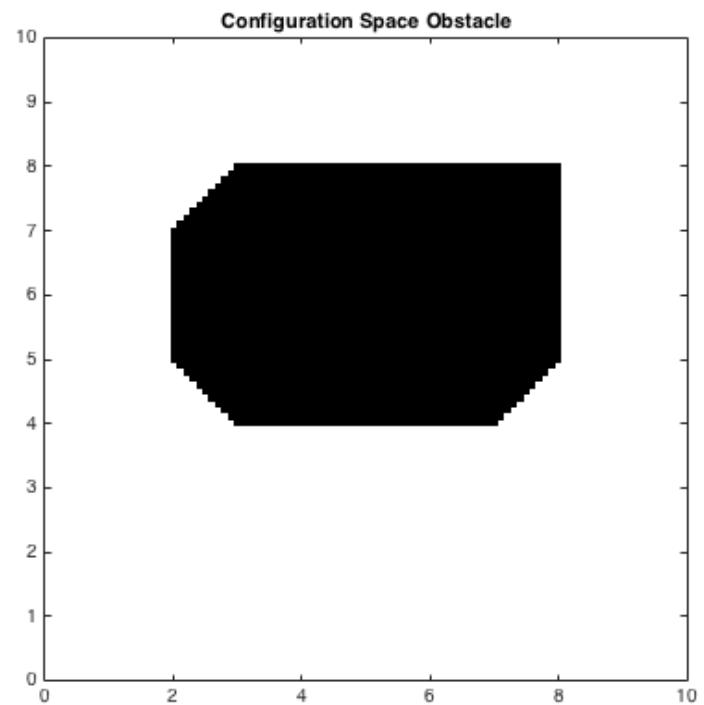
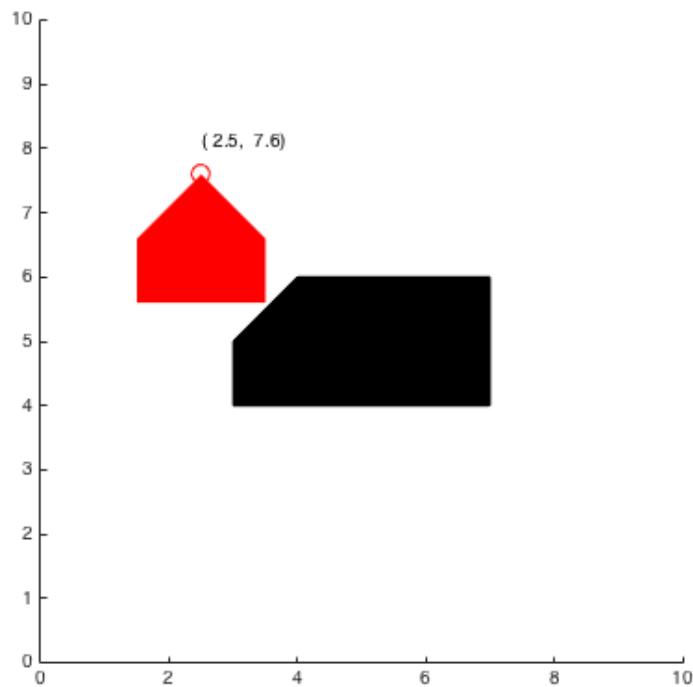
Simple Robot – Translation in the Plane



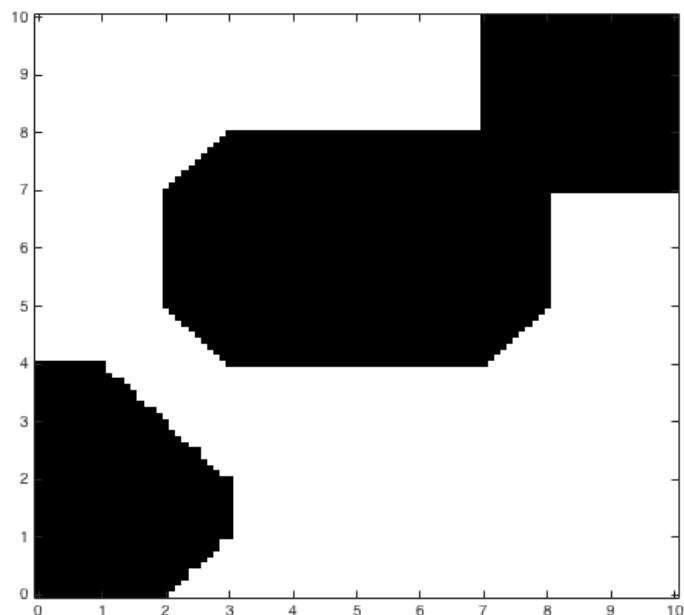
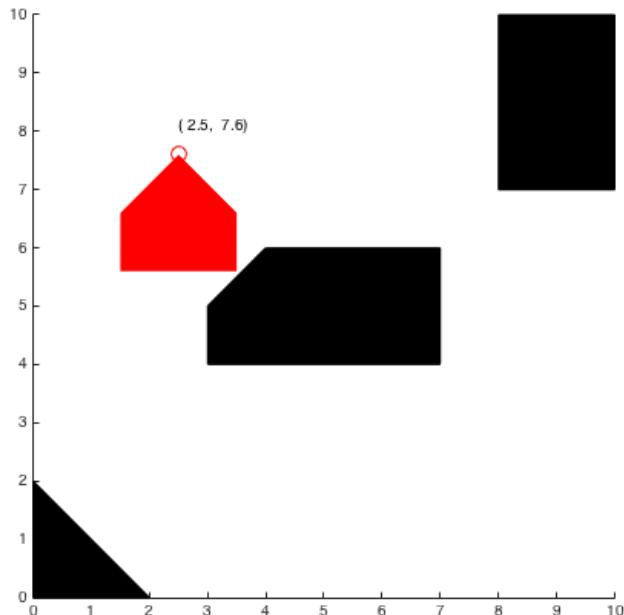
Adding an Obstacle

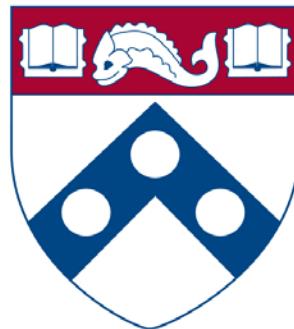


Configuration Space Obstacle



Configuration Space Obstacles



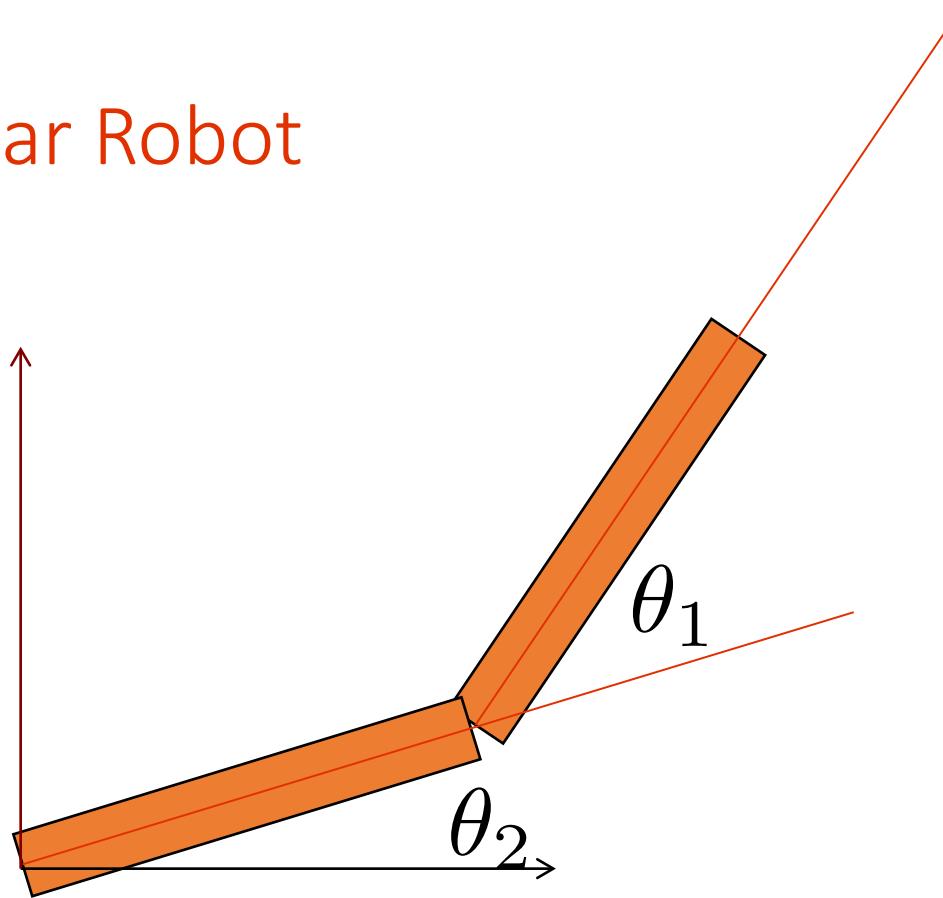


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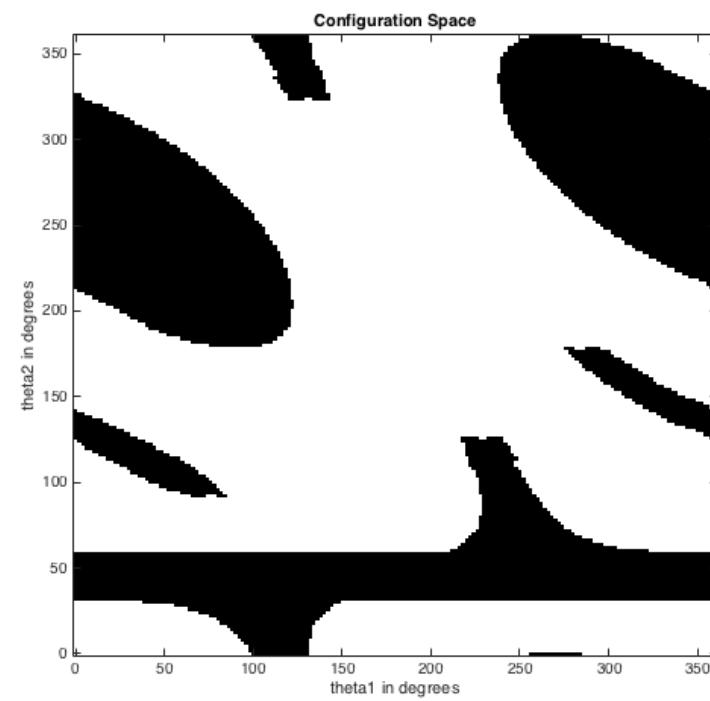
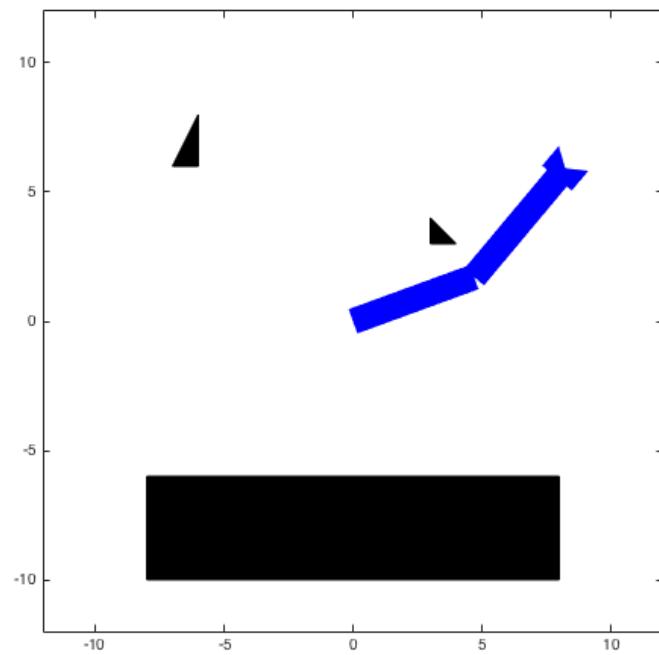
Two Link Planar Robot



Two Link Robot + Configuration Space

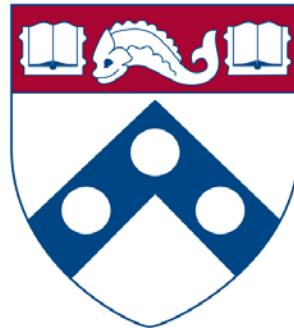


Configuration Space Obstacles for RR Arm



Planning Trajectory for 2 Link Arm



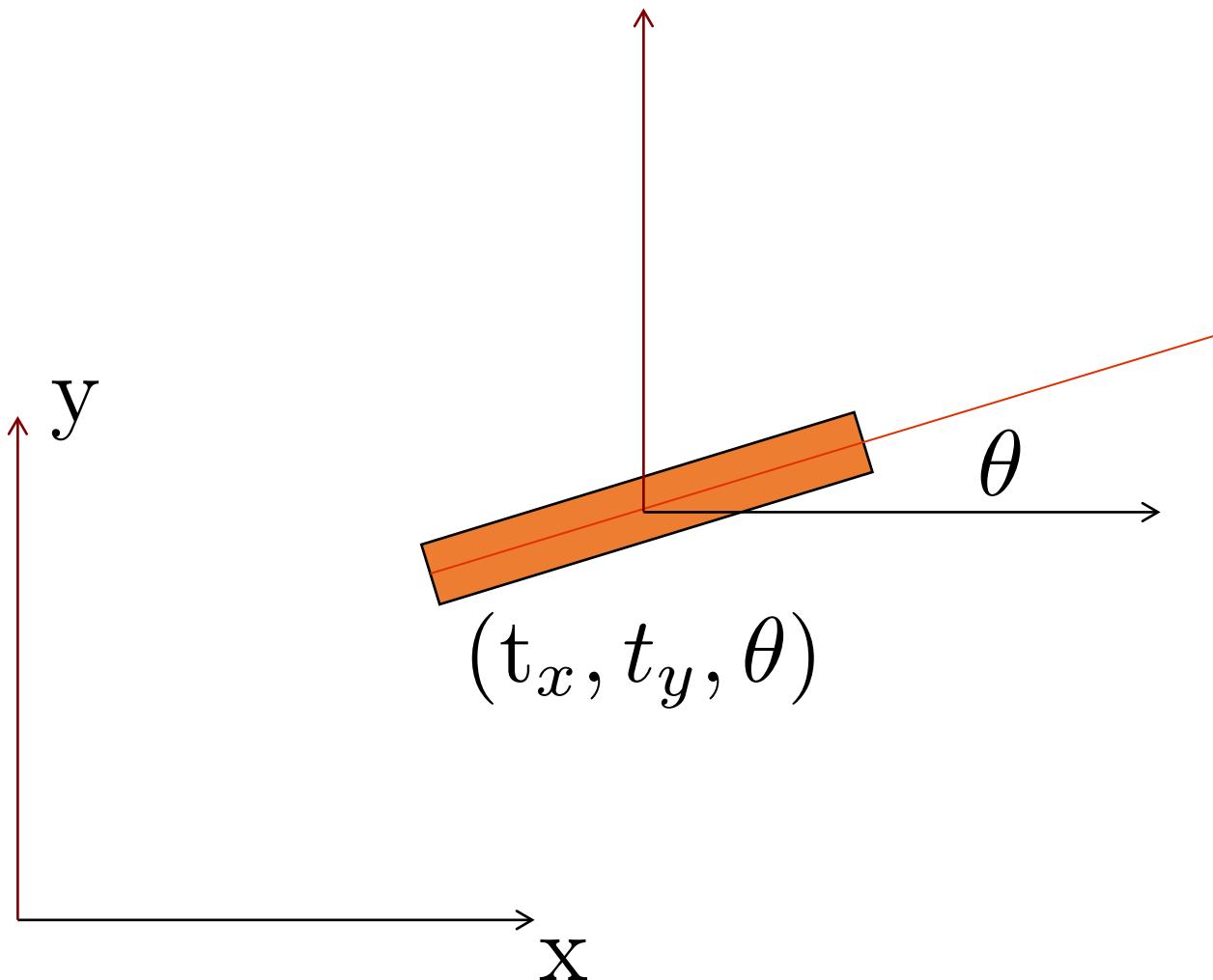


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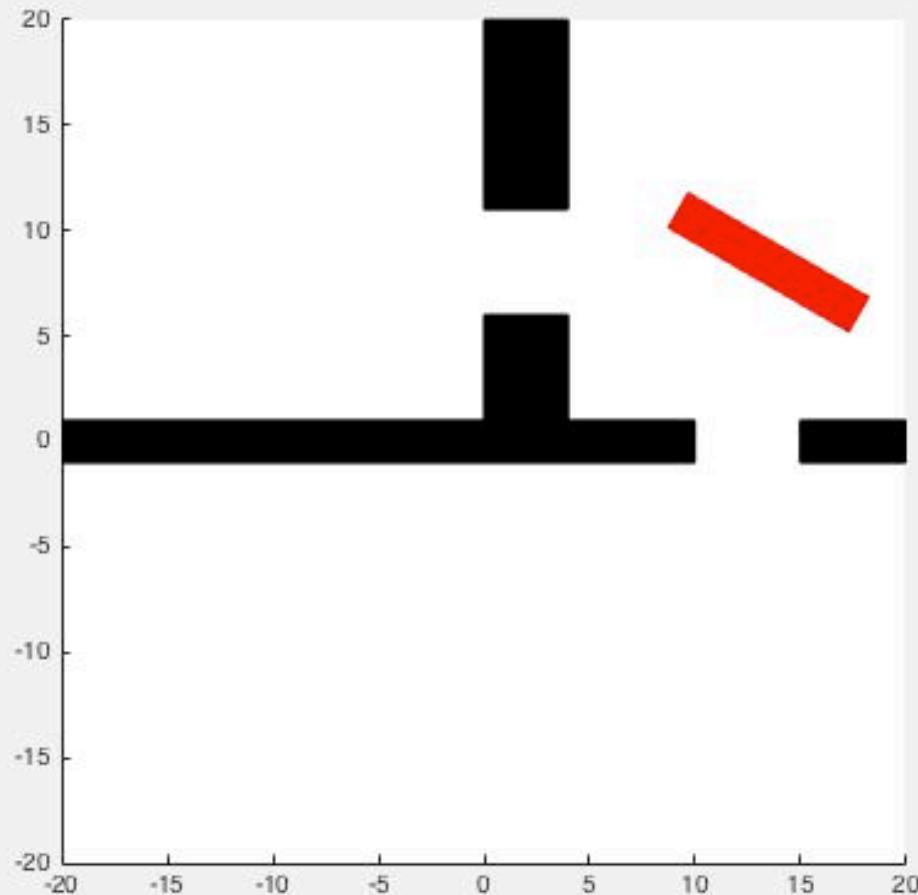
Video 10.3

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Translating and Rotating Robot



Rotation and Translation with Obstacles



Configuration Space Obstacle

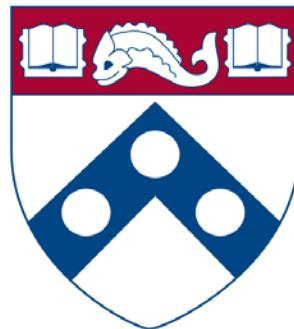


Configuration Space Trajectory



Six Link Planar Robot

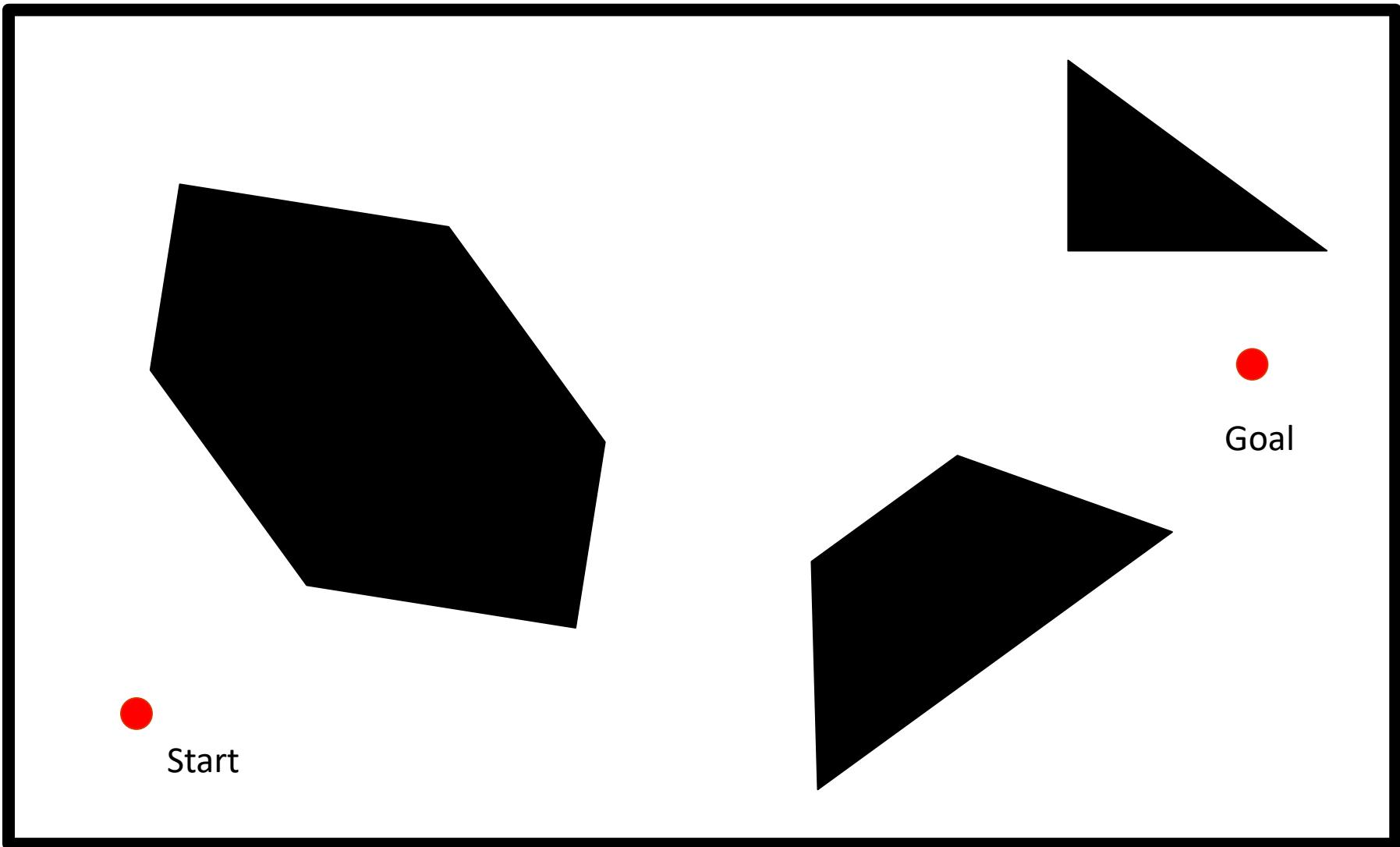


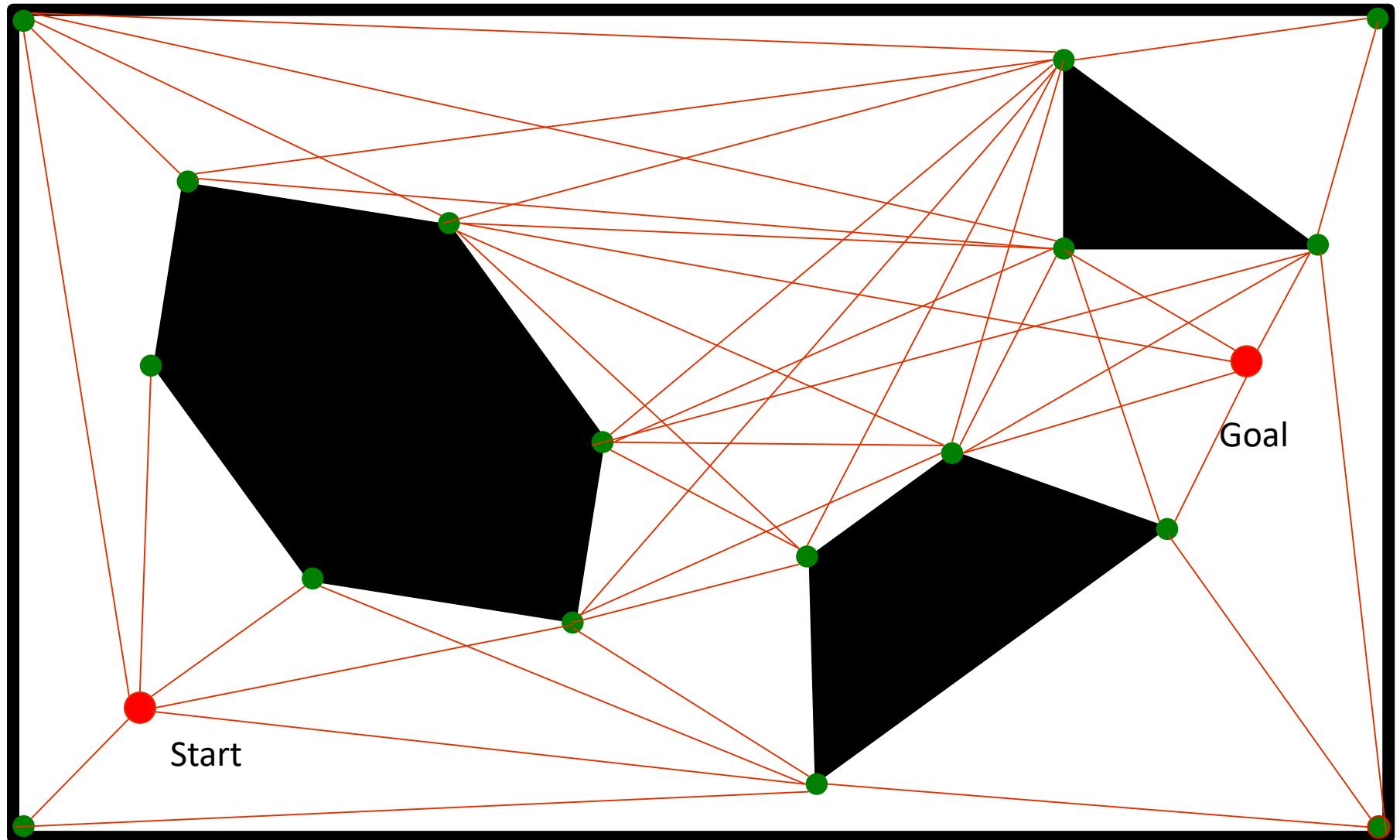


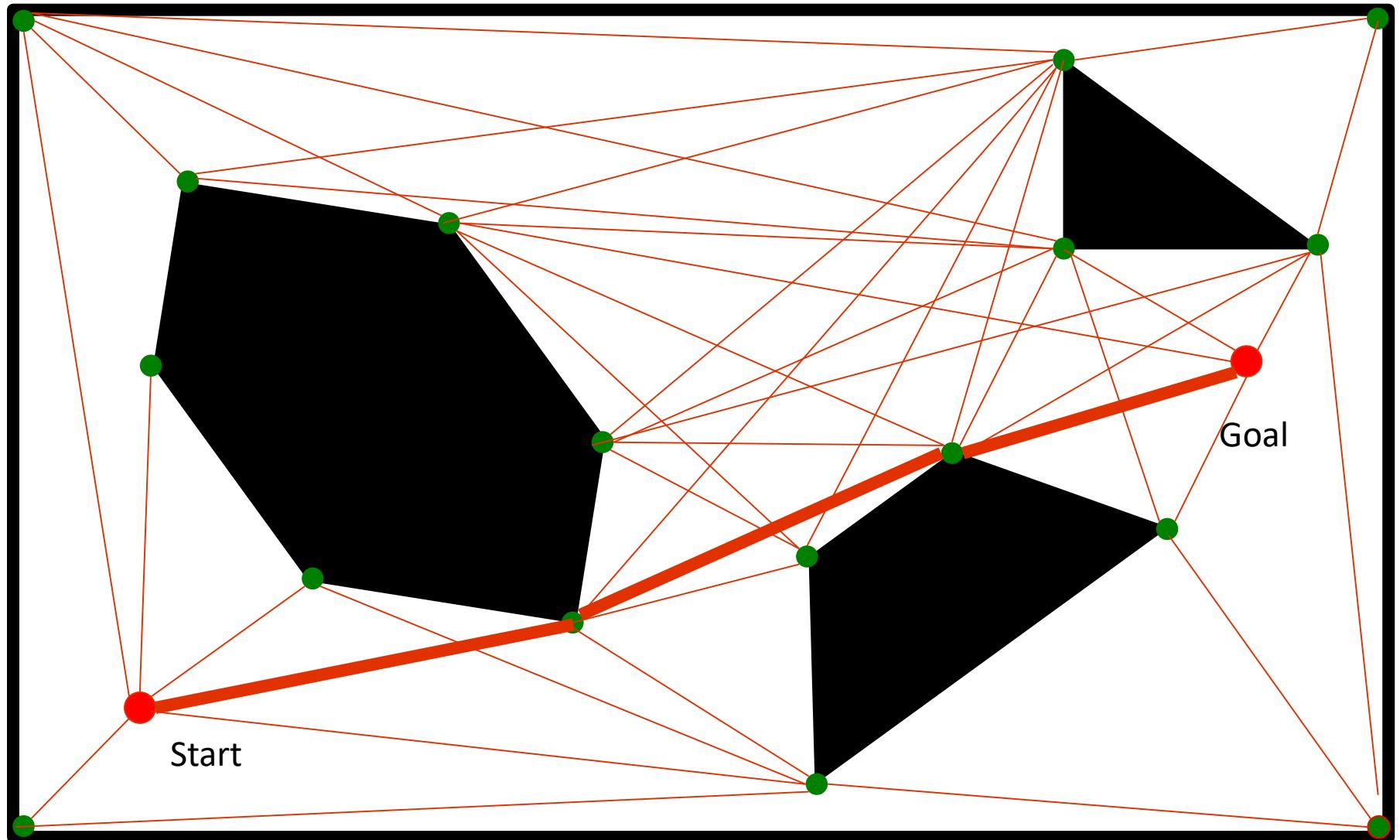
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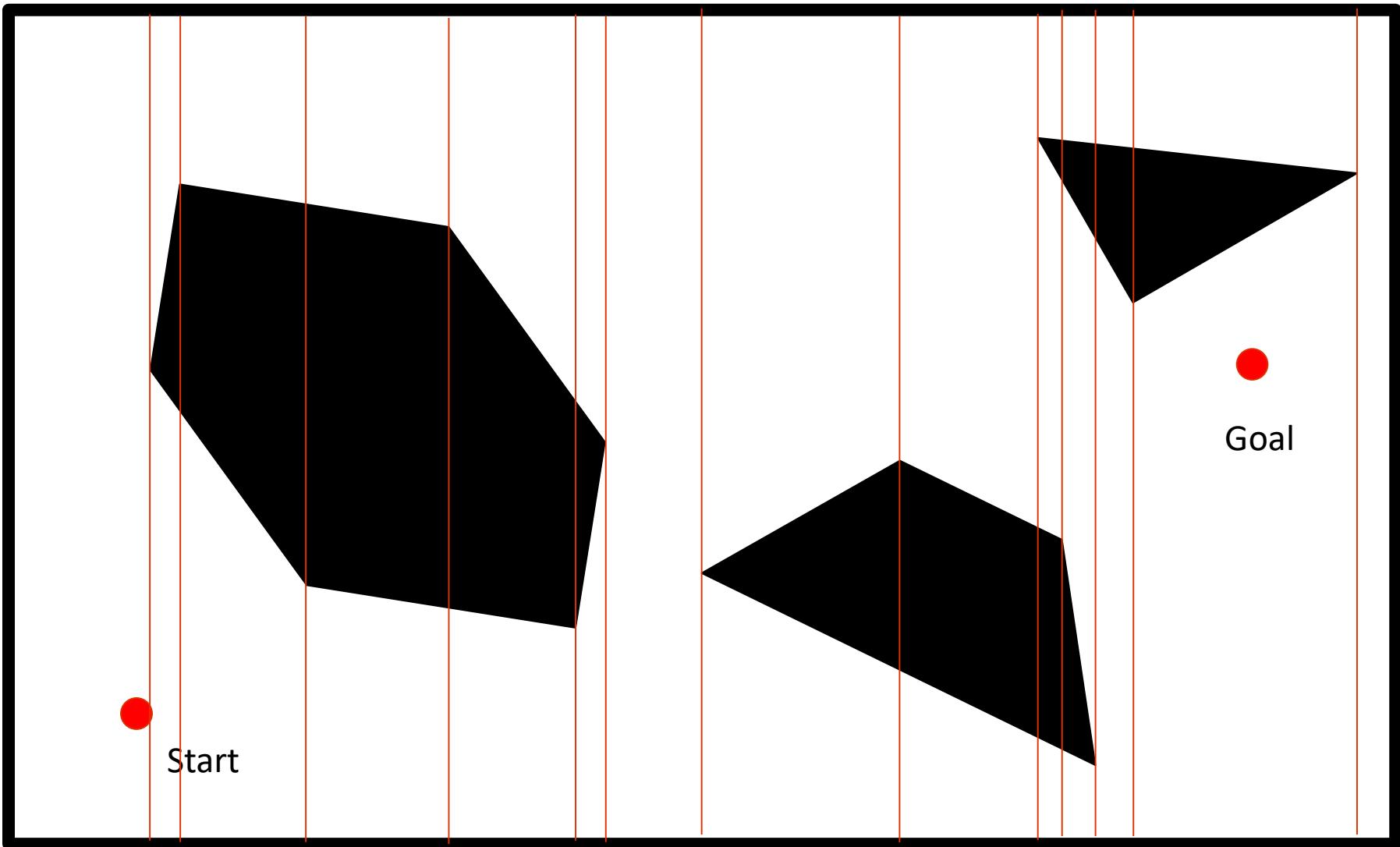


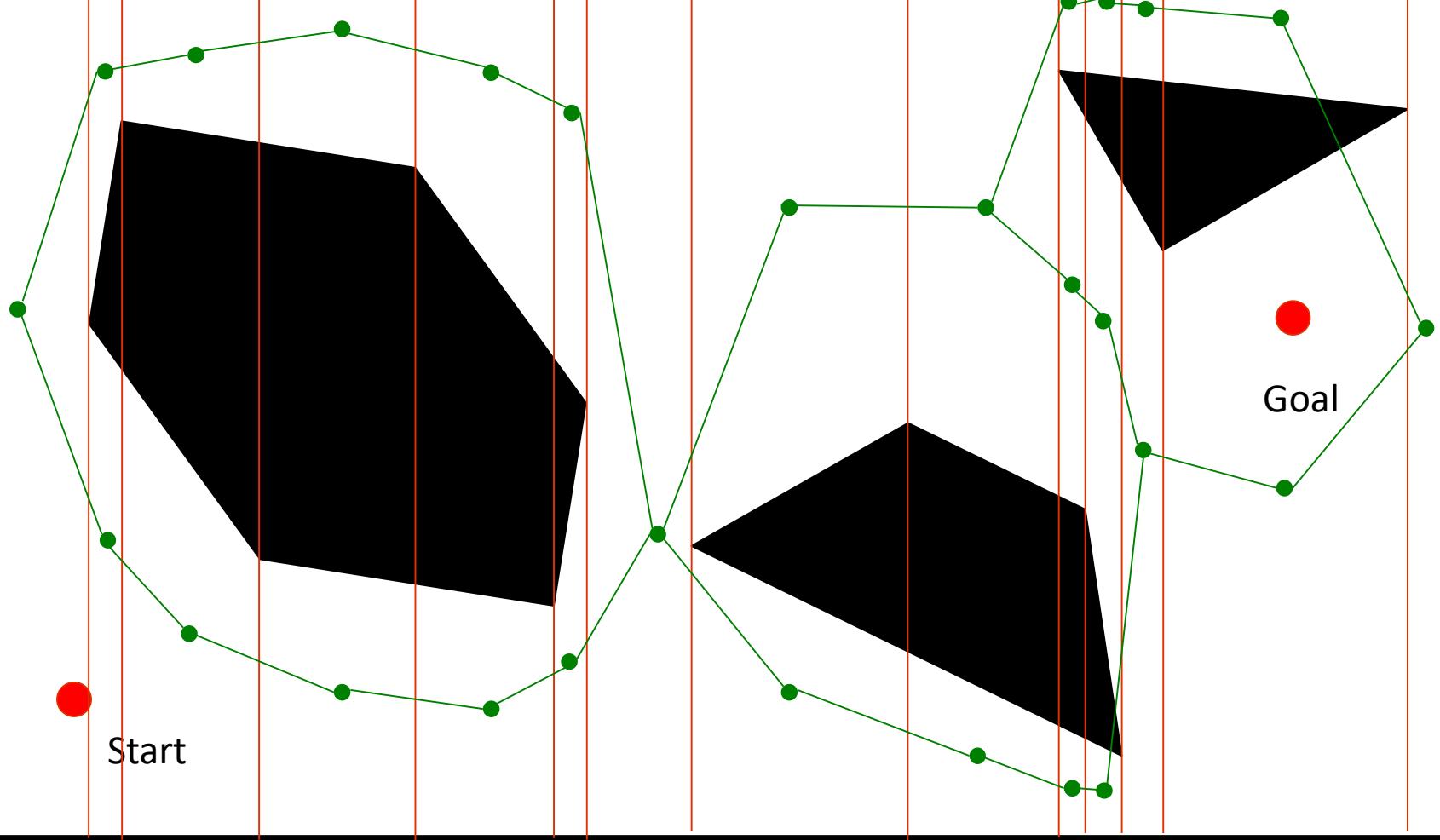


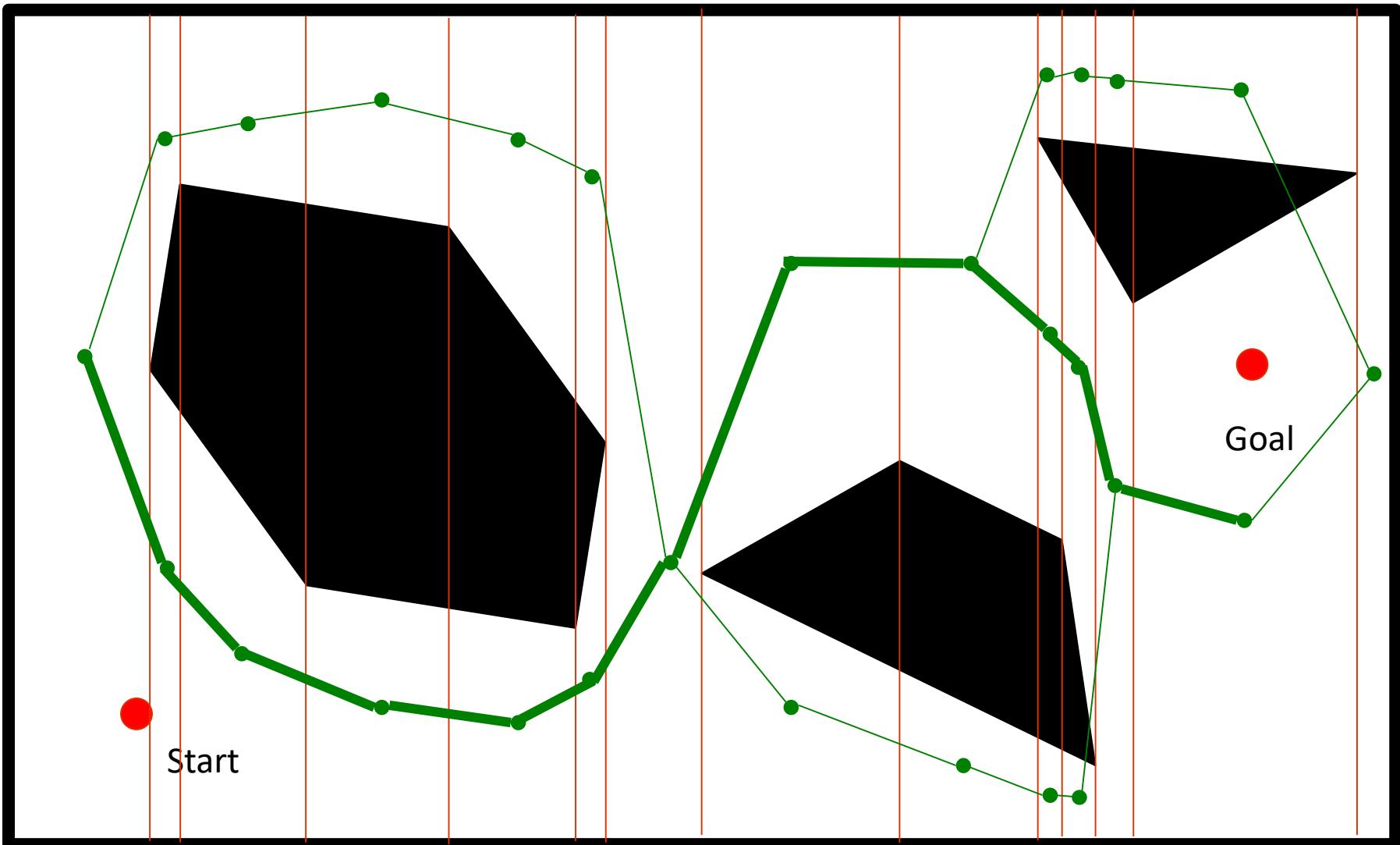
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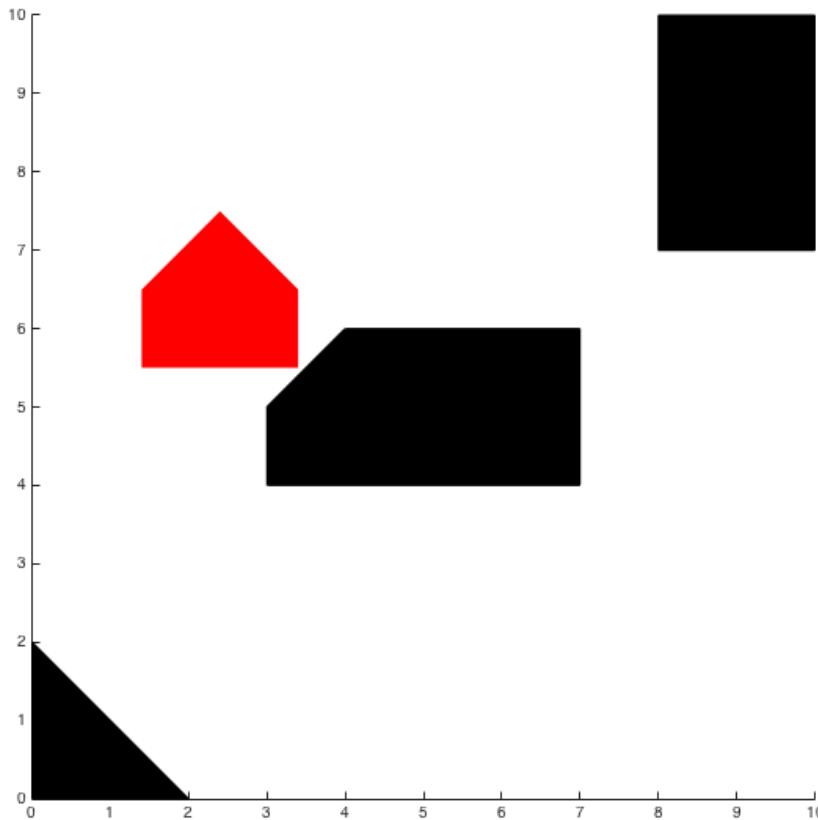
Video 10.6

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Collision Detection Function

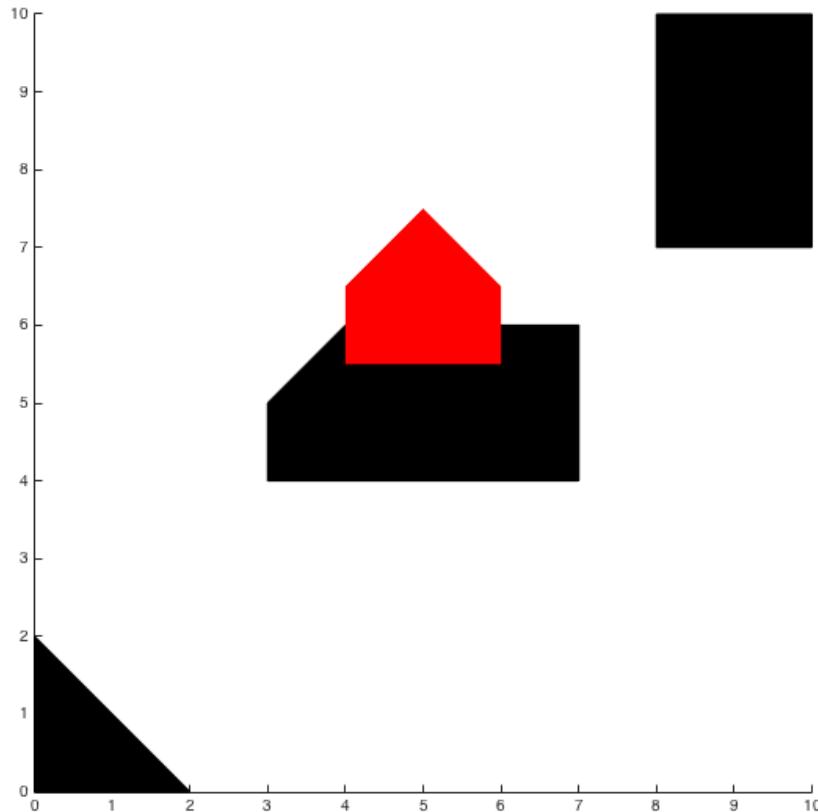
- Let x denote the coordinates of a point in configuration space.
- `CollisionCheck (x)` should return 0 if x is in freespace and 1 if x results in a collision with the obstacles.

Collision Detection



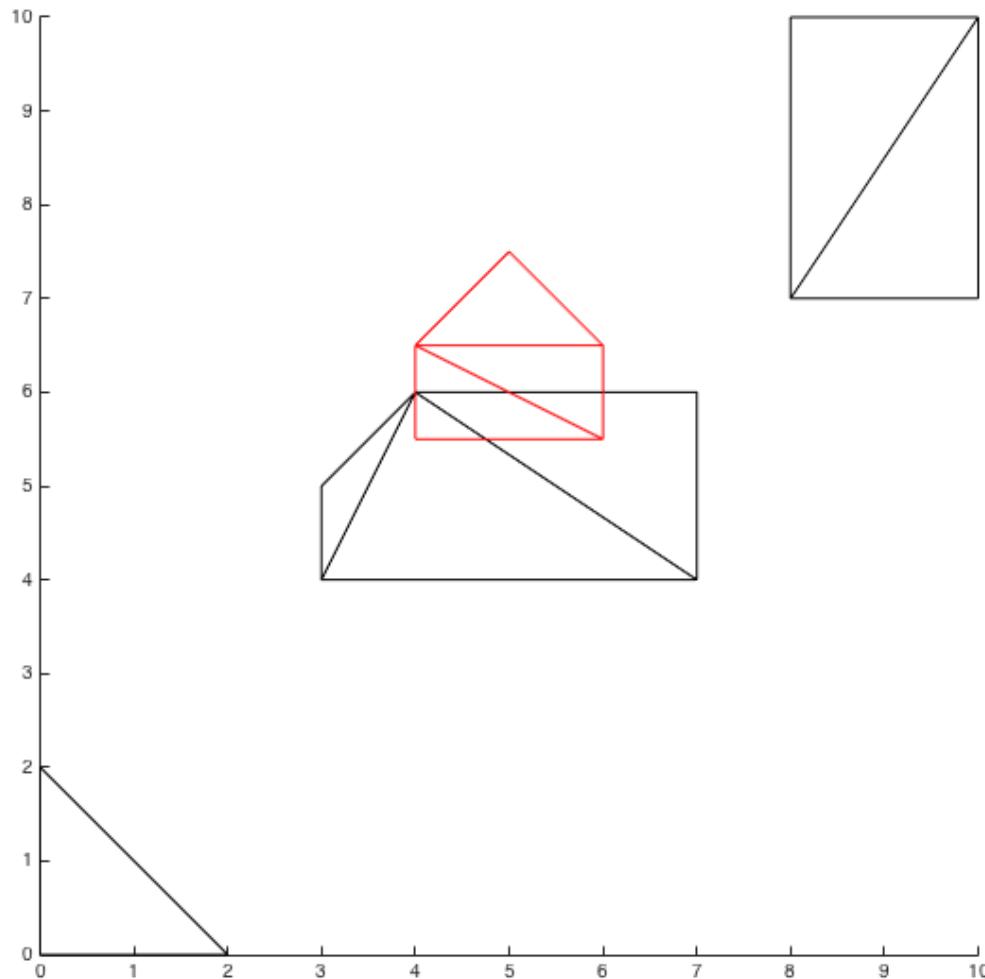
CollisionCheck (x) -> 0

Collision Detection

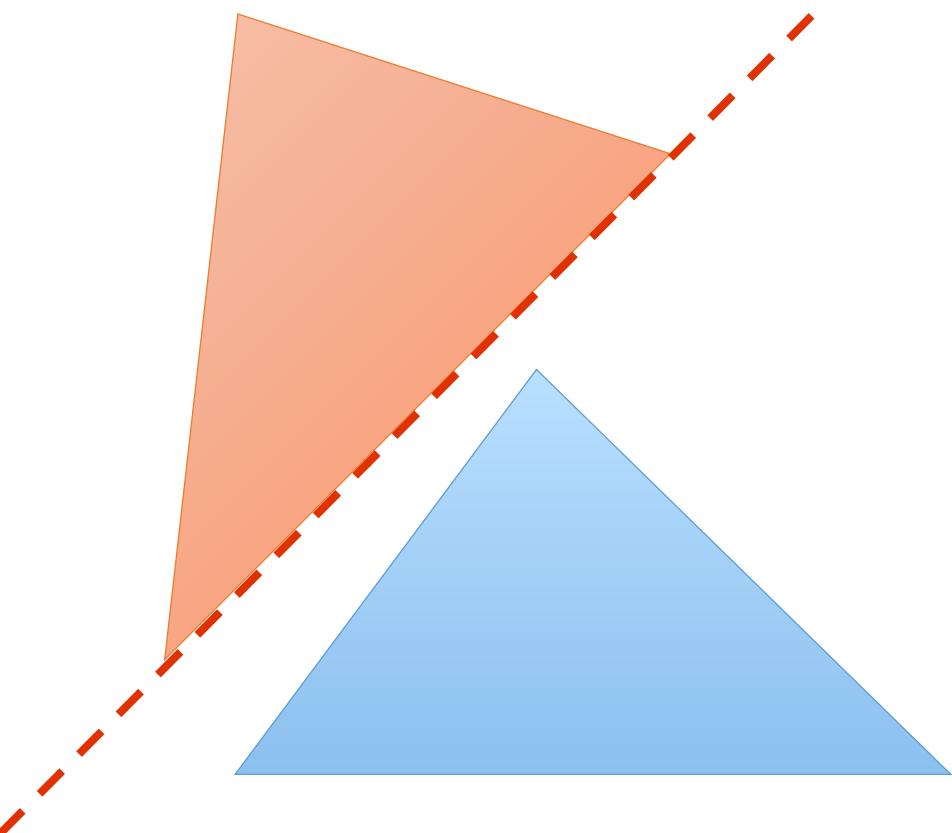


CollisionCheck (x) -> 1

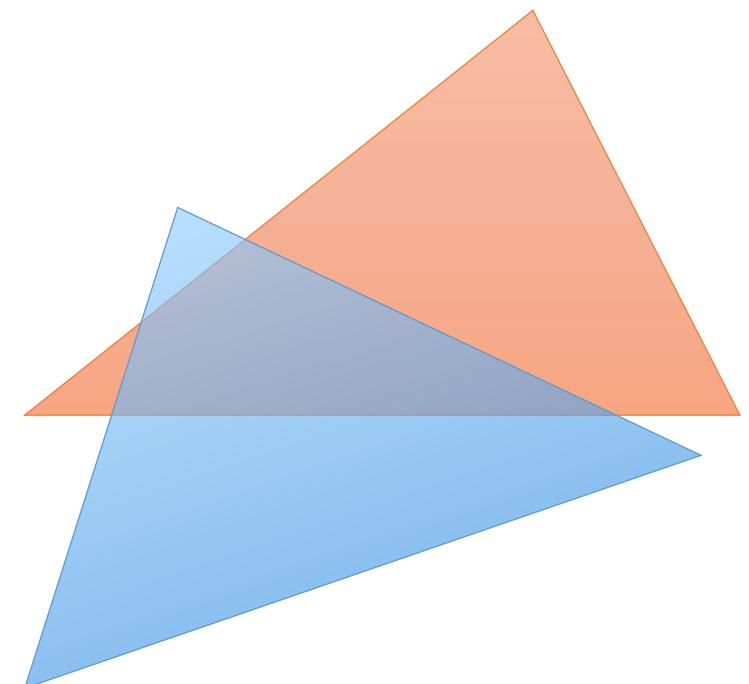
Collision Detection



Testing Triangles for Overlap

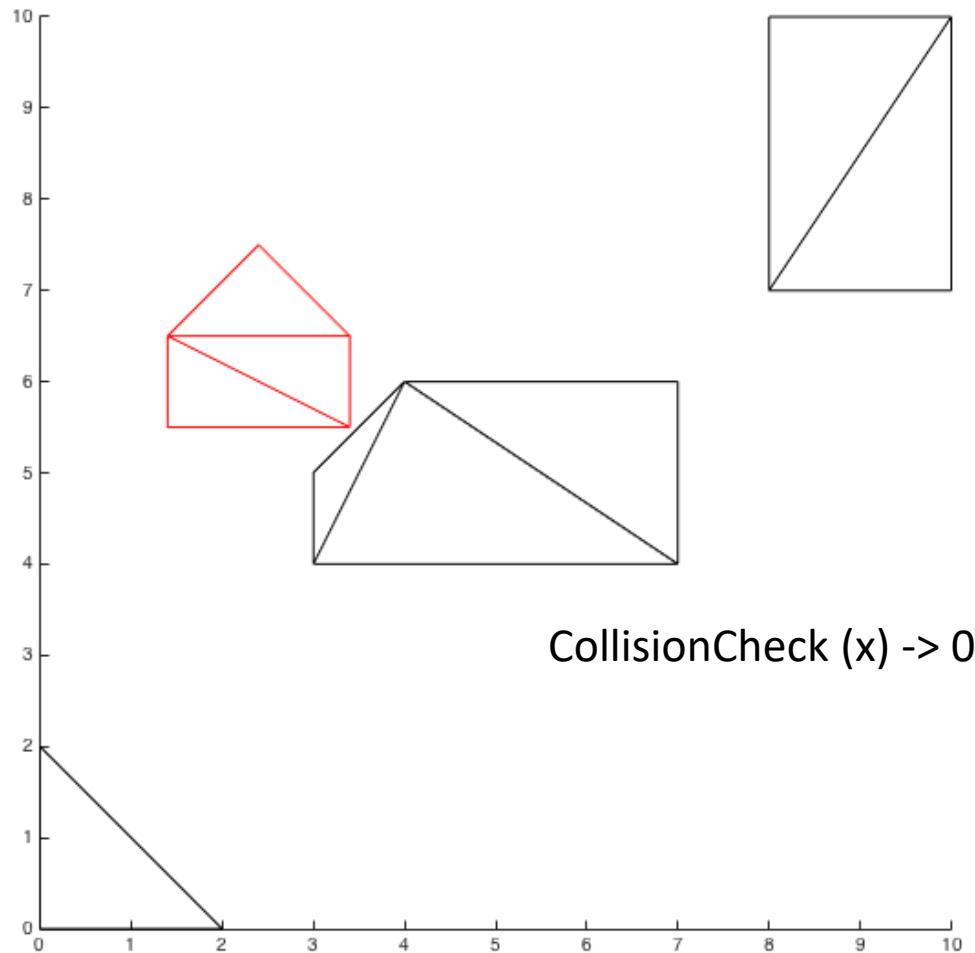


Separating Edge -> No Overlap

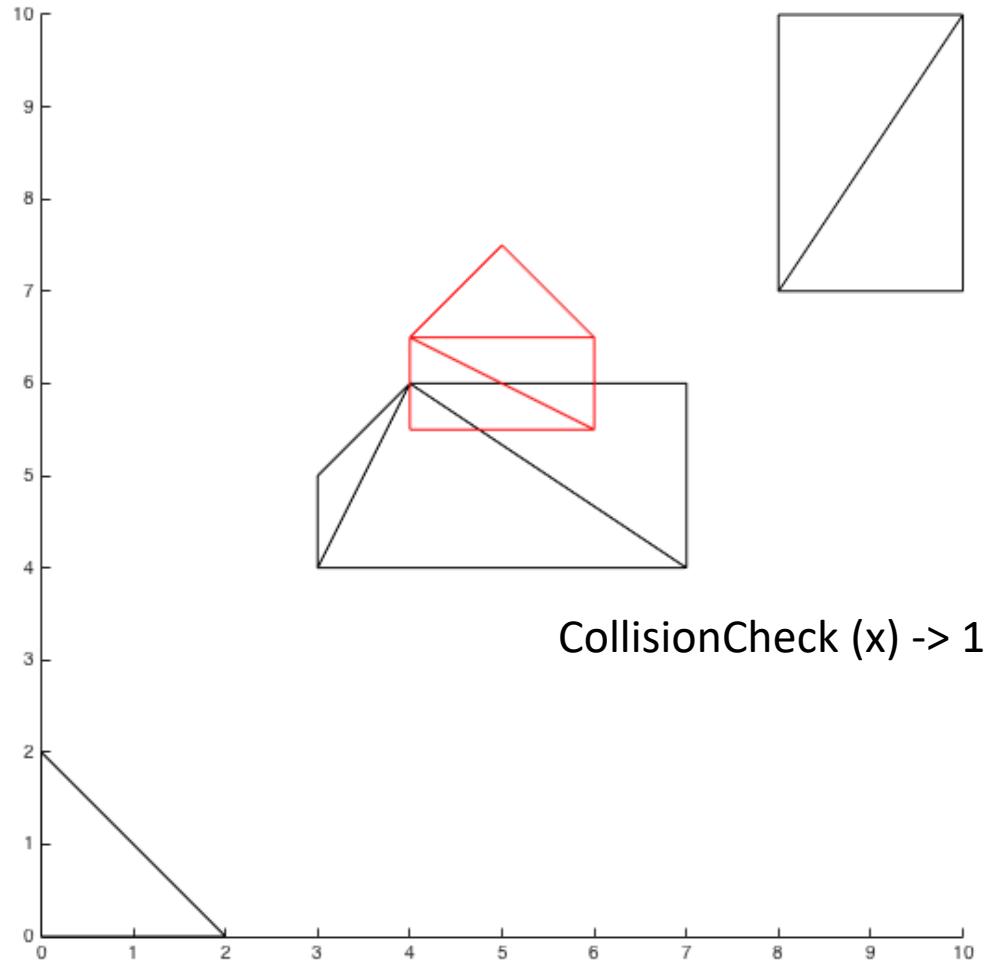


No Separating Edge -> Overlap

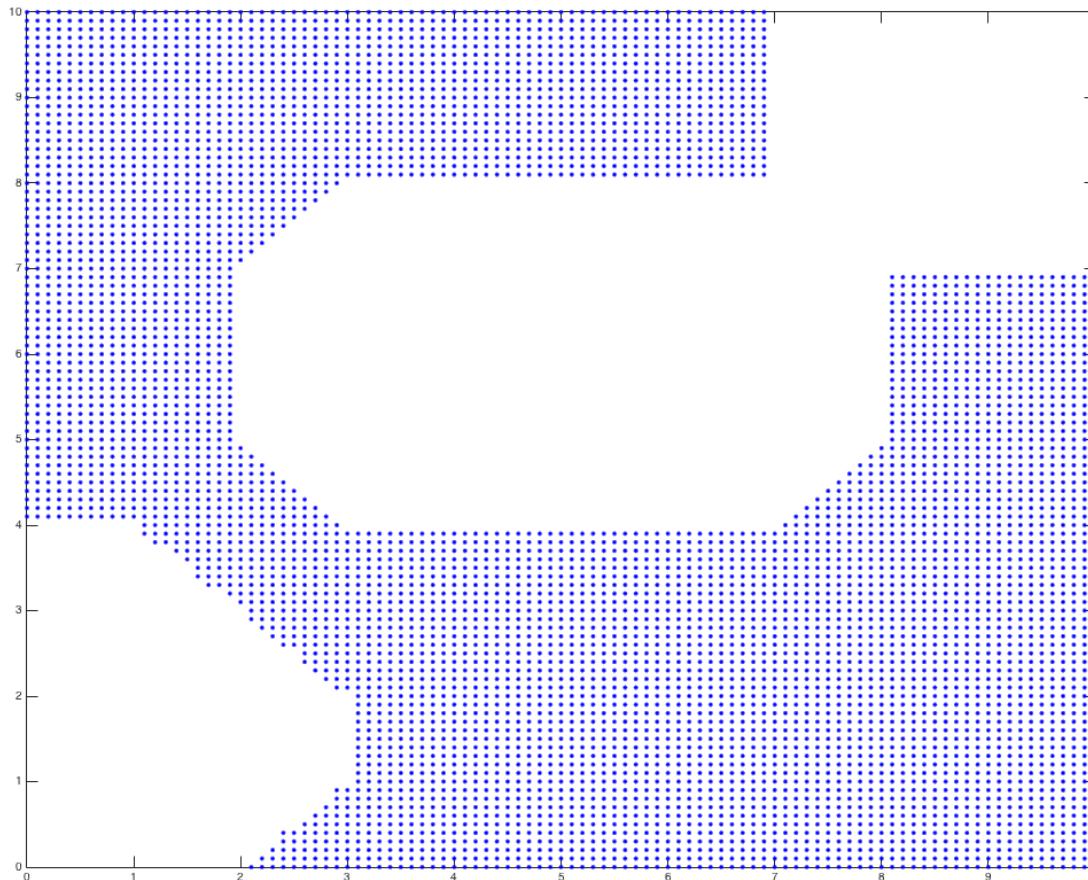
Collision Checking



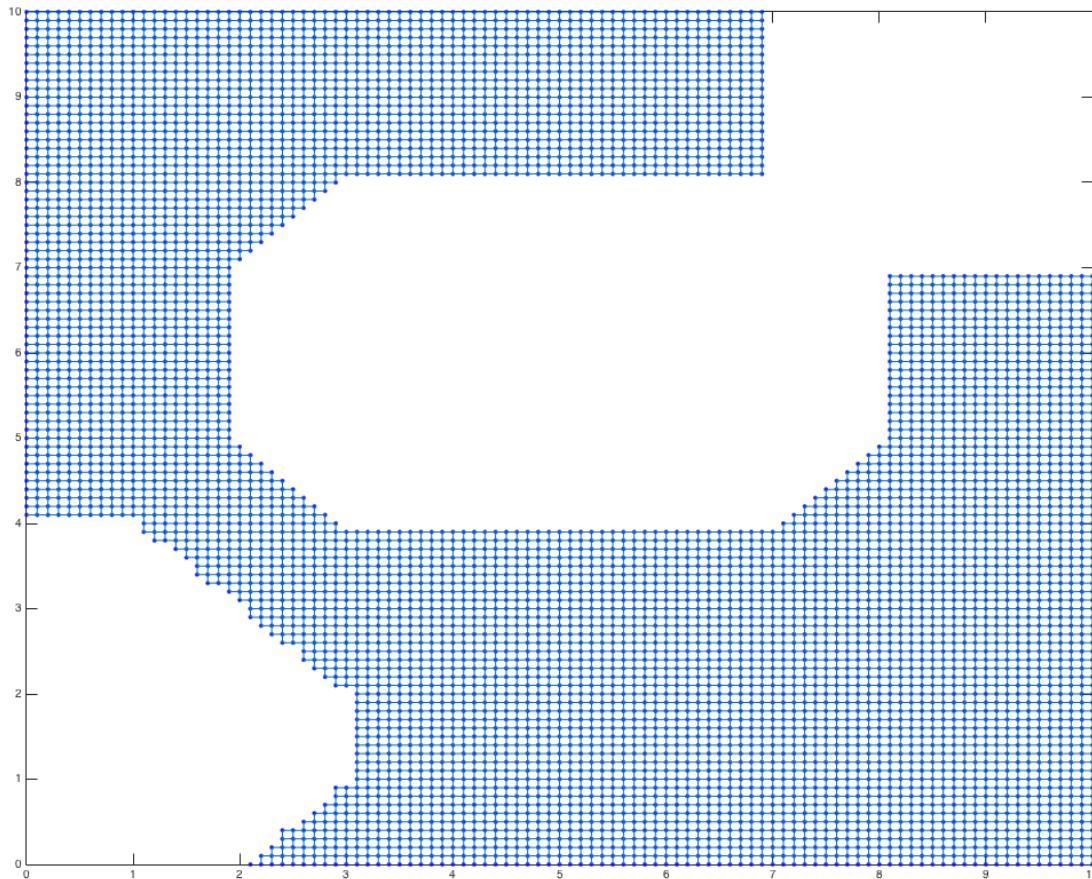
Collision Checking



Sampled Points in freespace



Graph Made from Sampled Points



Path through graph

