

Artificial Intelligence

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Outline

Graph basics

Graphs

- ▶ A graph $G = (N, E)$ consists of a set of nodes N and a set of edges E .
- ▶ An edge $(i, j) \in E$ is a pair of nodes $i, j \in N$.

Paths

- ▶ A path x_1, \dots, x_t is a series of nodes (and edges) in the graph so that

$$(x_i, x_{i+1}) \in E.$$

To assign meaning to the graph, we can assign labels.

Edge Labels

- ▶ Action (each edge corresponds to an agent action)
- ▶ Costs/reward (the cost/gain of each action)

Node labels

- ▶ Goals
- ▶ Costs/reward (the cost/gain of going to a node)