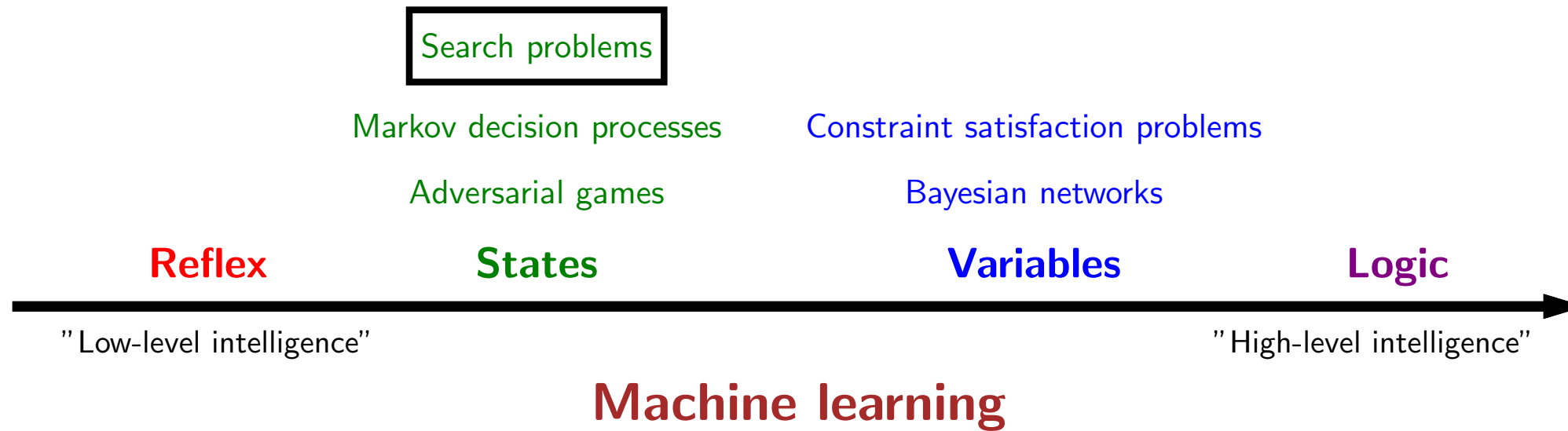




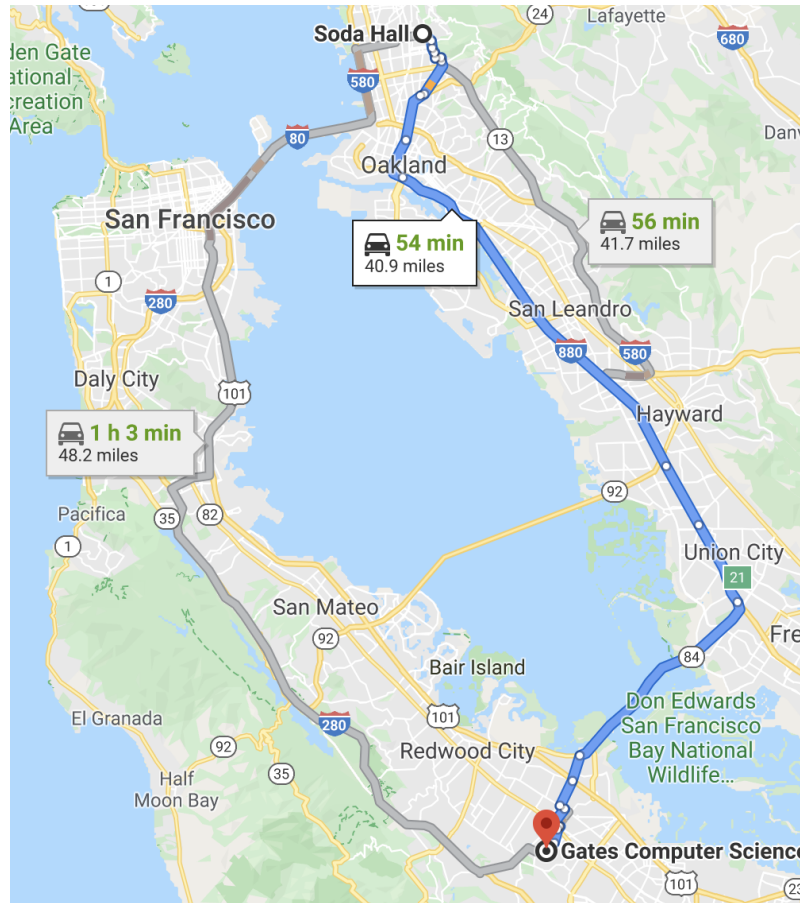
Search: overview



Course plan



Application: route finding



Objective: shortest? fastest? most scenic?

Actions: go straight, turn left, turn right

Application: robot motion planning



Objective: fastest path

Actions: acceleration and throttle

Application: robot motion planning



Objective: fastest? most energy efficient? safest? most expressive?

Actions: translate and rotate joints

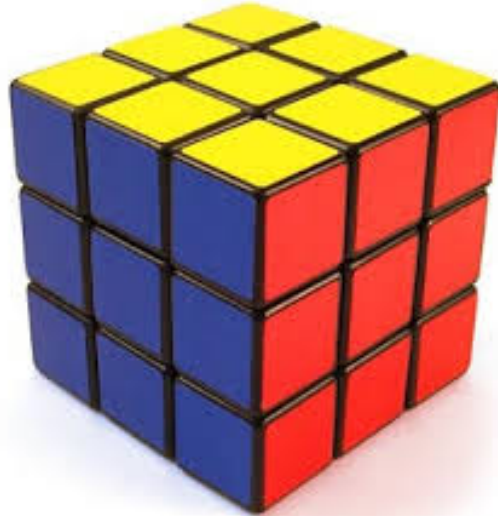
Application: multi-robot systems



Objective: fastest? most energy efficient?

Actions: acceleration and steering of all robots

Application: solving puzzles



Objective: reach a certain configuration

Actions: move pieces (e.g., Move12Down)

Application: machine translation

la maison bleue



the blue house

Objective: fluent English and preserves meaning

Actions: append single words (e.g., the)

Beyond reflex

Classifier (reflex-based models):



Search problem (state-based models):



Key: need to consider future consequences of an action!

Paradigm

Modeling

Inference

Learning

Roadmap

Modeling

Modeling Search Problems

Algorithms

Tree Search

Dynamic Programming

Uniform Cost Search

Programming and Correctness of UCS

A*

A* Relaxations

Learning

Structured Perceptron