**Course Notes – Search**

* **Introducción**
* **Search**
  + Sort numbers
  + Solve a Maze
  + Driver direction
    - Best way, dependen don traffict
  + Search problems
  + **Terminology**
    - **Agent**

Entity that perceives its environment and acts upon that environment

* + - **State**

A configuration of the agent and its environment

* + - **Initial state**

The stage in which the agent begins

* + - **Action**

Choices that can be made in a state

As a function, Action(s) returns the set of actions that can be executed in state s

* + - **Transition model**

A description of what state results from performing any applicable action in any state

More precise, a function calls return(s,a) return resulting from performing action a in state s.

* + - State space

The set of all starts reachable from the initial state by any sequence of actions. Include all the nodes(states) an path to reach our goal

* + - Goal test

Way to determine whether a given state is a goal state

* + - Past cost

Numerical cost associated with a given path

How expensive it is to get the best option

* + - Solution

A sequence of action s that leads form the initial stat to a goal state

* + - Optimal solution

A solution that has the lowest path cost among all solutions

* + - Node

A data structure that keeps track of

* + - * A state
      * A parent (node that generated this node)
      * An action (action applied to parent to get node)
      * A path cost (from initial state to node)
    - Summary
      * Main parts of search problems
        + Initial state
        + Actions
        + Transition model
        + Goal test
      * Path cost function problems
        + Initial state
        + Actions
        + Transition model
        + Goal test
        + Path cost function
        + Optimal solution