EPITECH.
PARIS GRADUATE SCHOOL OF DIGITAL INNOVATION

Intro to Artificial Intelligence

Boardgame IA Design

B9 - Artificial Intelligence Introduction

M-ALG-900

Intro to Artificial Intelligence

Beyond Deterministic Methods

- Obvious intermediate scoring may be totally impossible to compute
- For instance, the scoring of a go-ban
- We want to train our algorithm to give a scoring faster than getting through a whole tree.

Training (exemple)

- We run a great deal of games N.
- For many of these games we encounter a given situation X.
- The scoring Y of the situation X is the number of final victories in a game encountering a situation X.

$$\mathcal{G}(X) = \frac{N(V \cap X)}{N(X)} \sim P(V|X)$$

Supervised Learning

Observations:

- Empirical target variable $\tilde{Y}$ (final scoring of the game)
- Empirical data $\tilde{X}$

Supervised Learning

Observations:

- Empirical target variable $\tilde{Y}$ (final scoring of the game)
- Empirical data $\tilde{X}$

Hypotheses:

- $\tilde{X}$ is a set of observation stemming from a stochastic process X
- $\tilde{Y}$ is a set of observation stemming from a stochastic process Y
- there exists a relation $Y = f(X)$

Supervised Learning

Observations:

- Empirical target variable $\tilde{Y}$ (final scoring of the game)
- Empirical data $\tilde{X}$

Hypotheses:

- $\tilde{X}$ is a set of observation stemming from a stochastic process X
- $\tilde{Y}$ is a set of observation stemming from a stochastic process Y
- there exists a relation $Y = f(X)$

Objectives:

- Build a function $\tilde{f}$ based on $\tilde{X}$ and $\tilde{Y}$
- Such that $\tilde{f}$ is a good approximation of f
- So we can predict $\tilde{Y}' = \tilde{f}(\tilde{X}')$ on a new sample

Phantom of the Opera

Running a whole lot of games, try to compute scores for different couples (i, g) where i is the number of isolated suspects and g the number of non-isolated ones.

Any questions

?