# Experimental study of Monte Carlo Tree Search adaptations with respect to epsilon-greedy exploration

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**Abstract**

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## Preface

The concept of machine learning has been steadily gaining more traction since the late 1980's, when computer hardware became powerful enough to run complex algorithms and compute large amounts of data. Although important discoveries like the perceptron, pattern recognition techniques like nearest-neighbor and the discovery of back propagation were found early in the second half of the $20^{th}$ century, experimental application was lagging behind. With reinforcement learning being discovered as well as the commercialization of machine learning algorithms on personalized computers at the turn of the 1980's, this marked the practical beginning of the modern field known as artificial intelligence, which has lately become a widespread term.
—— ADD ImageNet (2009) ——
Applications for intelligent machines are endless, reigning from simple board games, to vehicular accident prevention.
—— ADD theoretical applications ——
However, in order for machines to learn, they must also be able to decide. That is, decide what action is best in their current situation. The planning of such strategies, and how to best explore the problem domain in question, is what the branch of automated planning concerns itself with.

## Automated Planning

## Fast-Downward

## Search

### Tree Search

### Open list Search