

CAP 4053 Artificial Intelligence for Computer Games: Planning

CAP 4053 Artificial Intelligence for Computer Games Lecture Notes

Introduction

Artificial Intelligence (AI) is a field of computer science that focuses on creating intelligent machines that can think and act like humans. AI has been used in computer games for many years, and it is becoming increasingly important in the gaming industry. This course will cover the fundamentals of AI and its application to computer games. We will discuss topics such as game design, game AI algorithms, and AI programming techniques.

Key Concepts

- **Game Design**: Game design is the process of creating a game, from concept to completion. It involves creating the rules, mechanics, and objectives of the game.
- **Game AI Algorithms**: AI algorithms are used to create intelligent behavior in computer games. These algorithms can be used to create pathfinding, decision-making, and other complex behaviors.
- **AI Programming Techniques**: AI programming techniques are used to create the code that will control the behavior of the AI in a game. These techniques include search algorithms, machine learning, and evolutionary algorithms.

Definitions

- **Pathfinding**: Pathfinding is the process of finding a path from one point to another. It is used in computer games to allow characters to move around the game world.
- **Decision-Making**: Decision-making is the process of making choices or decisions based on available information. In computer games, decision-making is used to create intelligent behavior in NPCs and enemies.
- **Search Algorithms**: Search algorithms are used to find solutions to problems. They can be used in computer games to find the best path for a character to take.
- **Machine Learning**: Machine learning is a type of artificial intelligence that uses algorithms to learn from data. It can be used in computer games to create intelligent behavior.
- **Evolutionary Algorithms**: Evolutionary algorithms are a type of artificial intelligence that use evolutionary principles to solve problems. They can be used in computer games to create intelligent behavior.

Practice Multiple Choice Questions

Q: What is pathfinding?

A: A. Pathfinding is the process of finding a path from one point to another.