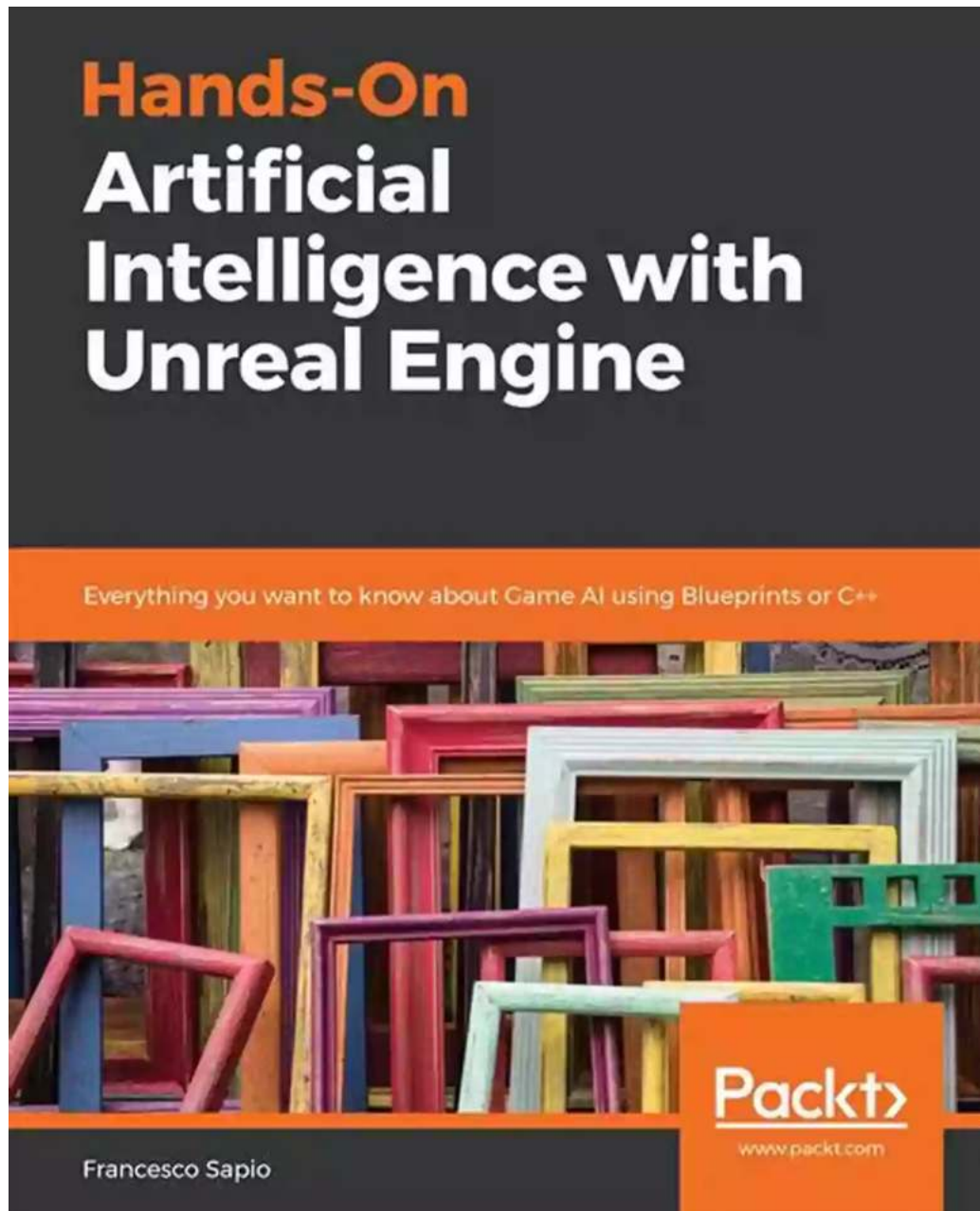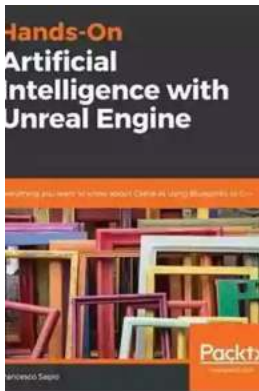# Hands On Artificial Intelligence With Unreal Engine - Unlocking the Future of Interactive Gaming

In the fast-paced world of gaming, developers are constantly seeking new and innovative ways to enhance player experiences and create more immersive

virtual environments. Artificial Intelligence (AI) has emerged as a powerful tool in this quest, with Unreal Engine leading the charge in revolutionizing the gaming industry.

Unreal Engine, developed by Epic Games, is a cutting-edge game engine that enables developers to utilize AI to create intelligent and lifelike virtual characters, environments, and gameplay scenarios. The engine's flexible architecture and robust feature set make it an ideal platform for incorporating AI into game development.

Hands-On Artificial Intelligence with Unreal Engine: Everything you want to know about Game AI using Blueprints or C++

by Jeesmon Jacob(1st Edition, Kindle Edition)

★★★★☆　4.3 out of 5

Language	: English
File size	: 62041 KB
Text-to-Speech	: Enabled
Screen Reader	: Supported
Enhanced typesetting	: Enabled
Print length	: 736 pages

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Why Artificial Intelligence?

AI is transforming the way games are designed and played. By integrating AI algorithms into games, developers can create realistic non-player characters (NPCs) that exhibit human-like behavior and adapt to different situations, delivering more immersive and challenging gameplay.

Unreal Engine provides developers with various AI tools and functionalities, empowering them to leverage the full potential of AI in game development. These tools include advanced behavior trees, perception systems, artificial neural networks, and machine learning frameworks. Coupled with the engine's powerful graphics rendering capabilities, AI-enhanced games can truly push the boundaries of what is possible in interactive entertainment.

Getting Hands On With AI in Unreal Engine

Embarking on a journey to explore AI in Unreal Engine can be both exciting and daunting. However, the rewards far outweigh the challenges. Here, we'll guide you through some fundamental steps to get started with AI in Unreal Engine:

1. Understanding the Basics

Before diving into AI development, it's crucial to have a solid understanding of the underlying concepts. Familiarize yourself with AI terminology, such as behavior trees, AI perception, decision making, and reinforcement learning. Additionally, learning a programming language, such as C++ or Blueprint scripting in Unreal Engine, will pave the way for implementing AI algorithms.

2. Exploring AI Features in Unreal Engine

Unreal Engine offers a wide range of AI-centric features, such as the Behavior Tree Editor, which allows developers to design complex behavior patterns for NPCs. The Perception System equips characters with senses like sight and hearing, enabling them to detect and react to their surroundings. Developers can also leverage machine learning frameworks like TensorFlow or Unreal's built-in AI framework for training intelligent NPCs.

3. Experimenting With AI Tools

Once you have a grasp of the basics and explored the available AI features, it's time to experiment. Start by creating simple AI-powered characters and gradually increase the complexity of their behaviors. Test different decision-making scenarios and fine-tune the AI parameters to achieve the desired outcomes. Unreal Engine's robust debugging tools will help you identify and fix any issues in your AI implementation.

4. Learn From the Unreal Engine Community

Being part of a thriving community can significantly boost your AI development journey in Unreal Engine. Join online forums, attend game developer conferences, and engage in discussions with fellow developers. Sharing knowledge and experiences will not only help you stay updated with the latest AI advancements but also provide valuable insights into overcoming development challenges.

5. Pushing Boundaries With AI in Unreal Engine

As you gain expertise in AI development with Unreal Engine, it's time to push the boundaries and create truly groundbreaking experiences. Innovate by integrating advanced AI techniques like machine learning, natural language processing, or computer vision into your games. Work on projects that involve large-scale AI interactions and explore new avenues for player engagement and immersion.

Artificial Intelligence has become an indispensable part of the gaming industry, and Unreal Engine provides developers with unmatched capabilities to leverage AI in creating immersive gaming experiences. Whether you're a seasoned developer or just starting, the world of AI in Unreal Engine offers endless possibilities for innovation and pushing the boundaries of interactive gaming.

So, buckle up, dive deep into AI concepts, and embark on an exciting journey of building intelligent gaming worlds with Unreal Engine!

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Learn to build intelligent and responsive Non-Player Characters for your games with Unreal Engine Game AI.

Key Features

- Understand the built-in AI systems in Unreal Engine for building intelligent games

- Leverage the power of Unreal Engine 4 programming to create game AI that focuses on motion, animation, and tactics

- Learn to profile, visualize, and debug your Game AI for checking logic and optimizing performance

Book Description

Learning how to apply artificial intelligence (AI) is crucial and can take the fun factor to the next level, whether you're developing a traditional, educational, or any other kind of game. If you want to use AI to extend the life of your games and make them challenging and more interesting, this book is for you.

The book starts by breaking down AI into simple concepts to get a fundamental understanding of it. Using a variety of examples, you will work through actual implementations designed to highlight key concepts and features related to game AI in UE4. You will learn to work through the built-in AI framework in order to build believable characters for every game genre (including RPG, Strategic, Platform, FPS, Simulation, Arcade, and Educational). You will learn to configure the Navigation, Environmental Querying, and Perception systems for your AI agents and couple these with Behavior Trees, all accompanied with practical examples. You will also explore how the engine handles dynamic crowds. In the concluding chapters, you will learn how to profile, visualize, and debug your AI systems to correct the AI logic and increase performance.

By the end of the book, your AI knowledge of the built-in AI system in Unreal will be deep and comprehensive, allowing you to build powerful AI agents within your projects.

What you will learn

- Get an in-depth knowledge about all the AI Systems within Unreal Engine

- Create complex AIs, understanding the art of designing and developing Behavior Tree

- Learn how to perform Environmental Queries (EQS)

- Master the Navigation, Perception, and Crowd Systems

- Profile and Visualize the AI Systems with powerful debugging tools

- Extend every AI and Debug system with custom nodes and functions
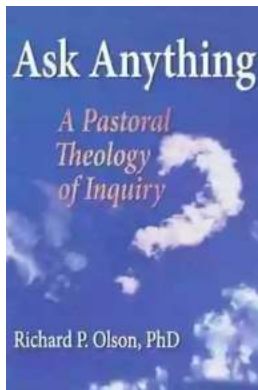
Who this book is for

Hands-On Artificial Intelligence with Unreal Engine is for you if you are a game developer with a bit experience in Unreal Engine, and now want to understand and implement believable game AI within Unreal Engine. The book will be both in Blueprint and C++, allowing people from every background to enjoy the book. Whether you're looking to build your first game or expand your knowledge to the edge as a Game AI Programmer, you will find plenty of exciting information and examples of game AI in terms of concepts and implementation, including how to extend some of these systems.

Table of Contents

1. Moving the first steps in the AI world?

2. Behavior trees and Blackboards

3. Navigation

4. Environment Query System

5. Agent Awareness

6. Extending Behavior Trees

7. Crowds

8. Designing Behavior Trees - Part I

9. Designing Behavior Trees - Part II

10. Designing Behavior Trees - Part III

11. Debugging methods for AI - Logging

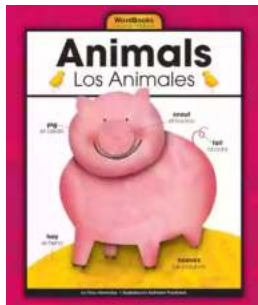12. Debugging methods for AI - Navigation, EQS and Profiling

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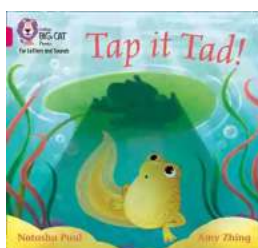
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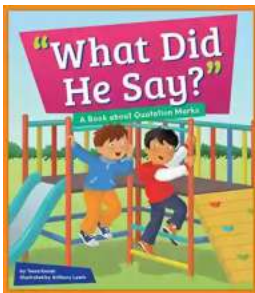
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