



# Hands-On Artificial Intelligence with Unreal Engine : Everything You Want to Know about Game AI Using Blueprints or C++

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Monografía

Unreal Engine is a powerful game development engine that provides rich functionalities to create 2D and 3D games. If you want to use AI to extend the play-life of your games and make them more challenging and fun, this book is for you. It will help you break down AI into simple concepts to give you a fundamental understanding of each of the topics

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**Título:** Hands-On Artificial Intelligence with Unreal Engine Everything You Want to Know about Game AI Using Blueprints or C++

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**Descripción física:** 1 online resource (537 pages)

**Nota general:** Creating components for the Environment Querying System

**Contenido:** Cover; Title Page; Copyright and Credits; Dedication; About Packt; Contributors; Table of Contents; Preface; Section 1: The Unreal Framework; Chapter 1: Making the First Steps in the World of AI; Before starting ... ; Prerequisites; Installing and preparing the software; Unreal Engine; Visual Studio; Becoming an AI Game Developer; What it means to be an AI Game Developer; AI in the game development process; A bit of history; What is AI?; A glance into the past; AI in games; AI in games -- Industry and Academia; Planning our journey; Technical terminology; The bottom-up approach; The agent schema Unreal Engine AI FrameworkA sketch of our journey; Decision-making with Behavior Trees (chapters 2, 6, 8, 9, and 10); Navigation (chapters 3 and 7); Environment Query System (chapters 4 and 12); Agent Awareness (chapters 5 and 12); Crowds (chapter 7); Designing Behavior Trees (chapters 8, 9, and 10); Debugging methods for Game AI (chapters 11, 12, and 13); Going beyond (chapter 14); Enabling AI for C++ users; Summary; Chapter 2: Behavior Trees and Blackboards;

How Behavior Trees work; The structure of a Mathematical Tree; Behavior Tree components; Root; Tasks; Composite; Decorators; Service Blackboards and their integration with Behavior Trees; Creating our AI project; Starting Behavior Trees from AI Controllers; Creating the Behavior Tree and the Blackboard; Creating the Blackboard; Creating the Behavior Tree; The AI Controller to run a Behavior Tree; AI Controller in Blueprint; AI Controller in C++; Summary; Chapter 3: Navigation; What to expect from a Navigation System; Unreal Navigation System; Generating the Navigation Mesh; Setting parameters for the Nav Mesh; Display settings; Generation settings; Project Settings; Settings on the Character Movement Component Modifying the Navigation Mesh; Nav Modifier Volume; Nav Mesh Areas; Creating a NavArea class in Blueprint; Creating a NavArea class in C++; Nav Link Proxy; Creating a Nav Link Proxy; Simple Links and Smart Links; Both Simple and Smart Links; Simple Links; Smart Links; Other settings of the Nav Link Proxy; Extending the Nav Link Proxy; Navigation Avoidance; Navigation Filtering; Creating a Navigation Filter in Blueprint; Creating a Navigation Filter in C++; Overriding the Navigation System; Summary; Chapter 4: Environment Querying System; Enabling the Environment Querying System Understanding the Environment Querying System The general mechanism of EQS; The components of an Environment Query; Environment Queries; Contexts; Generators; Tests; Visual representation of the components; Running an Environmental Query within a Behavior Tree; Not only Locations, but also Actors!; Exploring the built-in nodes; Built-in Contexts; Built-in Generators; Actors Of Class; Current Location; Composite; Points: Circle; Points: Cone; Points: Donut; Points: Grid; Points: Pathing Grid; Built-in Tests; Visualizing Environment Queries

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**Materia:** Artificial intelligence UnrealScript (Computer program language) C++ (Computer program language) Artificial intelligence C++ (Computer program language) UnrealScript (Computer program language)

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