Preface
Acknowledgments
About the Cover Images Author Bios
General Wisdom
The Evolution of Game AI
The Illusion of Intelligence
Solving the Right Problem
12 Tips from the Trenches
Useful Techniques and Specialized Systems
Building an AI Diagnostic Toolset
A General-Purpose Trigger System
A Data-Driven Architecture for Animation Selection
Realistic Character Behavior with Prioritized, Categorized Animation
Designing a GUI Tool to Aid in the Development of Finite-State Machines
The Beauty of Response Curves
Simple and Efficient Line-of-Sight for 3D Landscapes
An Open-Source Fuzzy Logic Library
Pathfinding with A
Basic A* Pathfinding Made Simple
Generic A* Pathfinding
Pathfinding Design Architecture
How to Achieve Lightning-Fast A
Practical Optimizations for A* Path Generation
Pathfinding and Movement
Simple, Cheap Pathfinding
Preprocessed Solution for Open Terrain Navigation
Building a Near-Optimal Navigation Mesh
Realistic Turning between Waypoints
Navigating Doors, Elevators, Ledges, and Other Obstacles
Simple Swarms as an Alternative to Flocking
Tactical Issues and Intelligent Group Movement
Strategic and Tactical Reasoning with Waypoints
Recognizing Strategic Dispositions: Engaging the Enemy
Squad Tactics: Team AI and Emergent Maneuvers
Squad Tactics: Planned Maneuvers
Tactical Team AI Using a Command Hierarchy
Formations
General Purpose Architectures
Architecting a Game AI
An Efficient AI Architecture Using Prioritized Task Categories
An Architecture Based on Load Balancing
A Simple Inference Engine for a Rule-Based Architecture
Implementing a State Machine Language
Enhancing a State Machine Language through Messaging
Decision-Making Architectures
Blackboard Architectures
Introduction to Bayesian Networks and Reasoning Under Uncertainty
A Rule-Based Architecture Using the Dempster-Shafer Theory
An Optimized Fuzzy Logic Architecture for Decision-Making
A Flexible Goal-Based Planning Architecture
FPS, RTS, and RPG AI
First-Person Shooter AI Architecture
Architecting an RTS AI
An Economic Approach to Goal-Directed Reasoning in an RTS
The Basics of Ranged Weapon Combat
Level-Of-Detail AI for a Large Role-Playing Game
A Dynamic Reputation System Based on Event Knowledge
Racing and Sports AI
Representing a Racetrack for the AI
Racing AI Logic
Training an AI to Race
Competitive AI Racing under Open Street Conditions
Camera AI for Replays
Simulating Real Animal Behavior
Agent Cooperation in FSMs for Baseball
Intercepting a Ball
Scripting
Scripting: Overview and Code Generation
Scripting: The Interpreter Engine
Scripting: System Integration
Creating Scripting Languages for Nonprogrammers
Scripting for Undefined Circumstances
The Perils of AI Scripting
How Not to Implement a Basic Scripting Language
Learning
Learning and Adaptation
Varieties of Learning
GoCap: Game Observation Capture
Pattern Recognition with Sequential Prediction
Using N-Gram Statistical Models to Predict Player Behavior
Practical Natural Language Learning
Testing Undefined Behavior as a Result of Learning