# AI+ Game Design Agent Specialty™(AGAMINGD)

**ID** AGAMINGD **Preis** CHF 995.– (exkl. MwSt.) **Dauer** 1 Tage

## Zielgruppe

- Aspiring Game Designers – Perfect for those who want to integrate AI into storytelling, mechanics, and player experiences.
- AI Enthusiasts – Ideal for learners eager to explore how AI can enhance creativity and interactivity in games.
- Game Developers – Great for professionals aiming to build intelligent systems, adaptive gameplay, and smart NPCs.
- Digital Artists – Excellent for creatives interested in using AI to design immersive environments and dynamic game elements.
- Tech Entrepreneurs – Ideal for innovators looking to leverage AI in building the next generation of interactive gaming platforms.

## Voraussetzungen

Basic knowledge of programming, game design fundamentals, and core mathematical concepts is recommended. Ideal for learners with an interest in AI principles, algorithmic thinking, and creative problem-solving to design intelligent, dynamic, and interactive game experiences.

## Kursziele

- Next-Gen Game Creation Learn to design intelligent, adaptive games that respond dynamically to player behavior and choices.
- Industry-Relevant Expertise Gain skills at the intersection of AI, creativity, and game design—highly sought after in modern studios.
- Hands-On Innovation Build real-world projects integrating AI-driven storytelling, procedural worlds, and smart NPC systems.
- Career Acceleration Stand out for roles in AI game development, systems design, and creative technology leadership.
- Future-Ready Skills Prepare for the evolving gaming landscape where AI shapes creativity, engagement, and interactive storytelling.

## Kursinhalt

### Module 1: Understanding AI Agents

- 1.1 What are AI Agents?
- 1.2 Agent Architectures and Environments
- 1.3 Decision Making and Behavior Basics
- 1.4 Introduction to Multi-Agent Systems
- 1.5 Case Study: Pac-Man Ghost AI
- 1.6 Hands On: Build a Basic Reactive AI Agent Navigating a Simple Environment Using Pygame

### Module 2: Introduction to AI Game Agent

- 2.1 What is an AI Game Agent?
- 2.2 Key Components of AI Game Agent
- 2.3 Agent Architectures
- 2.4 AI Game Agent Behaviors
- 2.5 Case Study: Racing Games (e.g., Mario Kart, Forza Horizon)
- 2.6 Hands-On: Creating a Simple Box Movement Game in Playcanvas

### Module 3: Reinforcement Learning in Game Design

- 3.1 Basics of Reinforcement Learning
- 3.2 Key Algorithms: Q-Learning and SARSA
- 3.3 Applying RL to Game Agents
- 3.4 Challenges and Solutions in Game-based RL
- 3.5 Case Study: AlphaZero in Games: Mastering Chess, Shogi, and Go through Self-Play and Reinforcement Learning
- 3.6 Hands On: Train a simple RL agent in OpenAI Gym environment

### Module 4: AI for NPCs and Pathfinding

- 4.1 Understanding NPCs as AI Agents
- 4.2 Simple AI Techniques for NPCs
- 4.3 Pathfinding Algorithms
- 4.4 Obstacle Avoidance and Movement Optimization
- 4.5 Case Study
- 4.6 Hands-On

### Module 5: AI for Strategic Decision-Making

- 5.1 Decision Trees and Minimax for Game AI
- 5.2 Monte Carlo Tree Search (MCTS) for AI Agent
- 5.3 Utility-Based Decision Making for Game AI

- 5.4 AI in Real-Time Strategy (RTS) Games
- 5.5 Case Study: StarCraft II AI by DeepMind
- 5.6 Hands-On: Implement a Basic MCTS Agent for Tic-Tac-Toe Using Pygame

**Module 6: AI Game Agent in 3D Virtual Environments**

- 6.1 3D Environment Representation and Challenges for AI Agents
- 6.2 Navigation Mesh Generation for AI Agents in 3D
- 6.3 Complex Agent Behaviors in 3D Worlds
- 6.4 Case Study: The Last of Us
- 6.5 Hands On: Develop a 3D AI Agent with Navigation and Interaction in Unity Using NavMesh and C#

**Module 7: Future Trends in AI Game Design**

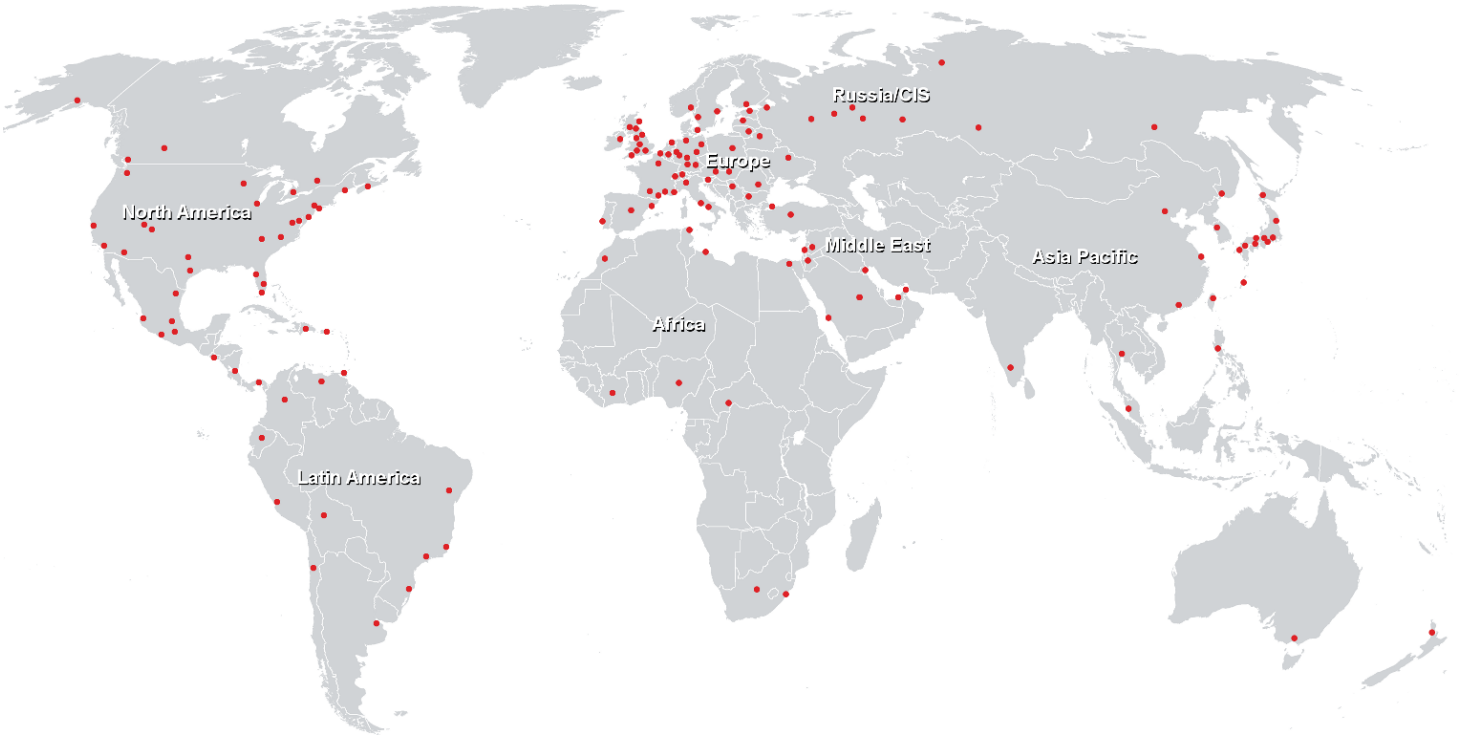
- 7.1 Current and Future AI Trends
- 7.2 The Future of Generalist AI in Gaming
- 7.3 Case Study

**Module 8: Capstone Project**

- 8.1. Task Description
- 8.2. Practical Implementation
- 8.3. Testing and Debugging
- 8.4. Hands-on

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