AI+ Game Design Practitioner™(AGAMING)

ID AGAMING **Prix** CHF 995,– (Hors Taxe) **Durée** 1 jours

A qui s'adresse cette formation

- Aspiring Game Developers – Ideal for those looking to integrate AI into game design and development.
- AI Enthusiasts – Perfect for learners eager to explore how AI shapes gaming experiences and player interactions.
- Game Designers – Suited for creatives aiming to use AI for storytelling, dynamic worlds, and adaptive gameplay.
- Software Engineers – Great for professionals seeking to apply programming and AI techniques within the gaming industry.
- Students & Researchers – Beneficial for those pursuing studies or research in AI, machine learning, or interactive entertainment.

Pré-requis

Requires basic programming knowledge in Python, understanding of linear algebra and probability, familiarity with machine learning concepts, and experience with Unity or Unreal Engine. Also, a creative problem-solving mindset is essential.

Objectifs

- Industry-Relevant Curriculum Gain expertise in AI-driven game design, player behavior modeling, and adaptive gameplay mechanics.
- Hands-On Learning Work on real gaming projects integrating AI for character behavior, world generation, and personalization.
- Career Advancement Boost your profile for roles in game development, AI engineering, and interactive entertainment design.
- Cutting-Edge Tools Learn to use leading AI frameworks and gaming engines to develop immersive, intelligent experiences.

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Module 1: Introduction to AI in Games

- 1.1 What is AI?
- 1.2 Evolution of AI in the Gaming Industry
- 1.3 Types of AI in Games
- 1.4 Benefits, Challenges, and Innovations in Game AI

Module 2: Game Design Principles using AI

- 2.1 Understanding Game Mechanics and Player Experience
- 2.2 Role of AI in Gameplay and Narrative Design
- 2.3 Designing Game Environments for AI Interaction
- 2.4 AI-Driven Behavior vs Traditional Scripted Logic
- 2.5 Case Study: Dynamic AI and Narrative Adaptation in Middle earth: Shadow of Mordor
- 2.6 Hands-On Exercise: Designing Adaptive NPC Behavior and Environment Interaction

Module 3: Foundations of AI in Gaming

- 3.1 Core AI Concepts for Gaming
- 3.2 Search Algorithms and Pathfinding
- 3.3 AI Behavior Modeling and Procedural Content Generation (PCG)
- 3.4 Introduction to Machine Learning and Reinforcement Learning
- 3.5 Case Study: AI in Minecraft — Procedural Content Generation and Agent Navigation
- 3.6 Hands-On: Implementing A* Pathfinding and FSM for NPC Behavior

Module 4: Reinforcement Learning Fundamentals

- 4.1 Core Concepts: States, Actions, Rewards, Policies, Q-Learning:
- 4.2 Exploration versus Exploitation in Learning Systems:
- 4.3 Overview of Deep Q Networks (DQN) and Policy Gradient Methods
- 4.4 Case Study: Reinforcement Learning in DeepMind's AlphaGo
- 4.5 Hands-On: Train a Reinforcement Learning Model on OpenAI Gym's GridWorld

Module 5: Planning and Decision Making in Games

- 5.1 Minimax Algorithm and Alpha-Beta Pruning
- 5.2 Monte Carlo Tree Search (MCTS)
- 5.3 Applications in Board Games and Real-Time Strategy (RTS) Games
- 5.4 Case Study: Strategic AI in StarCraft II – Combining

Planning Algorithms for Real-Time Strategy
- 5.5 Hands-on Implementation: Guides on implementing the Minimax algorithm for Tic-Tac-Toe

Module 6: AI Techniques in 2D/3D Virtual Gaming Environments Basic

- 6.1 Overview of 2D and 3D Game Environments
- 6.2 Environment Representation Techniques
- 6.3 Navigation and Pathfinding in 2D/3D Spaces
- 6.4 Interaction and Behavior Systems in Virtual Environments
- 6.5 Case Study: Navigation and Interaction AI in The Legend of Zelda: Breath of the Wild
- 6.6 Hands-On: Building Basic Navigation and Interaction in 2D and 3D Game Environments

Module 7: Adaptive Systems and Dynamic Difficulty

- 7.1 Adaptive Systems Overview
- 7.2 Dynamic Difficulty Adjustment (DDA) Principles
- 7.3 Adaptive Storytelling, Personalization, and Player Profiling
- 7.4 AI Techniques in Adaptive Systems
- 7.5 Implementation Strategies and Tools
- 7.6 Case Study: Dynamic Enemy Management and Replayability with Left 4 Dead’s AI Director
- 7.7 Hands-On: Developing an Adaptive Dynamic Difficulty System in Unity

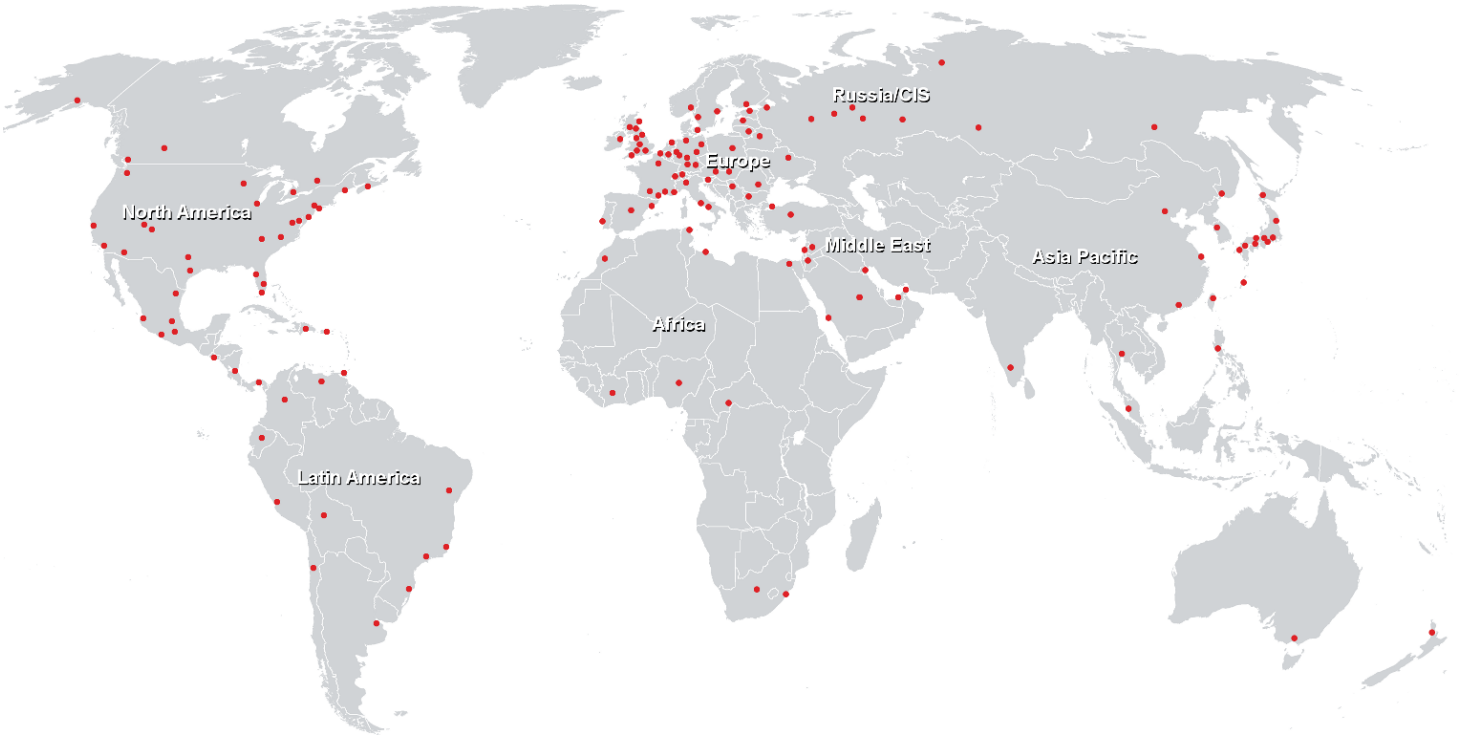
Module 8: Future of AI in Gaming

- 8.1 Generalist AI Agents and Transfer Learning
- 8.2 AI-Powered Game Design and Testing Tools
- 8.3 Ethical Considerations and AI Transparency
- 8.4 Emerging Technologies: VR/AR AI and AI in Esports Coaching

Module 9: Capstone Project

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Centres de formation dans le monde entier





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