



EUROPEAN INFORMATION TECHNOLOGIES CERTIFICATION INSTITUTE, ASBL.  
Brussels, Belgium, European Union



# CERTIFICATE

## Antonio Carmona Madrid

Has successfully completed test requirements of  
The European Information Technologies Certification Programme

**EITC/AI/ARL Advanced Reinforced Learning**

**Certification Programme examination result:**



**Certification Programme description:**

Introduction: introduction to reinforcement learning; Tradeoff between exploration and exploitation: exploration and exploitation; Markov decision processes: Markov decision processes and dynamic programming; Prediction and control: model-free prediction and control; Deep reinforcement learning: function approximation and deep reinforcement learning, policy gradients and actor critics, planning and models, advanced topics in deep reinforcement learning, deep reinforcement learning agents; Case studies: classic games case study, AlphaGo mastering Go, AlphaZero mastering chess, Shogi and Go, AlphaZero defeating Stockfish in chess, AlphaStar mastering StarCraft II

**Certificate Programme version/revision: EITC/AI/ARLv1r1**



**CERTIFICATE ID: EITC/AI/ARL/SLJ25005258**

To validate authenticity of this certificate or review its  
programme and test results scan/click QR code or visit:  
[www.eitci.org/validate](http://www.eitci.org/validate)



**DATE OF ISSUE:**  
December 2025  
Brussels, Belgium  
European Union