

Alvaro Pastor

XR-Lab Technical Lead: Episodic Memory, Immersive Systems & Artificial Intelligence
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1. EDUCATION

2026 Ph.D., Network and Information Technologies

Open University of Catalonia, Spain.

Dissertation: "Virtual and Augmented Reality Investigations of Episodic Memory: The Role of Locomotion, Spatial Features and Emotion".

2015 M.Sc., Cognitive Systems and Interactive Media

Pompeu Fabra University, Spain.

2013 Architect

Applied Sciences University, Peru.

2. PROFESSIONAL APPOINTMENTS

2026–present. Technical Specialist, Extended Reality Design & Development

XRLab, Interdisciplinary Research and Innovation Center, Open University of Catalonia, Spain

2020–2026. Professor, Master's Degree in Videogame Design & Development

Department of Computer Science, Multimedia, and Telecommunication, Open University of Catalonia, Spain

2023–2024. Technical Specialist, Virtual Reality Design & Development

EventLAB, Department of Clinical Psychology and Psychobiology, University of Barcelona, Spain.

2022–2024. Professor, Degree in Videogame Design & Development

Centre for Image and Multimedia Technology, Polytechnic University of Catalonia, Spain.

3. GRANTS & FUNDED RESEARCH

2024–2027 Inhabiting the Hybrid: Contributions from Artistic Research in Interactive and Immersive Media. Ministry of Science and Innovation & European Regional Development Fund (PID2021-128875NA-I00). *Role: Researcher. Status: Active.*

2024–2025 NeuroScent VR. Research Accelerator Grant, Open University of Catalonia (RA405). *Role: Lead Designer and Developer. Status: Completed.*

2023–2024 EnvironMENTAL. Horizon Europe (101057429). University of Barcelona. *Role: Lead Virtual Reality Design & Development. Status: Completed.*

2021–2022 The Memory Palace. Innovative Information and Communication Technologies Grant Barcelona Culture Institute (21S03773-006). *Role: Principal Investigator. Status: Completed.*

2019 Industrial Doctorates Grant. Catalan Agency for Management of University and Research Grants. *Role: PhD Fellow. Status: Awarded, declined.*

4. PEER-REVIEWED PUBLICATIONS

Pastor, A.; Bourdin-Kreitz, P. (2026). Designing memorable XR under stress: An empirically grounded criterion for long-term memory binding. *ACM Conference on Human Factors in Computing Systems (CHI 2026). Workshop on XR for Challenging Environments: Enabling Human Performance and Agency under Stress.*

Pastor, A.; Bourdin-Kreitz, P. (2026). Comparing Episodic Memory Binding Outcomes After Emotion Induction in Virtual Reality. *Virtual Reality.* <https://doi.org/10.1007/s10055-026-01364-9>

Pastor, A.; Bourdin-Kreitz, P. (2026, under review). Synthetic generation of photorealistic 3D characters for face-based episodic memory measures. *IEEE Open Journal of the Computer Society.*

Pastor, A.; Bourdin-Kreitz, P. (2025). Synthetic generation of photorealistic 3D characters for face-based episodic memory measures. Preprint, OSF. https://doi.org/10.31219/osf.io/4jf2g_v1

Pastor, A. (2025). Augmenting Reality: On the Shared History of Perceptual Illusion and Video Projection Mapping. *Estudis Escènics - Quaderns del Institut del Teatre*, 50, 326 - 343. e-ISSN: 2385-362X.

Pastor, A.; Bourdin-Kreitz, P. (2024). Comparing episodic memory outcomes from walking augmented reality and stationary virtual reality encoding experiences. *Scientific Reports*, 14, 1-23. <https://doi.org/10.1038/s41598-024-57668-w>

5. TECHNICAL & METHODOLOGICAL EXPERTISE

Computational Neuroscience: fMRI preprocessing (fMRIPrep, FSL) and statistical analysis (Python, Nilearn) using open neuroimaging datasets.

Machine Learning & Computer Vision: Deep learning frameworks (PyTorch, TensorFlow) for generative photorealistic face synthesis, validated in published memory research. Generative pipelines for experimental stimulus creation.

Immersive & Interactive Systems: Augmented and Virtual Reality experimental design and development, spanning locomotion-based and stationary paradigms. Interactive systems architecture for precision-timed multimodal stimulus delivery.

Cognitive Science Methods: Design and psychometric validation of ecologically valid cognitive assessments for immersive environments. Integration of standard psychometric frameworks.

Hardware Integration: Psychophysiological sensor integration and multimodal data synchronisation. Electromechanical systems engineering for experimental platforms. High-performance computing infrastructure assembly.

Data Science: Statistical analysis and computational modeling of behavioural and physiological data (Python, JASP/SPSS). Scientific data visualisation.