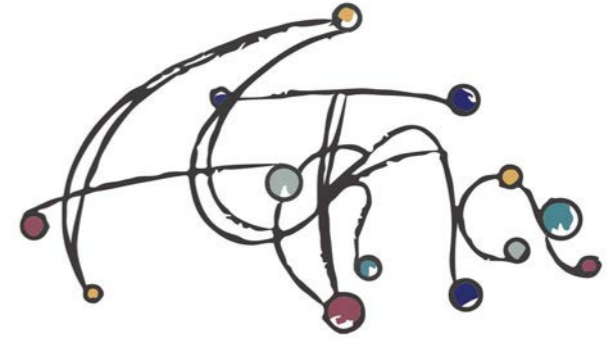




**H.F.R.I.**  
Hellenic Foundation for  
Research & Innovation

**2nd Call for H.F.R.I. Research Projects  
to Support Post-Doctoral Researchers**



**Title of the research project:**  
**AI TRACE - Synaesthetic Engagement of Artificial Intelligence with Digital Arts and its Audience**

**Principal Investigator: Marina Markellou**

**Reader-friendly title: Artificial Intelligence TRACE**

**Scientific Area: Humanities & Arts**

**Institution and Country: Athens, Greece**

**Host Institution: Panteion University of Social and Political Studies**

**Project webpage: [www.ai-trace.gr](http://www.ai-trace.gr)**



**Budget: 135.000 €**

**Duration: 24 months**

## Research Project Synopsis

AI TRACE (Synaesthetic Engagement of Artificial Intelligence with Digital Arts and its Audience) is a research project that involves an interdisciplinary team bringing together established and emerging scholars, artists, developers and cultural institutions to co-design and produce an innovative technological prototype, targeted towards the cultural sector and to experiment with state-of-the-art research methodologies.

The prototype will be developed as an ethically compliant audience research tool that can be used in the arts exhibition sector to track, analyse and present data collected from visitors in the form of a personalized 3D digital object.

The prototype will showcase Artificial Intelligence subset systems that will act analysing and correlating different data sets collected from user's experience within the gallery space. The expected outcome of this process will be mapped to a set of criteria that will return a unique per user audio-visual object reflecting visitor's engagement. The user experience will be enriched by the placement of the personalized digital object in Augmented Reality space, within the physical exhibition space, allowing the visitor to interact with any other objects of the same type coexisting in Augmented Reality space.

## Project originality

AI TRACE's novelty lies in two significant aspects: first, the combination of state-of-the-art technological frameworks for audience research and second the ethical embracement of this attempt, from its design to its implementation.

AI TRACE promotes the connection between Artificial Intelligence (AI), Augmented Reality (AR) and Visualisation technology, digital arts and the public. AI is emerging at the intersection of art and engineering to inspire and empower new communities to use digital tools and to create new forms of engagement with art. AI TRACE will use **AI technology** to promote audience engagement in the cultural sector and empower digital creativity within an ethical framework. Also, AI TRACE will explore more complex and yet cohesive ways for **data representation** using a custom-made metalanguage.

AI TRACE will be developed as a **user-centered platform** that will allow visitors to create their own digital object embodying their experience within the cultural institution, and to experiment with technologies that measure emotional responses to artwork as a playful re-appropriation of cultural institutions' spaces.

The implementation of clear **ethics guidelines** for the development and the use of intelligent technologies within the project in full respect of fundamental rights is also considered as an innovative element of this research project.

## Expected results & Research Project Impact

AI TRACE will develop and evaluate an audience research tool in a form of a digital application that aims to have major impact in four different dimensions:

- **Social dimension:** At the audience level, AI TRACE encourages deeper engagement of the audience within the exhibition context due to the participative nature of the platform. At the artistic community level, the participating artists could gain useful feedback from exhibition visitors.
- **Institutional dimension:** AI TRACE is targeting towards the creation of a new tool for audience research, as well as an alternative way to represent results and challenge authoritative perspectives in the arts sector.
- **Scientific dimension:** The AI TRACE project brings together researchers from many different academic disciplines, aiming to establish new forms of artistic-scientific collaboration and thereby transform the social practice of research itself.
- **Ethical dimension:** AI TRACE will adopt a tailored approach for the protection of fundamental rights and freedom considering intelligent technologies' context-specificity.

## The importance of this funding

The H.F.R.I.'s grant has offered a unique opportunity to bring together an interdisciplinary team in order to conduct an innovative cross-sectional research. During this research project all team members will have the chance to enhance their academic careers through academic publications and presentations.



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