



AI in Science Communication

Hands On Workshop: Demystifying and Harnessing Emerging Technologies

By Luís Azevedo Rodrigues
Executive Director of Centro Ciência Viva de Lagos
15.00h – 18.00h

Who Should Attend?

Professionals from science museums (exhibitions, education, collections, marketing) with beginner-to-intermediate familiarity with Artificial Intelligence seeking to enhance visitor engagement through transparent and ethical AI implementation.

What You Will Learn

1. **Foundation of AI in Public Engagement:** Core concepts of AI/ML/DL with emphasis on real-world applications for science communication and museum contexts including how these technologies transform both visitor experiences and behind-the-scenes operations.
2. **Explainable AI Framework:** Understanding transparent vs. opaque AI systems and how Explainable AI (XAI) creates "a crystal-clear window into the decision-making processes" of artificial intelligence, critical for building public trust and ethical implementation.
3. **Content Creation Workflows:** Hands-on practice with generative tools for creating images, short videos, and 3D assets that can help "digitally repair deteriorated cultural heritage items" and create digital twins of exhibits.
4. **Human-Centric AI Approach:** Applying governance models that address "visitor-centered design, preservation of curatorial vision and museum identity, ethical AI governance, and the supportive role of AI in human efforts".
5. **Strategic Implementation Roadmap:** Development of an ethical AI checklist aligned with UNESCO's principles that "lay out a human-rights centered approach to the Ethics of AI" and the EU AI Act tiers.

Workshop Flow

Time	Activity
15:00 – 15:05	Welcome & Introduction: Goals, agenda, learning objectives, and overview of current AI landscape in museum settings
15:05 – 15:20	Module 1 — AI, Sci-Comm & Beyond the "Magic": Demystify AI (AI/ML/DL fundamentals, 2025 capabilities). Address public perception, role of museums in AI literacy, and examine how AI "effectively tackles complex challenges, from healthcare diagnostics to financial fraud detection" in relatable contexts.
15:20 – 15:35	Module 2 — Inside the Black Box (XAI): Explain black-box risks (bias, trust issues, data privacy). Explore emerging XAI techniques that "bridge the gap between complex artificial intelligence models and human understanding" including visualization methods and interactive explanation tools.
15:35 – 15:45	Module 3 Intro — AI for Content Creation: Survey the 2025 tool landscape (text, image, video, 3-D). Demonstrate effective prompt-engineering strategies and storytelling approaches using advanced reasoning capabilities that "can solve complex problems with logical steps".
15:45 – 16:25	Practical 1 — Prompting & Image Generation: Hands-on with a text-to-image generator. Craft prompts, iterate, and critique outputs. Create visual assets for science communication that avoid bias and misrepresentation.
16:25 – 16:30	Break
16:30 – 17:10	Practical 2 — Multimedia & 3D Exploration: Generate captioned videos and experiment with 3D visualization tools that "provide curators with tools to create collections of digital exhibits and narratives". Explore AI-powered translation capabilities that improve "accessibility for non-native speakers".
17:10 – 17:45	Module 4 — Strategic & Ethical Planning: Group work with AI Capability & Ethics worksheets. Apply UNESCO principles that ensure "AI is deployed as a force for the common good" and map implementations to EU AI Act risk tiers.
17:45 – 17:50	Break
17:50 – 17:55	Module 5 — Responsible Use & Outlook: Discuss ethical oversight frameworks, examine how "agentic AI" is transforming from "just generating content" to "collaborating to do real work", and explore emerging trends in human-AI collaboration.
17:55 – 18:00	Wrap-up & Resources: Key takeaways, resource distribution, and evaluation form.

Tool Overview (2025)

Purpose	Example Applications
Generate images from text	Text-to-Image Generators with XAI features that provide "interpretable insights" into how the AI generates specific visual outputs.
Translate and caption multimedia	AI-powered Video Processing Tools with support for real-time sign language translation and personalized audio descriptions.
Create interactive 3D experiences	3D/VR Exhibition Platforms that "enable the formulation and semantic representation of narratives".
Analyze visitor engagement	AI-driven sentiment analysis tools that interpret visitor comments and gauge satisfaction.
Generate and refine text content	Large Language Models with advanced reasoning capabilities for solving complex communication challenges.

Bring With You

- Laptop or tablet with internet access
- Smartphone with camera (optional for 3-D station)
- A science topic or exhibition concept you'd like to enhance!