Roberto Mecca

Nationality: Italian/British
1983, Rome, Italy

Titles: PhD. Applied mathematics

@ robertomecca.com

Cambridge, UK

LinkedIn, Instagram, Google Scholar,

Work Experiences

2024-2025 — **Principal Data Scientist**
FullMatrix Ltd. ·
Developing ML and DL tools for analysing ultrasound audio signals detecting fine patterns and anomalies for next fusion energy technologies.

2022-2023 — **Team Leader**
Austrian Inst. of Technology ·
Led a team developing 3D vision technologies, managed research and industry projects with partners and investors.

2019-2022 — **Senior Research Scientist**
Toshiba Europe Ltd. ·
Developed 3D scanning and prototype engineering, integrating robotics research, advanced computer vision and autonomous navigation using deep learning.

2015-2018 — **Marie Curie Fellow (€290k individual grant)**
University of Cambridge ·
Computer Vision R&D, 3D Reconstruction, Active-Light Technology, PhD Supervision, Industry-Academia Collaboration.

2013-2015 — **Research Fellow**
Italian Inst. of Technology ·
Post Doc research with a close connection with industry. 3D Computer Vision Methods, Active-Light Systems, Polarization, Photometric Stereo, Real-World Application Research.

2012-2013 — **Research Fellow**
Israel Inst. of Technology ·
3D Computer Vision, Mathematical Modeling, Physical and Realistic Effects, Numerical Methods, Non-Linear PDEs.

Education

2007-2011 — **PhD Applied Mathematics (€90k scholarship)**
Rome · Sapienza University
3D shape recovery from digital images using Photometric Stereo, system of non-linear PDE.

2005-2007 — **Undergraduate Student**
Rome · Sapienza University
A Variational Approach to the Image Warping and Applications. Interpolation with radial basis functions used for the deformation of digital images.

Soft Skills

Leadership	Leading cross-functional teams in applied AI, fostering collaboration across research and industry (AIT, Toshiba).
Mentoring	Supporting growth of engineers and researchers in both academic and startup environments.
Innovation	Driving adoption of state-of-the-art methods in vision, automation, and generative AI.
Collaboration	Bridging disciplines to accelerate progress in foundation models and real-world AI deployments.

AI and Research Expertise

Transformer Architecture	ViT, BERT, ControlNet, DINO, Segment Anything Model
Foundation Models	Training and Finetuning
3D Vision and Inverse Rendering	NeRF, Gaussian Splatting, Photometric Stereo
Multimodal AI	Vision-language models, depth-aware generation
Synthetic Data Generation	Blender, procedural environments, active-light simulation
Cloud and Scalable AI	RunPod, Google Cloud, AWS, JupyterHub

R&D Tools

Programming	Python, PyTorch, C
CG and Simulation	Blender (Python library and MPC integration)
Operating System	Linux, MacOS
Platform	GitHub, GitLab
AI Tooling	HuggingFace, RunPod, Google Cloud, ChatGPT API, Claude, Cursor
Media	DaVinci Resolve, Lightroom

Selected Publications (among 30+)

2024 *Photometric visibility matrix for the automatic selection of optimal viewpoints*, in: 3DV
2024 *Real-time 6-DOF Pose Estimation by an Event Based Camera using Active LED Markers*, in: WACV
2023 *A CNN Based Approach for the Point-Light Photometric Stereo*, in IJCV
2021 *Embodied Visual Navigation with Automatic Curriculum Learning in Real Environments*, in: ICRA
2020 *A CNN Based Approach for the Near-Field Photometric Stereo Problem*, **Best Industry Paper Award** in BMVC

Languages

★★★★★ Italian - native
★★★★★ English - proficient
☆☆☆★★ French - beginner

Interests

Sport	**Weight lifting** as well as **swimming** and **cycling** are among my favourite sportive activities.
Drones	I am a CAA certified drone pilot owning a A2 Certificate of Competency.
Photo	I enjoy capturing moments in photographs and videos.