

## PERSONAL INFORMATION Federico Fontana

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Nationality Italian

## ABOUT ME

Researcher in **efficient deep learning** — extreme quantization (binary neural networks), model compression and their *trust-worthiness* (robustness over time, deepfake detection, machine unlearning). PhD (Sapienza, Jan 2026), now **postdoctoral researcher** at Sapienza; 215 citations, h-index 6, i10-index 5. First/sole author on the core efficiency methods; broad self-initiated international collaboration network across 9 countries.

## WORK EXPERIENCE

- 2026–present **Postdoctoral researcher**, Sapienza University of Rome.
- 2021–2026 **Doctoral researcher**, Sapienza University of Rome — Computer Vision Lab.  
PhD supervisors: D. Avola (2021–22) then L. Cinque (2022–26).
- 2024 **Visiting researcher**, University of Klagenfurt (AAU), Austria (3 months) — self-initiated; efficient cross-view geolocalisation.
- 2022–2023 **ML Scientist (intern)**, MBDA Italia — cross-view geolocalisation (SAR/RGB).
- 2019 **ML Scientist (intern)**, SOONAPSE — ML for agricultural water management.
- 2018 **App Software Engineer**, NEXTREK S.r.l.
- 2016 **Software Engineer**, INFN (Istituto Nazionale di Fisica Nucleare).

## EDUCATION AND TRAINING

- Jan 2026 **PhD in Efficient Deep Learning** — Sapienza University of Rome.
- Jul 2022 **MSc in Computer Science (LM-18)** — Sapienza, **110/110 cum laude**. Thesis: *Training binary neural networks without floating-point precision*.
- 2023–2025 Advanced training: ACACES 2025 (HiPEAC), ICVSS 2024 (Catania), AI-DLDA 2023 (Udine).

## LANGUAGE SKILLS

Mother tongue Italian

## Other languages

| UNDERSTANDING |         | SPEAKING           |                   | WRITING |
|---------------|---------|--------------------|-------------------|---------|
| Listening     | Reading | Spoken interaction | Spoken production |         |
| English       | B2      | B2                 | B2                | C1      |

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user

[Common European Framework of Reference for Languages](#)

## DIGITAL SKILLS

Deep learning & computer vision (PyTorch); **binary / low-bit neural networks**, model compression & pruning, continual learning, machine unlearning; edge/embedded AI & on-device energy profiling; Python, C/C++; web & mobile development (earlier career).

## TEACHING

from 2026 **Main lecturer**, “Fondamenti di Statistica, Matematica e Informatica” — Faculty of Law (Giurisprudenza), Sapienza.  
 2024–2025 **Guest lecturer**, Deep Learning (ACSAI) and Computer Vision (Computer Science), Sapienza; *scuola-lavoro* instructor. Co-supervised ~10 BSc/MSc students (mostly informal).

## FUNDING &amp; HONOURS

2015 **EUR 40,000 innovation grant** — Regione Lazio “Bando Creativi Digitali — Progetto APP-ON”, for the **SMART CHARGING** app (won as a teenage founder).  
 2023–2025 **Sapienza “Avvio alla Ricerca” research grants** (as PI); Sapienza Research Grants (2023, 2024).  
 2024 **Best Paper Award**, ICVSS 2024.  
 2022 **Path of Excellence**, Sapienza Dept. of Computer Science; LazioDisCo merit grants (2016–2022).

## TALKS &amp; SERVICE

**Invited talks:** Digital Futures @ KTH (2026); **University of Klagenfurt** (AAU); **Rome Technopole Spoke 6 — International Young Researcher Workshop**.  
 2024 Speaker, CADL@ECCV (Milan); co-speaker, DFAD@CVPR (Seattle).  
**Reviewer:** CVPR, ECCV, ICCV, ICML, ICLR, WACV (4 years). **Associate Editor** (a journal, from 2026).

## INTERNATIONAL COLLABORATIONS

U. Klagenfurt (AT); KTH (SE); U. Calabria & U. L'Aquila (IT); Imperial College London & U. Warwick (UK); UAB Barcelona (ES); U. Tiaret & USTO-MB (DZ); TU Munich (DE); industry: Thales.

SELECTED PUBLICATIONS  
(≤10)

**Faster than Lies: Real-time deepfake detection using binary neural networks** — CVPR-W 2024 (~110 cit.).

**Distilled Gradual Pruning with Pruned Fine-tuning** — IEEE T-AI (Q1) 2024 (*first author*).

**CycleBNN: Cyclic Precision Training in Binary Neural Networks** — ECCV-W 2024 (*first author*).

**BiCrossNet: resource-efficient cross-view geolocalisation with BNNs** — MLST (Q2) 2025 (*first author; U. Klagenfurt*).

**A Unified Framework for Diffusion-Model Unlearning with  $f$ -Divergence** — ICML 2026 (*Imperial College; U. Klagenfurt*).

**Revisiting Deepfake Detection: Chronological Continual Learning** — 2025 (*first author*).

**Training Binary Neural Networks without Floating-Point Precision** — 2023 (*sole author*).

**DualFocusNet: ... Generalizable Deepfake Detection** — ACM TOMM (Q1) 2026 (*Warwick/UAB/Algeria*).

**NT-ViT: Neural Transcoding Vision Transformers for EEG-to-fMRI** — ECCV 2024 (*KTH; U. Calabria*).

**SATEER: Subject-aware Transformer for EEG Emotion Recognition** — Int. J. Neural Systems (Q1) 2025.