

Smriti Joshi

PhD Researcher at Artificial Intelligence in Medicine Lab (BCN-AIM)

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SUMMARY

ML Researcher with 5+ years of experience building and validating deep learning systems for medical imaging, creating community benchmarks, and working in close collaborations with hospitals across multiple continents. Focus on models that generalize across multi-center clinical data, with hands-on expertise in domain adaptation, uncertainty estimation, and generative imaging.

TECHNICAL SKILLS

- **Modeling:** Data Curation and Harmonization, Radiomics, Diffusion Models, Generative Adversarial Networks, Flow Matching, nnUNet, Transformers, Domain Adaptation, Uncertainty Maps
- **Validation:** Benchmarking, Clinical Reader Study, Statistical Testing & Experimental Design, Fairness and Robustness Analysis, Downstream Tasks
- **Tools:** PyTorch, TensorFlow, Python, Docker, Git/GitHub

EXPERIENCE

PhD Researcher

BCN-AIM Laboratory, University of Barcelona

2021 - Now

Barcelona, Spain

Uncertainty Estimation, Test-time Adaptation, Generative Imaging, Breast Cancer, MRI

- Explored adaptive and interpretable AI methods with a focus on understanding and improving model behavior under domain shifts.
- Lead the MAMA-SYNTH Challenge @ MICCAI 2026 for synthesis of virtual contrast-enhanced Breast MRI.
- Co-organized MAMA-MIA Challenge @ MICCAI 2025 for generalizable and fair tumor segmentation and pathologic complete response prediction using Breast MRI.
- Contributed to research in trustworthy AI, including the FUTURE-AI framework.

Research Fellow

VCG SEAS, Harvard University

Feb. 2021 - July 2021

U.S.A (Remote)

Self-supervised learning, Microscopic Brain Imaging

Development of unsupervised domain adaptation technique for large scale connectomics dataset.

EDUCATION

PhD. Mathematics and Computer Science

Artificial Intelligence in Medicine Lab (BCN-AIM), Universitat de Barcelona

2022 (ongoing)

Spain

Summer School: International Computer Vision Summer School, 2025

MSc. Image Processing and Computer Vision

UBx,UAM, PPCU ¹

2019 - 2021

France, Spain, Hungary

Integrated MSc. in Physics

Birla Institute of Technology and Science, Pilani

2014 - 2018

India

¹University of Bordeaux, Autonomous University of Madrid and Pázmány Péter Catholic University respectively

LEADERSHIP & IMPACT

Lead, AI Working Group, European Union Horizon Europe Project – RadioVal 2022–2023

- Coordinated all AI-related projects within the international consortium of 16 partners.
- Facilitated interdisciplinary collaboration to ensure **clinically-informed AI model development**.

Lead, Grant Selection & Sponsorship Committee, MICCAI 2024 LMIC Initiative 2023–2024

- Led the selection process for **> 50** early career researcher from *lower-to-middle income countries*, supporting their attendance at *MICCAI 2024*.
- Secured sponsorships and coordinated finances to maximize the impact of the programme.

Coordinator, AFRICAI Summer School, and Annual Nepal AI School 2022–2024

- Organized international AI schools, fostering research collaboration across Africa and South Asia.
- Coordinated **one-year** mentorship programs for African researchers for capacity-building and career development in medical AI domain.

Mentorship

- Master in Data Science 2025 @ Universitat de Barcelona, Lecture on *Domain Adaptation*.
- ESMPE 2023 AI in Medical Physics, Lecture on *Data acquisition, Curation and Storage*.
- Mentor @ RISE-MICCAI Winter School 2022.

ACHIEVEMENTS & HONORS

- Top-2 solution in the **ODELIA Challenge** @ MICCAI 2025.
- Erasmus Mundus Master Scholarship (2019 - 2021).
- **Honors MSc.** in Image Processing and Computer Vision (IPCV).

LANGUAGES

English (Proficient), Hindi (Native), Spanish (Intermediate), French (Basic)

SELECTED PUBLICATIONS

- Joshi, Smriti *et al.* **Dense Temporal Contrast Synthesis via Conditioned Latent Transport.** *Submitted to Medical Image Analysis*, 2026.
- Garrucho, Lidia*, Joshi, Smriti* *et al.* **The MAMA-MIA Challenge: Advancing Generalizability and Fairness in Breast MRI Tumor Segmentation and Treatment Response Prediction.** *Submitted to IEEE Transactions on Medical Imaging*, 2025.
- Joshi, Smriti *et al.* **Single Image Test-Time Adaptation via Multi-View Co-Training.** *MICCAI*, 2025.
- Joshi, Smriti *et al.* **Leveraging epistemic uncertainty to improve tumour segmentation in breast MRI: an exploratory analysis.** *SPIE*, 2024.
- Joshi, Smriti *et al.* **nn-UNet training on CycleGAN-translated images for cross-modal domain adaptation in biomedical imaging.** *CrossMoDA Challenge, MICCAI*, 2021.
- Cabrita, Miriam *et al.*, Joshi, Smriti. **Stakeholder Engagement for Trustworthy AI: Experiences and Results from the RadioVal Project on Breast Cancer Imaging.** *Book Chapter, Trustworthy AI in Cancer Imaging Research*, 2025.