

Xingjian Zhang

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Education

Ecole Polytechnique

PhD in Biomedical Engineering - Machine Learning

Paris, France

2023 - Present

- Supervisors: Abdul I. Barakat, Elsa D. Angelini
- Expected graduation: April 2027

MSc in Biomedical Engineering

2021 - 2023

- 4.0 GPA, PhD track Excellence Scholarship

BSc in Mathematics and Computer Science

2018 - 2021

- 3.9 GPA, Cum Laude

Experience

Ecole Polytechnique & Telecom Paris | PhD candidate

Nov 2023 - Present

- Applying self-supervised learning to microscopy imaging for mutation classification via nuclear deformation phenotypes, with contributions in generative modeling for bioimage restoration and interactive visualisation tools for clinical communication
- Teaching assistant at Ecole Polytechnique and Telecom Paris for master-level courses in ML, DL, Medical Imaging, and Object Recognition; co-supervised three Master's research projects in computer vision and biomedical imaging

Dassault Systems | Research Engineer Intern

Mar 2023 - Sep 2023

- Designed and trained 3D CNN and transformer-based models for automated tumor segmentation on volumetric CT scans, scaling experimentation across multi-GPU clusters
- Prototyped a fully volumetric ViT architecture as a proposed replacement for the existing 2D R-CNN segmentation pipeline, demonstrating improved 3D spatial consistency and generalization

Ecole Polytechnique | Research Intern

Apr 2022 - Mar 2023

- Developed image analysis and segmentation pipelines for pSHG and THG nonlinear microscopy, contributing to multimodal label-free characterisation of tissue metabolism and myelin distribution

Publications

First Author

- X Zhang, C Leclech, L Blivet-Bailly, AI Barakat, and ED Angelini, "Log focal frequency loss for bioimage restoration", *IEEE International Symposium on Biomedical Imaging (ISBI)*, 2026
- X Zhang, C Leclech, B Roellinger, C Coirault, ED Angelini, and AI Barakat, "Myoblast mutation classification via microgroove-induced nuclear deformations", *Medical Imaging with Deep Learning (MIDL)*, 2024

Co-authored († denotes equal contribution)

- MC Yagie, X Zhang, et al., "Noninvasive real-time monitoring of cellular spatiotemporal dynamics via machine learning-enhanced electrical impedance spectroscopy", *Science Advances*, 2025
- B Asadipour, R Ronzano†, J Morizet†, X Zhang†, et al., "Label-free multimodal non-linear microscopy to probe metabolism and myelin distribution", *Communications Biology*, 2025
- B Asadipour, E Beaurepaire, X Zhang, et al., "Modeling and predicting second harmonic generation from protein molecular structure", *Physical Review X*, 2024
- C Leclech, G Cardillo, B Roellinger, X Zhang, et al., "Microscale topography triggers dynamic 3D nuclear deformations", *Advanced Science*, 2025

Full publication list on [Google Scholar](#)

Projects

Industry ML Applications

- Leading ML development for automated hot flash detection via skin conductance (Elocare / NUS Singapore) | 2025 – present
- Developed time-series models for electrical impedance spectroscopy in cellular monitoring (Sensome) | Science Advances 2025

Open Source

- Contributor to BioImageLoader: a Python library for large-scale bioimage data loading in ML pipelines | [PyPI](#) · [arXiv](#)

Skills

ML/Research: PyTorch, JAX, TensorFlow, CNNs, ViTs, time-series, self-supervised learning, GANs, diffusion

Programming: Python, C/C++, Julia, R, MATLAB, SQL, Java

Infrastructure: Git, Docker, Bash/Shell, Multi-GPU training, HPC/SLURM, PySpark, Pandas

Languages: Chinese (native), English (C2), French (B2)