

Xingjian Zhang

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Education

École Polytechnique, Institut Polytechnique de Paris

Ph.D. candidate in Biomedical Engineering (AI bioimaging)

2023 - Present

- Advisors: Abdul I. Barakat (École Polytechnique), Elsa D. Angelini (Télécom Paris)

M.S. in Mechanics - Biomechanics and Biomedical Engineering

2021 - 2023

B.S. in Computer Science and Mathematics

2018 - 2021

Experience

PhD candidate | LadHyX, École Polytechnique & LTCI, Télécom Paris

Nov 2023 - Present

- Applying** deep learning techniques to microscopy imaging data to quantify cellular nuclear deformations on microgroove substrates, advancing in-vitro diagnostic capabilities for laminopathies and breast cancer
- Contributed to** collaborative research projects spanning medical imaging, biomedical sensing, and clinical data analysis
- Teaching and supervision** at Télécom Paris and École Polytechnique: TA for master-level courses (ML, DL, Medical Imaging, Object Recognition) and supervised M2 research projects on computer vision topics

Research Engineer Intern | Dassault Systèmes

Mar 2023 - Sep 2023

- Developed** 3D deep learning approaches for tumor segmentation on CT scan data
- Improved** upon industry methods that used 2D slice segmentation with post-hoc aggregation

Research Intern | LOB, École Polytechnique

Apr 2022 - Mar 2023

- Developed** segmentation algorithms and computational models for pSHG and THG imaging
- Developed** *BioImageLoader*, a Python library for unified bioimage dataset handling in ML applications

Publications

Peer-reviewed Publications

- MC Yagüe, [X Zhang](#), et al., "Noninvasive real-time monitoring of cellular spatiotemporal dynamics via machine learning-enhanced electrical impedance spectroscopy", *Science Advances*, 2025.
- C Leclech, G Cardillo, B Roellinger, [X Zhang](#), et al., "Microscale topography triggers dynamic 3D nuclear deformations", *Advanced Science*, 2025.
- A Hauguel, K Kasani, V Chevance, [X Zhang](#), et al., "Changes in ascending aorta and aortic arch secondary flow patterns following endovascular repair", *Eur J Vasc Endovasc Surg*, 2025.
- B Asadipour, E Beaurepaire, [X Zhang](#), et al., "Modeling and predicting second harmonic generation from protein molecular structure", *Physical Review X*, 2024.
- [X Zhang](#), C Leclech, et al., "Myoblast mutation classification via microgroove-induced nuclear deformations", *MIDL*, 2024.
- G Pogudin, [X Zhang](#), "Interpretable exact linear reductions via positivity", *CMSB*, 2021.

Pre-prints / under review

- B Asadipour, R Ronzano, J Morizet, [X Zhang](#), et al., "Label-free multimodal non-linear microscopy to probe metabolism and myelin distribution"
- S Lim, [X Zhang](#), et al., "BioImageLoader: Easy handling of bioimage datasets for machine learning"

Selected Presentations

- "Deep learning classification of laminopathy mutations on microgroove substrates", *ESB 2025 Congress*, Zürich, Switzerland (Oral)
- "Myoblast mutation classification via microgroove-induced nuclear deformations", *MIDL 2024*, Paris, France (Poster)
- "Interpretable exact linear reductions via positivity", *CMSB 2021*, Bordeaux, France (Oral)

Skills

Programming: 🐍 Python, 🟢 Julia, 📐 R, 📊 Matlab, 🌐 C/C++, 📄 JavaScript/HTML/CSS

ML and MLOps Tools: 🍷 Pytorch, 📦 TensorFlow, 📦 JAX, 📦 Git, 📦 Docker, 📦 PySpark, 📦 SQL, 📦 Pandas, Multi-GPU training

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