





# Yuan YIN

 yuan-yin-nn  yuan-yin.github.io  French, English, Mandarin  Montrouge, Île-de-France, France




## PROFESSIONAL PROFIL

Passionate about cutting-edge AI technologies, especially in **Machine Learning** (ML) and **Deep Learning** (DL), I specialize in pioneering **Neural Network** methods for analyzing physical **dynamics**, notably impacting fields like weather forecasting.

This expertise allows me to develop DL/AI solutions for complex real-world challenges by innovating upon existing methods, and integrating DL approaches into existing non-ML systems. Additionally, it provides me with opportunities to work on other topics, such as **Computer Vision** (CV).

## EXPERIENCE

**Postdoctoral AI Researcher** Apr 2024  Present  
*Valeo.ai Paris, France*

- Optimizing adversarial trajectories for autonomous vehicles

**Postdoctoral Researcher** Jul 2023  Dec 2023  
*Sorbonne Université, ISIR, MLIA Team Paris, France*

- Supervising ongoing research projects
- Writing an introduction to Physics-Aware DL

**PhD Student, Teaching Assistant** Oct 2019  Jun 2023  
*Sorbonne Université, ISIR, MLIA Team Paris, France*

- Supervised by Patrick GALLINARI & Nicolas BASKIOTIS
- Focus: Physics-Aware DL and dynamical systems
  - a) DL-physics hybrid modeling
  - b) Out-of-distribution generalization for dynamics modeling
  - c) Continuous dynamics modeling with neural fields (NeRF)

**Research Intern in Deep Learning** Feb 2019  Sep 2019  
*Sorbonne Université, LIP6, MLIA Team Paris, France*

- Imputing spatiotemporal data with generative models

**Research Intern in NLP** *Inria Paris* Feb 2018  Jul 2018

**Research Intern in CV** *Beihang Univ.* May 2015  Jun 2016

## EDUCATION

**Sorbonne Université** *pka UPMC (Paris-6)* Paris, France  
PhD in Machine Learning and Deep Learning Jun 2023  
MSc2 DAC, Master Data Science Paris 2019

**Université Paris Cité** *pka U. Paris-Diderot (Paris-7)* Paris, France  
MSc1 MPRI, Parisian Research Master in Comp. Sci. 2018  
Univ. Dipl. in French Language and Civilization 2017

**Beihang University** *#12 University in China* Beijing, China  
BSc, Applied Computer Science 2016

## TECHNICAL SKILLS

**OS & Hardware Platform** Linux servers equipped with NVIDIA GPUs

**Programming** Python (PyTorch, JAX, etc.), C/C++, Java, LaTeX, Matlab, OCaml, iOS Dev, SQL

**Tools** Git, Emacs, VS Code, Eclipse

## PROFESSIONAL PROFICIENCY


**Scientific Monitoring** Demonstrated through diverse research topics inspired by extensive literature.

**Research Communication** First-authored publications in top-tier international ML conferences (NeurIPS, ICLR, ICML). Presentations and invited talks in academy and industry.

**Extensive Collaboration** All research projects stem from internal and external collaborations.

**Community Contribution** Served as a reviewer for top-tier international ML conferences and workshops.

## LANGUAGES

**French** Bilingual *last exam*  C1 (2017) ●●●●●

**English** Full Professional *last exam*  B2 (2015) ●●●●●

**Mandarin** Native ●●●●●

## DISTINCTIONS

**Accessit for the 2024 AI Thesis Prize** from the [French Association for Artificial Intelligence \(AFIA\)](#)

**Top Reviewer** at NeurIPS 2023

## COMMUNITY SERVICE

**Conference Reviewer** at NeurIPS 2021-24, ICLR 2023-24, ICML 2022-24, ECML-PKDD 2021, and ACM Multimedia 2021

**Workshop Reviewer** at ML4PS at NeurIPS 2022-24, Physics-4ML at ICLR 2023, SynS&ML at ICML 2023, ROAM at ECCV 2024

**Teaching** in French during 3 yrs at Sorbonne Université  
For undergrads: C Programming (L1), Algorithmics (L2), Probabilities (L3). For postgrads: ML Research Methodology (M2)

## PUBLICATIONS

**Conference Papers** *\* Equal contribution*

- **Y. Yin\***, M. Kirchmeyer\*, J.-Y. Franceschi\*, A. Rakotomamonjy, and P. Gallinari. Continuous PDE dynamics forecasting with implicit neural representations. In ICLR 2023. (Spotlight)
- L. Serrano, L. Le Boudec, A. Kassai Koupai, **Y. Yin**, T. X. Wang, J.-N. Vittaut, and P. Gallinari. Operator learning with neural fields: Tackling PDEs on general geometries. In NeurIPS 2023. (Poster)
- M. Kirchmeyer\*, **Y. Yin\***, J. Donà, N. Baskiotis, A. Rakotomamonjy, and P. Gallinari. Generalizing to new physical systems via context-informed dynamics model. In ICML 2022. (Spotlight)
- **Y. Yin**, I. Ayed, E. de Bézenac, N. Baskiotis, and P. Gallinari. LEADS: Learning dynamical systems that generalize across environments. In NeurIPS 2021. (Poster)

- **Y. Yin\***, V. Le Guen\*, J. Donà\*, E. de Bézenac\*, I. Ayed\*, N. Thome, and P. Gallinari. Augmenting physical models with deep networks for complex dynamics forecasting. In *ICLR 2021*. (Oral, also in *J. Stat. Mech.: Theory Exp.*)

## Journal Papers

- E. Le Naour, L. Serrano, L. Migus, **Y. Yin**, G. Agoua, N. Baskiotis, P. Gallinari, and V. Guigue. Time series continuous modeling for imputation and forecasting with implicit neural representations. *TMLR*, 2024.
- C. Metta, A. Beretta, R. Guidotti, **Y. Yin**, P. Gallinari, S. Rinzivillo, and F. Giannotti. Improving trust and confidence in medical skin lesion diagnosis through explainable deep learning. *Int. J. Data. Sci. Anal.*, 2023.
- D. Huang, R.K. Zhang, **Y. Yin**, Y.D. Wang, and Y.H. Wang. Local feature approach to dorsal hand vein recognition by centroid-based circular key-point grid and fine-grained matching. *Image Vis. Comput.*, 2017.

## Workshop Papers

- L. Le Boudec, E. de Bézenac, L. Serrano, **Y. Yin**, and P. Gallinari. Learning iterative algorithms to solve PDEs. In *ICLR 2024 Workshop on AI4DiffEqtnsInSci*.
- A. Kassai Koupaï, **Y. Yin**, and P. Gallinari. Learn to adapt parametric solvers under incomplete physics. In *ICLR 2024 Workshop on AI4DiffEqtnsInSci*.
- L. Serrano, L. Migus, **Y. Yin**, J. A. Mazari, J.-N. Vittaut, and P. Gallinari. INFINITY: Neural field modeling for reynolds-averaged navier-stokes equations. In *ICML 2023 Workshop on SynS & ML*.
- L. Migus, **Y. Yin**, J. A. Mazari, and P. Gallinari. Multi-scale physical representations for approximating PDE solutions with graph neural operators. In *ICLR 2022 Workshop on GTRL*.
- **Y. Yin**, A. Pajot, E. De Bézenac, and P. Gallinari. Unsupervised inpainting for occluded sea surface temperature sequences. In *CI 2019*.

## Preprints *not peer-reviewed*

- **Y. Yin**, A. Pajot, E. de Bézenac, and P. Gallinari. Unsupervised spatiotemporal data inpainting, 2020.

## PRESENTATIONS AND INVITED TALKS

Please find the details of the talks on [my website](#)

Workshop on <i>Mathematical Foundations of AI</i> at DATAIA-SCAI	Jan 2024
Seminar at <a href="#">Valeo.ai</a>	Jan 2024
Seminar <a href="#">UMR MIA Paris-Saclay</a> at <a href="#">AgroParisTech</a>	Nov 2023
Seminar <a href="#">LAGA-MCS</a> at <a href="#">Univ. Sorbonne Paris Nord</a>	Nov 2023
Tutorial at <a href="#">ECML-PKDD 2023</a>	Sep 2023
PhD Defense	Jun 2023
Seminar of <a href="#">Signal Processing Lab (LTS4)</a> at <a href="#">EPFL</a>	May 2023
Spotlight Conference Presentation at <a href="#">ICLR 2023</a>	May 2023
<a href="#">AI4Science Talks</a> at <a href="#">ML for Simulation Lab</a> at <a href="#">Univ. of Stuttgart &amp; NEC Labs Europe</a>	Apr 2023
<a href="#">SIG LearnFluidS</a> at <a href="#">d'Alembert, Sorbonne Univ.</a>	Mar 2023
Medical Biology Engineers Day of <a href="#">AP-HP</a>	Mar 2023
Seminar at <a href="#">Criteo AI Lab</a>	Nov 2022
Seminar <a href="#">Sorbonne-ISAE-CERFACS</a>	Oct 2022
Spotlight Conference Presentation at <a href="#">ICML 2022</a>	Jul 2022
Seminar at <a href="#">Extrality</a> (Now <a href="#">Ansys SimAI</a> )	Feb 2022
Conference Presentation at <a href="#">NeurIPS 2021@Paris</a>	Dec 2021
<a href="#">AAAI 2021 Spring Symposium MLPS</a>	Mar 2021