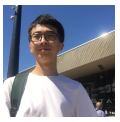
# YUAN YIN



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** *China's Top 20 Universities* *Beijing, China*
BSc, Applied Computer Science 2016

## TECHNICAL SKILLS

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|---|---|
| **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 ICML 2022-23 and NeurIPS 2023, Physics4ML at ICLR 2023, SynS & ML at ICML 2023

**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. Kassaï Koupaï, **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. Kassaï 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*

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