Yuan YIN

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

Professional Profil

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

This proficiency enables 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 Deep Learning

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, ISIR, 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 » Jul 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

OS & Hardware	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 a diverse range of research topics inspired by a large base of literature.

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

Extensive Collaboration All of my research projects result from internal and external collaboration.

Community Contribution Served as reviewer in top-tier international ML conferences and workshops.

Languages

French CEFR C1 *DALF type exams, 2017* ●●●●◐

English CEFR B2 *IELTS, 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: Research Methodology in ML (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

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 Machine Learning for Simulation Lab at University of Stuttgart & NEC Labs Europe	Apr 2023
SIG LearnFluidS at ∂'Alembert, Sorbonne Université	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