YUAN YIN

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PROFESSIONAL SUMMARY

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

This proficiency allows me to craft customized DL/AI solutions for intricate challenges by blending data-driven and **physics-aware** approaches, also extensively work on other topics in **Computer Vision** (CV). Throughout my collaborative efforts in my PhD, I've explored various ML domains, including dynamic modeling, hybridizing physical-ML approaches, meta-learning, out-of-distribution generalization, continuous modeling, neural implicit representations, and more.

EDUCATION

Sorbonne Université *formerly UPMC (Paris-6)* — *Paris, France*
- PhD in Machine Learning and Deep Learning — Jun 2023
- MSc Yr 2, Master Data Science Paris (DAC) — 2019
  Succeeded with Highest Honor (Très Bien), ranked 1st

Université Paris Cité *formerly Université Paris-Diderot (Paris-7)* — *Paris, France*
- MSc Yr 1, Parisian Master of Research in Comp. Sci. (MPRI) — 2018
  Succeeded with Highest Honor (Très Bien)

Beihang University *In China's Top 20 Universities* — *Beijing, China*
- BSc, Applied Computer Science — 2016

EXPERIENCE

Postdoctoral Researcher — Jul 2023 - Dec 2023
Sorbonne Université, ISIR, Team MLIA — *Paris, France*
- Supervision of ongoing research projects on Physics-Aware Deep Learning

PhD Student, Teaching Assistant — Oct 2019 - Jun 2023
Sorbonne Université, ISIR, Team MLIA — *Paris, France*
- Supervised by Patrick Gallinari and Nicolas Baskiotis
- Focus: Physics-Aware Deep Learning and dynamical systems
  ❶ DL-physics hybrid modeling
  ❷ Generalization of DL modeling to seen and unseen systems
  ❸ Continuous dynamics modeling with neural networks

Research Intern — Feb 2019 - Sep 2019
Sorbonne Université, ISIR, Team MLIA — *Paris, France*
- Supervised by Patrick Gallinari, Arthur Pajot, and Emmanuel de Bézenac
- Spatiotemporal data completion with generative adversarial nets (GANs)

Research Intern — Feb 2018 - Jul 2018
Inria Paris — *Paris, France*
- Supervised by Roberto Di Cosmo and Stefano Zacchiroli
- Large-scale classification of programming languages

Research Intern — May 2015 - Jul 2016
Beihang University — *Beijing, China*
- Supervised by Yunhong Wang and Di Huang
- Identity recognition with hand vein images; smile detection

SERVICES

Rewarded Top Reviewer at NeurIPS 2023

Conference Reviewer at NeurIPS 2021/2022/2023, ICLR 2023/2024, ICML 2022/2023/2024, ECML-PKDD 2021, and ACM Multimedia 2021

Workshop Reviewer at ML4PS at ICML 2022/2023 and NeurIPS 2023, Physics4ML at ICLR 2023, SynS & ML at ICML 2023.

Teaching 192 teaching hours during 3 yrs (Oct 2019 - Sep 2022) in French at Sorbonne University in Engineering Department (UFR 919)

For undergraduates: C programming (L1), Algorithmics (L2), Probabilities (L3). For postgraduates: Research methodology in Machine Learning (M2)

LANGUAGES

Mandarin (native) ●●●●●
French (CEFR C1, DALF type exams, 2017) ●●●●◐
English (CEFR B2, IELTS 6.0, 2015) ●●●●○

TECHNICAL SKILLS

Programming Languages: *Advanced*: Python (PyTorch, NumPy, etc.)
Intermediate: LaTeX, C/C++, Java, Matlab, OCaml
Basic: Prolog, iOS Development, SQL

Tools: Git, Emacs, VS Code, Eclipse

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

- 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 keypoint grid and fine-grained matching. *Image Vis. Comput.*, 2017.

Workshop Papers

- 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*

- 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, 2023.
- **Y. Yin**, A. Pajot, E. de Bézenac, and P. Gallinari. Unsupervised spatiotemporal data inpainting, 2020.

TALKS AND PRESENTATIONS

Workshop *Mathematical Foundations of AI*, at DATAIA-SCAI	Jan 2024
Seminar UMR MIA Paris-Saclay, at AgroParisTech	Nov 2023
Seminar LAGA-MCS, at Université Sorbonne Paris Nord *(Paris-13)*	Nov 2023
Tutorial at ECML-PKDD 2023	Sep 2023
PhD Defense	Jun 2023
Seminar of Signal Processing Laboratory (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 d'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	Feb 2022
Conference Presentation at NeurIPS 2021@Paris	Dec 2021
AAAI 2021 Spring Symposium MLPS	Mar 2021