

EDOUARD OYALLON

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<http://edouardoyallon.github.io>

Google Scholar: h-index ≥ 20 and citations ≥ 6000

[LinkedIn](#)

Research interest: Large Scale Optimization, Deep Learning, Signal Processing.

Professional Experience

2022 – now	CNRS Researcher (CRCN), tenured , team MLIA, ISIR, <i>Sorbonne University</i> , Paris.
2024	Research Scientist, sabbatical year at CCM, <i>Flatiron Institute</i> , USA.
2021 – 2023	Lecturer, <i>Ecole Polytechnique</i> , Palaiseau.
2019 – 2021	CNRS Researcher (CRCN), tenured , team MLIA, LIP6, <i>Sorbonne University</i> , Paris.
2018 – 2019	Assistant Professor, tenure track, team CVN, <i>CentraleSupélec</i> , Saclay.
2017	Postdoctoral Researcher, team SequeL, <i>INRIA</i> , Lille.

Education

2023	Habilitation à Diriger des Recherches , <i>Sorbonne University</i> .
2013 – 2017	PhD, Département Informatique, <i>ENS</i> , supervised by Stéphane Mallat.
2010 – 2014	“Normalien” in maths, <i>ENS Cachan</i> , campus de Ker Lann.

Academic Service

Collegial

2026 – now	Organizer of the CNRS Research working group HPC for Learning.
2019 – 2022	Member of the MALIA group at the Société Française de Statistique (SFdS).
2022	Co-organiser of the Workshop GdR ISIS Recent Advances in Graph Machine Learning
2021	Chair of the session Machine and Deep Learning , MAS, SMAI.
2021	Co-organizer of the AAAI 2021 Workshop: Learning Network Architecture During Training .
2020-2021	Co-organizer with SFdS, Okwin and AccentureLab of the Federated Learning workshop .
2019	Co-organizer of the Learning with Limited Labeled Data workshop at ICLR.
2017	Co-organizer of the Learning with Limited Labeled Data workshop at NIPS.

Software development

2020	Kymatio coding sprint, organized by Flatiron Institute (<i>1 week</i>).
2019 – now	One of the core maintainer and developer of www.kymat.io .

University Service

2025	Visiting researcher at Center for New Music and Audio Technologies, Berkeley, USA (<i>1 week</i>).
2025	Visiting researcher at Flatiron Institute, USA (<i>3 weeks</i>).
2024	Visiting researcher at MILA and ILLS, Canada (<i>3 weeks</i>).
2020	Faculty Search committee, Conservatoire National des Arts et Métiers (CNAM).
2020	Visiting researcher at MILA, Canada (<i>3 weeks</i>).

Vulgarization

2025	Contributor to the CNRS Éditions book <i>Tout comprendre (ou presque) sur l'intelligence artificielle</i> . https://www.cnrseditions.fr/catalogue/societe/tout-comprendre-ou-presque-sur-l-intelligence-artificielle/
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Grants

Research Projects

2026–2030	Partner, <i>DAIMOS</i> (PEPR) — approx. 170,000 €
2023–2029	Partner, <i>SHARP</i> (PEPR) — approx. 950,000 € for my team MLIA
2021–2025	Collaborator, <i>CoCa4AI</i> (RFSI2021)
2021–2025	PI, <i>ADONIS</i> (ANR) — 227,000 €
2021–2023	PI, <i>ADONIS</i> (Emergence) — 57,000 €
2021–2025	Collaborator, <i>VHS</i> (ANR) — 20,000 €
2021–2024	SCAI PhD Grant — approx. 110,000 €

Hardware

2023–2024	300,000 hours-A100/H100 on CNRS cluster “Adonis on Jean Zay” (allocation A0151014526)
2018	GPU Grant by Nvidia — 2,000 €

Distinctions

2017	ICCV Travel Grant — 1,000 €
2014	PhD funded by DIM grant “Région Île-de-France” — approx. 115,000 €

Publications (h-index ≥ 20)

- Nabli A. and Oyallon E. *Decentralized Asynchronous Optimization with DADAO allows Decoupling and Acceleration*, JMLR 2025. <https://hal.science/hal-05270499>
- Nabli A., Fournier L., Erbacher P., Serrano L., Belilovsky E., and Oyallon E. *ACCO: Accumulate while you Communicate, Hiding Communications in Distributed LLM Training*, NeurIPS 2025. <https://hal.science/hal-04592562>
- Morel R., Han J., Oyallon E. *DISCO: learning to DISCover an evolution Operator for multi-physics-agnostic prediction*, ICML 2025. <https://arxiv.org/abs/2504.19496>
- Rivaud S., Fournier L., Pumir T., Belilovsky E., Eickenberg M., and Oyallon E. *PETRA: Parallel End-to-end Training with Reversible Architectures*, ICLR 2025 (Spotlight). <https://openreview.net/forum?id=0fhzSFsGUT>
- Nabli A., Belilovsky E., Oyallon E. *A2CiD2: Accelerating Asynchronous Communication in Decentralized Deep Learning*, NeurIPS 2023. <https://hal.science/hal-04124318>
- Legate G., Bernier N., Caccia L., Oyallon E., Belilovsky E. *Guiding The Last Layer in Federated Learning with Pre-Trained Models*, NeurIPS 2023. <https://arxiv.org/abs/2306.03937>
- Tenison I., Sreeramadas S. A., Mugunthan V., Oyallon E., Rish I., Belilovsky E. *Gradient Masked Averaging for Federated Learning*, TMLR. <https://arxiv.org/abs/2201.11986>
- Fournier L., Rivaud, S., Belilovsky E., Eickenberg M., Oyallon E. *Can Forward Gradient Match Backpropagation?*, ICML 2023. <https://hal.science/hal-04119829>
- Nabli A., Oyallon E. *DADAO: Decoupled Accelerated Decentralized Asynchronous Optimization*, ICML 2023. <https://hal.science/hal-03737694>
- Grinsztajn L., Oyallon E., Varoquaux G. *Why do tree-based models still outperform deep learning on tabular data?*, NeurIPS 2022. <https://hal.science/hal-03723551/>
- Sergeant-Perthuis G., Maier J., Bruna J., Oyallon E. *On Non-Linear operators for Geometric Deep Learning*, NeurIPS 2022. <https://hal.science/hal-03711864/>
- Thiry L., Arbel M., Belilovsky E. and Oyallon E. *The Unreasonable Effectiveness of Patches in Deep Convolutional Kernels Methods*, ICLR 2021. <https://openreview.net/forum?id=aYuZ09DIann>
- Oyallon, E. *Interferometric Graph Transform: a Deep Unsupervised Graph Representation*, ICML, 2020. <https://arxiv.org/abs/2006.05722>
- Belilovsky E., Eickenberg M. and Oyallon, E. *Decoupled Greedy Learning*, ICML, 2020. <https://arxiv.org/abs/1901.08164>
- Andreux et al., *Kymatio: Scattering Transforms in Python*, JMLR software 2020. <https://arxiv.org/abs/1812.11214>
- Chizat L., Oyallon, E. and Bach, F. *On Lazy Training in Differentiable Programming*, NeurIPS 2019. <https://arxiv.org/abs/1812.07956>
- Belilovsky E., Eickenberg M. and Oyallon, E. *Greedy Layerwise Learning Can Scale to ImageNet*, ICML 2019. <https://arxiv.org/abs/1812.11446>

- Oyallon, E., Belilovsky, E., Zagoruyko, S., and Valko, M., Compressing the Input for CNNs with the First-Order scattering Transform, ECCV 2018. <https://arxiv.org/abs/1809.10200>
- Oyallon, E., Zagoruyko, S., Huang G., Komodakis, N., Lacoste-Julien, S., Blaschko M., and Belilovsky E., *Scattering Networks for Hybrid Representation Learning*, TPAMI 2018. <https://arxiv.org/abs/1809.06367>
- Jacobsen, J.-H., Smeulders, A.W.M. S. and Oyallon, E., *i-RevNet: Invertible Deep Representations*, ICLR 2018. <https://openreview.net/forum?id=HJsjkMb0Z>
- Oyallon, E., Belilovsky, E., and Zagoruyko, S, *Scaling the Scattering Transform: Deep Hybrid Networks*, ICCV 2017. <http://arxiv.org/abs/1703.08961>
- Oyallon, E., *Building a Regular Decision Boundary with Deep Networks*, CVPR 2017. <http://arxiv.org/abs/1703.01775>
- Oyallon, E. and Mallat, S., *Deep Roto-translation Scattering for Object Classification*, CVPR 2015. <http://arxiv.org/abs/1412.8659>
- Oyallon, E and Rabin, J., *An Analysis of the SURF Method*, IPOL 2015. <http://www.ipol.im/pub/art/2015/69/>

Teaching

2025–now Lecturer at MVA, "Training and deploying Large-Scale Models"

2021–2023 Lecturer at IPP, "Advanced Topics in deep learning", "Statistics", "Machine Learning 1/2", "Advanced Deep Learning", "Foundations of Machine Learning", "Collaborative and Distributed Learning".

2021 "Deep Learning session", Doctoral school on mathematics and learning, CIRM (Marseille).

2019 Lecturer at MVA, "Deep Learning in Practice", with Guillaume Charpiat; Lecturer at CentraleSupélec, "Reinforcement Learning"; Seminar at M2StatML (Université Paris-Saclay).

2018 TA at MVA, "Deep Learning"; 2 days tutorial about "Deep Learning" with SFdS; Seminar "deep learning" at ENSAE.

2017 Seminar at M2StatML (Université Paris-Saclay); Corporate seminar series with lumen.ai; Seminar "Deep Learning" at ENSAE.

2014 – 2017 TA, bachelor level, at ENSAE (Differential Geometry, Statistics, Advanced Probability Theory).

Students

2025 Killian Bakong (INRIA Paris), PhD student, supervision over his last year of PhD with Kevin Scaman and Laurent Massoulier.

Danyal Ahmed (University of Cambridge), intern → PhD student.

Pietro Cagnasso (Polytechnico Milano), intern, co-supervised with Eugene Belilovsky.

2023 Thomas Pumir (Princeton), Postdoctoral researcher.

2022 Adel Nabli (CentraleSupélec/MILA), intern → PhD student
Stéphane Rivaud (SonyCSL), Postdoctoral researcher.

2021 Louis Leconte (ENS Paris-Saclay), intern, co-supervised with Aymeric Dieuleveut and Eric Moulines.
Jiang Ruiyao (Ecole Polytechnique), intern.
Léo Grinsztajn (Ecole Polytechnique), intern → PhD student, co-supervised with Gaël Varoquaux.
Louis Fournier (Ecole Polytechnique), intern → PhD student
Jakob Maier (Institut Polytechnique de Paris), intern.

Reviewing activity

Academic committee

Mid term PhD committee: Emile Royer (LIP6/INRIA, 2025-2028), Youva Addad (GREYC, 2023-2026), Alice Lacan (Université Paris Saclay, 2021-2024), Antoine Caillon (IRCAM, 2020-2023)

PhD Examiner: Thomas Mahiout (Université côte d’Azur, 2022)

Habilitation Examiner: Thomas Moreau (INRIA Saclay, 2025)

Collegial

Area Chair NeurIPS (2021, 2022, 2023, 2024, 2025), ICML (2023, 2024, 2025, 2026)

Reviewer: NeurIPS (2017*, 2020, 2021), ICLR (2017*, 2018, 2019, 2020, 2021, 2022), ICML (2018, 2020, 2021), CVPR (2017, 2018), ICCV (2019*), IPOL (2014), JMIV (2018, 2019), MSML (2020, 2021), JMLR (2019, 2020, 2021, 2022, 2023) – *: best reviewer award.

Grant expertise

2026 Rapporteur: EuroHPC JU - Extreme Scale Access ; National Science Centre, Poland

2025 Rapporteur: EuroHPC JU - Extreme Scale Access ; Reviewer: National Science Centre, Poland (1 project), EuroHPC call, Europe (3 projects)

2022 Reviewer: Latvian Council of Science (1 project); Austrian Science Fund (1 project)

2021 Reviewer: DIM ELICIT (1 project); ISF (1 project)

2020 Reviewer: [ANR](#) (3 projects); Reviewer of a PhD for IRSN.

2019 Reviewer: [ANR](#) (2 projects); [Atlantisc-2020](#) (1 project); [IRS 2019](#), IDEX Communauté Université Grenoble Alpes (MSTIC) (1 project).

Talks

2025 Seminar at GREYC, ANR PEPR, Flatiron institute, Invited talk at ICSP 2025, Inviter speaker at KAUST Workshop on Distributed Training in the Era of Large Models, Talk at ILLS Workshop on Machine Learning and Statistical Signal Processing.

2024 Invited talk at ISMP 2024

2023 Invited Speaker and panel member at "Localized Learning" workshop at ICML 2023.

2021 IBM; Owkin; Dataiku; DataFest Yerevan; Hi!PARIS Summer School; Meetup LumenAI

2020 Seminar at Flatiron institute.

2019 GDR Isis; Learning to Discover: Advanced Pattern Recognition, Institut Pascal; Journée de la statistique/machine learning, IHES; Séminaire Parisien de Statistique, IHP.

2018 Groupe de travail de Deep Learning, équipe TAO/LRI; GREYC; GE Healthcare, Bures-sur-Yvette ;NAVER LABS, Grenoble; Criteo, Paris; SequeL, Lille; SONY CSL Music; DeepMind CSML Seminar Series ; Mathematical coffee at Huawei; Imaging in Paris Seminar.

2017 LIP6; GREYC; CFM (Capital Fund Management); Torr Vision Group, Oxford ; Paris Big Data (keynote speaker), Telecom Paristech; PSI-VISICS, Departement of Electrical Engineering, Leuven; Groupe de travail ENS Rennes, ENSAI, Université de Rennes, Technicolor, Rennes; Deep learning meetup, Rennes.

2016 Deep learning meetup, Pau.

2015 PhD presentation, UPMC; Presentation at the GREYC, ENSICAEN.