

EDOUARD OYALLON

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<http://edouardoyallon.github.io>

Google Scholar: h-index ≥ 18 and citations ≥ 4500

[LinkedIn](#)

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

Professional Experience

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

Education

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

Academic Service

Collegial

2019 – 2022 Member of the [MALIA group](#) at the Société Française de Statistique (SFdS).
2022 Co-organiser of the 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 the Flatiron Institute (*1 week*).
2018 – present One of the core maintainer and developer of www.kymat.io.

University Service

2020 Faculty Search committee, Conservatoire National des Arts et Métiers (CNAM).
2020 Visiting researcher at MILA, Canada (*3 weeks*).
2024 Visiting researcher at MILA and ILLS, Canada (*3 weeks*).

Grants

Research projects PI of ADONIS (Emergence, 2021), 57k€ ; PI of ADONIS (ANR, 2021), 227k€ ; Collaborator of VHS (ANR, 2021), 20k€ ; SCAI PhD grant (2021), ~ 110k€ ; Collaborator of CoCa4AI (RFSI2021, 2021) ; co-PI SHARP (PEPR, 2023), ~ 220k€.

Hardware GPU grant by Nvidia (2018), 2k€; 10,000 hours on the CNRS cluster, Jean Zay (2020) ; 300,000 hours on the CNRS cluster "Adonis on JeanZay", allocation A0151014526.

Distinction ICCV travel grant (2017), 1k€; PhD funded by the grant DIM “Région Île de France” (2014), ~ 115k€.

Publications (h-index ≥ 18)

- 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=HJsjkMbOZ>
- 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

- 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" and "Advanced Topics in deep 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

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

PhD committee

Mid term PhD committee 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)

Collegial

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

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

2025 National Science Centre, Poland (1 project)

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

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

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

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

Talks

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 ; Mathemat-
ical 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.