Julien Mairal

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Date of birth: 19th January 1982
Civil status: married, 1 child

Education

2017	**Habilitation diploma (HdR)**, *Université Grenoble-Alpes*, Grenoble, France
Dissertation:	Large-scale machine learning and applications.
2007–2010	**PhD in applied mathematics**, *Ecole Normale Supérieure*, Cachan, France
Supervisors:	*Pr. Jean Ponce and Dr. Francis Bach.*
Dissertation:	Sparse coding for machine learning, image processing and computer vision.
2006–2007	**M.S. in applied mathematics**, *Ecole Normale Supérieure*, Cachan, France
2005–2007	**M.S. in electrical engineering**, *Telecom ParisTech*, Paris
2002–2005	**B.S. in computer science**, *Ecole Polytechnique*, Palaiseau, France

Professional Experience

Since 2018	**Inria**, *Grenoble, France*, Leader of the Thoth team (30 members)
Since 2012	**Inria**, *Grenoble, France*, Research scientist ("détachement du corps des mines")
2011–2012	**University of California**, *Berkeley*, Postdoctoral researcher Department of Statistics, working with Pr. Bin Yu.
2007–2010	**Inria**, *Paris*, PhD student
2006	**University of Minnesota**, *Minneapolis*, Research internship, 7 months
2005	**Inria and Ecole des Ponts**, *Paris*, Research internship, 5 months

Awards and Honors

2019	I received the ICML test of time award.
2019	I was appointed fellow of the ELLIS society.
2017	I received the IEEE PAMI young researcher award.
2016	I was promoted Senior member of the IEEE society.
2013	Recipient of the Cor Baayen young researcher award, awarded by ERCIM each year to a "promising young researcher in computer science and applied athematics".
2011	Best PhD thesis prize from the foundation EADS (known today as foundation Airbus group) in the field of "information and communication technology".
2011	Second prize for the Gilles-Kahn best PhD award, organized by the French society of computer science (SIF), and sponsored by the French academy of sciences.
2010	Best PhD thesis prize from AFRIF (French association on pattern recognition).

Grants

Pi	I have received an ERC Consolidator Grant, project APHELEIA, 2M euros, 2023–2028.
Pi	I am leading a chair for the MIAI institute in Grenoble, 385K euros, 2019–2023.
Pi	I was awarded an ERC Starting Grant, project SOLARIS, 1.5M euros, 2017–2022.
Pi	Recipient of a grant from ANR, project MACARON, 350K euros, 2014–2018.
Co-Pi	France Berkeley fund. "Invariant image representations and high dimensional sparse estimation for neurosciences". with Pr. Bin Yu, 2014-2016. 8K euros.

Teaching Activities

Courses for graduate students

2016 – 2023	"Kernel methods for statistical learning", ENS Paris-Saclay and at the African Master on Machine Intelligence, Kigali, Rwanda in 2020, and at University Grenoble-Alpes since 2020.
2015 – 2020	"Advanced learning models", University Grenoble-Alpes.
2013 – 2014	"Statistical machine learning and applications", Ecole Normale Supérieure, Lyon.

Short courses in summer schools and tutorials at international conferences

2019	Invited tutorial at IEEE Data Science Workshop, Minneapolis, 2019.
2018 – 2022	Short course on large-scale machine learning given at PAISS 2018, Grenoble, at the conference QBI 2019, Rennes, at the OBA summer school, Veroli, 2019, and at the Geilo Winter school, Norway, 2022 (online).
2018	Short course given at YSU – ISTC Joint Summer School on Machine Learning, Yerevan.
2018	Short course given at SMAI-Mode, Autrans, and MASCOT-NUM, Nantes.
2017	Short course given at CoSIP, Berlin.
2016	Lecturer at the summer school MAESTRA, Ohrid, Macedonia.
2010 – 2017	Short course on "Introduction to sparse estimation", given at Paris Sciences et Lettres University, from 2014 to 2017, and in various summer schools: at SPARS'17 in Lisbon, CIMI in Toulouse, 2015, BigOptim in Grenoble, 2015, DENIS at Tampere University, Finland, CVML 2010 in Grenoble, and ERMITES 2010 in Hyères.
2013	Guest speaker at the IMA "new direction short course", Minneapolis.
2009 – 2010	Tutorial "Sparse coding and dictionary learning for image analysis", given at the international conferences ICCV 2009, Kyoto, and CVPR 2010, San Francisco.

Supervised students, post-docs, and research engineers

I have supervised 12 PhD students, 4 post-docs, and 2 engineers, who are all now enjoying sucessful careers in academia (*e.g.*, post-docs at NYU, ETH, MIT) and industry (*e.g.*, DeepMind, HP, Meta, Google, Yandex, local start-ups). Two of my PhD students have received best PhD prizes: Alberto Bietti has received in 2019 a best PhD prize from University Grenoble-Alpes. Mathilde Caron has received in 2022 an accessit for the Gilles Kahn prize, and the best PhD award from the ELLIS society (prestigious European PhD award in the field of AI).

Current with % of supervision
- Romain Ménégaux, post-doc, 100%
- Theo Bodrito, PhD student, 50%
- Gaspard Beugnot, PhD student, 50%
- Alexandre Zouaoui, PhD student, 100%
- Houssam Zenati, PhD student, 50%
- Bruno Lecouat, PhD student, 50%
- Juliette Marrie, PhD student, 50%
- Timothée Darcet, PhD student, 50%
- Emmanuel Jehanno, research engineer, 100%
- Thomas Ryckeboer, research engineer, 100%

Past with current position
- Michael Arbel, researcher (CR), Inria Grenoble.
- Mathilde Caron, researcher, Google AI, Grenoble.
- Margot Selosse, researcher, Surgiqual Institute, Grenoble.
- Gregoire Mialon, post-doc, Meta AI, Paris.
- Minttu Alakuijala, post-doc.
- Gedeon Muhawenayo, researcher, Rwanda Space Agency.
- Dexiong Chen, post-doc, ETH, Switzerland
- Andrei Kulunchakov, researcher, Yandex, Russia
- Alberto Bietti, CDS Faculty Fellow, NYU, USA
- Nikita Dvornik, post-doc, Univ. Toronto, Canada
- Arthur Mensch, researcher, DeepMind, France
- Daan Wynen, data scientist, AVA (start-up), France
- Hongzhou Lin, post-doc, MIT, USA
- Thomas Dias-Alves, data scientist, HP, France
- Anoop Cherian, researcher, Mitsubishi, Australia
- Piotr Koniusz, senior researcher, Data61, Australia
- Ghislain Durif, research engineer, CNRS, France

Services to the Community

Editorial Activities

2022	Area chair for ICLR 2022, ICML 2022, and NeurIPS 2022.
2022	Tutorial chair for CVPR 2022.

2021	Area chair for ICLR 2021, AISTATS 2021, ICML 2021, and NeurIPS 2021.
2020	Co-workshop chair for NeurIPS 2020.
2020	Area chair for AISTATS 2020, ECCV 2020, and NeurIPS 2020.
2019	Area chair for NeurIPS 2019.
2018	Area chair for ICML 2018 and NeurIPS 2018.
2017	Area chair for ICML 2017 and NIPS 2017.
2016	Area chair for CVPR 2016, ECCV 2016, ICLR 2016 and NIPS 2016.
2015	Area chair for ICCV 2015 and ICML 2015.
Since 2019	Editor for the Journal of Machine Learning Research (JMLR).
2015 – 2023	Editor for the Journal of Mathematical Imaging and Vision (JMIV).
2015 – 2022	Editor for the International Journal of Computer Vision (also guest editor for the special issue on sparse coding in 2014).
2021 – 2022	Editor for IEEE Transations on Pattern Analysis and Machine Intelligence (PAMI).
2018 – 2020	Editor for SIAM Journal on Imaging Science.
2014 – 2018	Senior associate editor for IEEE Signal Processing Letters (senior editor since 2015).

Scientific Expertise

2017 – 2018	Judge for the IBM AI Xprize.
2018	Panel member for the Agence Nationale de la Recherche (ANR).
2017	Best PhD prize committee of PGMO.
2013 – 2022	Expert for the Agence Nationale de la Recherche (ANR) 2013 – 2019, the European Research Council (ERC) 2014, 2018 and 2022, the Czech Science Foundation 2022, Swiss National Science Foundation 2022.

Member of Thesis Committees

2023	Reviewer for the PhD thesis of Marine Picot, McGill University
2022	Reviewer for the PhD thesis of Laurent Meunier, PSL-Dauphine
2022	Jury member for the PhD thesis of Alfred Laugros, Grenoble Université
2021	Reviewer for the PhD thesis of Thomas Eboli, PSL-Sorbonne Université
2021	Jury member for the HdR of Franck Iutzeler, Université Grenoble-Alpes
2021	Jury member for the HdR of Chaohui Wang, Université Paris-Est
2021	Reviewer for the PhD thesis of Hamza Cherkaoui, Université Paris-Saclay
2021	Reviewer for the PhD thesis of Tran Khanh Hung, Université Paris-Saclay
2020	Jury member for the PhD thesis of Yaroslav Averyanov, Université de Lille
2020	Jury member for the PhD thesis of Dmitry Grishcnenko, Université Grenoble-Alpes
2020	Jury member for the PhD thesis of Boris Muzellec, ENSAE
2020	Reviewer for the PhD thesis of Vincent Prost, Université d'Evry
2020	Jury member for the PhD thesis of Pierre Laforgue, Telecom ParisTech
2020	Reviewer for the PhD thesis of Leonard Berrada, Oxford University
2019	Jury member for the PhD thesis of Mathurin Matthias, Université Paris-Saclay
2019	Reviewer for the PhD thesis of Yassine Yaakoubi, Polytechnique Montréal
2019	Reviewer for the PhD thesis of Zhenyu Liao, Université Paris-Saclay
2019	Reviewer for the PhD thesis of Belhal Karimi, Université Paris-Saclay
2019	Reviewer for the PhD thesis of Martin Bompaire, Université Paris-Saclay
2018	Reviewer for the PhD thesis of Magda Gregorova, Université de Genève.
2018	PhD thesis committee of Saeed Varasteh Yazdi, Grenoble University
2017	Reviewer for the PhD thesis of Thomas Moreau, ENS Paris-Saclay.
2017	Reviewer for the PhD thesis of Mathieu Carrière, Ecole Polytechnique.

2014	PhD thesis committee of Nicolas Duforet-Frebourg, Grenoble University.
2013	Reviewer for the PhD thesis of Roberto Rigamonti, EPFL, Lausanne, Switzerland.

Organization of scientific events

2018 – 2021	Co-organizer of the PAISS artificial intelligence summer school in Grenoble and in Paris, every year. – cancelled in 2020
2021	Co-organizer of a pluri-disciplinary workshop on AI at IHP, Paris.
2020	Organizing committee of the SIAM Conference on Imaging Science (IS20).
2019	Co-organizer of the workshop OSL 2019, Les Houches.
2018	Co-organizer of the Journées SMAI-MODE in Autrans.
2017	Organizer of the MACARON workshop in Grenoble.
2015	Co-organizer of the Khronos-Persyvact Large-scale Learning School in Grenoble.
2014	Organizer of the optimization session at the "Journées MAS" in Toulouse.
2009 – 2010	Co-organizer of two tutorials at the conferences ICCV 2009 and CVPR 2010.

Open-Source software

Cyanure	I am the main author of Cyanure, a new toolbox that provides state-of-the-art algorithms for empirical risk minimization.
SPAMS	I am the main author of the SPAMS toolbox, which provides efficient algorithms for sparse estimation. The software is widely used by various communities such as image and signal processing, machine learning, computer vision, bioinformatics. The package has been downloaded more than 100K times, and the URL of the software appears in more than 600 scientific publications according to Google scholar.
FlipFlop	I am also the co-author of the open-source Bioconductor package FlipFlop for transcript discovery and abundance estimation from RNA-Seq data.
Misc	I am also the author or co-author of various open-source software packages corresponding to my publications. All of them are available on my web page.

Industrial Collaborations

2022–2025	Collaboration with Naver Labs (CIFRE contract)
2022–2025	Collaboration with Meta AI (CIFRE contract)
2019–2022	Collaboration with Criteo Research (CIFRE contract)
2019–2022	Collaboration with Google (CIFRE contract)
2018–2021	Collaboration with Facebook (CIFRE contract)
2013	Collaboration with Xerox/XRCE on natural language processing
2014–2017	Member of the MSR Inria joint centre

Patents

2014	A US patent "language model with structured sparsity" has been granted (US Patent 20,160,070,697) after a joint publication with researchers from Xerox Research Centre Europe (XRCE) at the conference EMNLP.

Selected Invited Talks

Guest lectures in international summer and winter schools

01/2022	Winter school on continuous optimization, Geilo, Norway (upcoming).
07/2019	OBA summer school on machine learning, Veroli.
09/2018	YSU summer school on machine learning, Yerevan.
12/2017	COSiP winter school, Berlin.
06/2017	SparSA summer school, Lisbon.

09/2016 MAESTRA summer school, Ohrid, Macedonia.

08/2014 DENIS summer school, Tampere, Finland.

07/2013 IMA new direction short course, Minneapolis.

07/2010 International Visual Recognition and Machine Learning summer school, Grenoble.

Invited talks in workshops or mini-symposiums

03/2022 SIAM Imaging Science, mini-symposium, (online).

05/2021 French-German Machine Learning Symposium, Munich (online).

07/2020 ICT Innovation, Skopje, online.

08/2019 ICCOPT, Berlin.

04/2019 YES workshop, Eindhoven.

10/2018 CEFRL Workshop, ECCV, Munich.

07/2018 Theory of Deep Learning Workshop, ICML, Stockholm.

06/2018 ISMP, Bordeaux.

06/2017 JFCO, Toulouse.

06/2017 LCCC workshop, Lund.

05/2017 Pattern Recognition and Computer Vision Colloquium, Prague.

04/2017 OSL workshop, les Houches.

08/2016 Journées MAS, France.

08/2016 ICCOPT, Tokyo, Japan.

01/2016 MIA workshop, Paris, France

10/2015 CIMI workshop, Toulouse.

01/2015 BASP frontiers workshop, Villars-sur-Ollon, Switzerland.

08/2014 Journées MAS, France.

05/2014 SIAM conference on Optimization, San Diego.

03/2014 StatLearn, Paris.

06/2012 Sparsity workshop, ICML 2012. Edinburgh.

07/2011 ICML workshop on structured sparsity. Bellevue, Canada.

Seminars

04/2022 Seminar at UCL (online).

05/2021 Seminar at Flatiron Institute/NYU (online).

04/2021 Seminar at KU Leuven (online).

07/2020 DataSig Seminar from the Alan Turing Institute/Oxford university/UCL (online).

06/2020 Seminar at University of Genova (online).

11/2018 Seminar at University of Geneva.

02/2017 Seminar at Amazon, Berlin.

02/2016 Seminar at University of British Columbia, Vancouver.

02/2016 Seminar at UC Berkeley, EECS department.

03/2015 StatLab seminar at Cambridge university, UK.

03/2013 Xerox Europe Research Center, Grenoble.

11/2012 EPFL, Lausanne.

09/2012 Biostatistics seminar, UC Berkeley.

02/2012 Neyman seminar. University of California, Berkeley.

10/2011 Seminar at University of Minnesota. Minneapolis.

Research topics

I have made several contributions in **image and signal processing, machine learning, and computer vision**. Recently, I have oriented part of my research towards **mathematical optimization** applied to **large-scale machine learning**, and established pluri-disciplinary collaborations in **bioinformatics** and **neurosciences**. According to Google Scholar, my papers received about **29400 citations** and my **h-index is 52**.

These research directions resulted in different lines of publications detailed in the next tables, starting with peer-reviewed international journals. JMLR, IEEE-TSP, IJCV, PAMI, IEEE-TIP are the main journals in machine learning, computer vision, signal and image processing.

Journal of Machine Learning Research (JMLR)	7
SIAM Journal on Optimization	2
IEEE Transactions on Signal Processing (IEEE-TSP)	2
Bioinformatics	2
IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)	2
International Journal on Computer Vision (IJCV)	1
IEEE Transactions on Image Processing (IEEE-TIP)	1
SIAM Multiscale Modeling and Simulation	1
PLOS Computational Biology	1
BMC Bioinformatics	1
Molecular Biology and Evolution (MBE)	1

Other articles are published in the proceedings of the main international conferences in machine learning: NIPS/NeurIPS, ICML; and computer vision: ICCV, CVPR et ECCV. These five conferences are very selective with an acceptance rate in general below 25%, and their proceedings play a role which is as important as international journals.

Advances in Neural Information Processing Systems (NIPS, NeurIPS since 2018)	18
International Conference in Machine Learning (ICML)	9
IEEE International Conference on Computer Vision (ICCV)	7
IEEE Conference on Computer Vision and Pattern Recognition (CVPR)	7
European Conference on Computer Vision (ECCV)	4
International Conference on Learning Representations (ICLR)	3
International Conference on Artificial Intelligence and Statistics (AISTATS)	3
ACM SIGGRAPH	1
Conference on Learning Theory (COLT)	1
IEEE International Conference on Robotics and Automation (ICRA)	1
Empirical Methods on Natural Language Processing (EMNLP)	1
IEEE International Conference on Image Processing (ICIP)	1
IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)	1

In addition, I have co-authored two research monographs, two review articles, and one book chapter, which are presented in the next section.

List of publications

Monographs and review articles

[1] J. Mairal, F. Bach and J. Ponce. Sparse Modeling for Image and Vision Processing. *Foundations and Trends in Computer Graphics and Vision*, 8(2-3), 85–283, 2014.

[2] F. Bach, R. Jenatton, J. Mairal, and G. Obozinski. Optimization with sparsity-inducing penalties. *Foundations and Trends in Machine Learning*, 4(1), 1–106, 2012.

[3] F. Bach, R. Jenatton, J. Mairal and G. Obozinski. Structured sparsity through convex optimization. *Statistical Science*, 27(4), 450–468, 2012.

[4] F. Bach, R. Jenatton, J. Mairal, and G. Obozinski. Convex optimization with sparsity-inducing norms. In S. Sra, S. Nowozin, and S. J. Wright, editors, *Optimization for Machine Learning*. MIT Press, 2011.

[5] J. Wright, Y. Ma, J. Mairal, G. Sapiro, T. Huang and S. Yan. Sparse representation for computer vision and pattern recognition. *IEEE*. 98(6):1031–1044. 2010.

Articles in peer-reviewed international journals

[6] A. Mensch, J. Mairal, B. Thirion, and G. Varoquaux. Extracting representations of cognition across neuroimaging studies improves brain decoding. *PLOS Computational Biology*. 2021.

[7] A. Kulunchakov and J. Mairal. Estimate Sequences for Stochastic Composite Optimization: Variance Reduction, Acceleration, and Robustness to Noise. *Journal of Machine Learning Research (JMLR)*. 21(155), 2020.

[8] N. Dvornik, J. Mairal and C. Schmid. On the Importance of Visual Context for Data Augmentation in Scene Understanding *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 2019.

[9] H. Lin, J. Mairal and Z. Harchaoui. An Inexact Variable Metric Proximal Point Algorithm for Generic Quasi-Newton Acceleration. *SIAM Journal on Optimization*. 29(2), 1408–1443, 2019.

[10] D. Chen, L. Jacob, and J. Mairal Biological Sequence Modeling with Convolutional Kernel Networks. *Bioinformatics*. 35(18), 3294–3302, 2019.

[11] A. Bietti and J. Mairal. Group Invariance, Stability to Deformations, and Complexity of Deep Convolutional Representations. *Journal of Machine Learning Research (JMLR)*, 20(25), 1–49, 2019.

[12] H. Lin, J. Mairal and Z. Harchaoui. Catalyst Acceleration for First-order Convex Optimization: from Theory to Practice. *Journal of Machine Learning Research (JMLR)*, 18(212), 1–54, 2018.

[13] T Dias-Alves, J. Mairal and M. Blum. Loter: A Software Package to Infer Local Ancestry for a Wide Range of Species. *Molecular Biology and Evolution (MBE)*. 35(9), 2318–2326, 2018.

[14] A. Mensch, J. Mairal, B. Thirion and G. Varoquaux. Stochastic Subsampling for Factorizing Huge Matrices *IEEE Transactions on Signal Processing*, 66(1), 112–128, 2018.

[15] M. Paulin, J. Mairal, M. Douze, Z. Harchaoui, F. Perronnin and C. Schmid. Convolutional Patch Representations for Image Retrieval: an Unsupervised Approach. *International Journal of Computer Vision (IJCV)*, 121(1), 149–168. 2017.

[16] A. Tillmann, Y. Eldar and J. Mairal. DOLPHIn-Dictionary Learning for Phase Retrieval. *IEEE Transactions on Signal Processing*, 64(24), 6485–6500. 2016.

[17] J. Mairal. Incremental Majorization-Minimization Optimization with Application to Large-Scale Machine Learning. *SIAM Journal on Optimization*, 25(2), 829–855, 2015.

[18] E. Bernard, L. Jacob, J. Mairal, E. Viara and J.-P. Vert. A Convex Formulation for Joint RNA Isoform Detection and Quantification from Multiple RNA-seq Samples. *BMC Bioinformatics*, 16:262, 2015.

[19] E. Bernard, L. Jacob, J. Mairal and J.-P. Vert. Efficient RNA Isoform Identification and Quantification from RNA-Seq Data with Network Flows. *Bioinformatics*, 30(17), 2447–2455, 2014.

[20] J. Mairal and B. Yu. Supervised Feature Selection in Graphs with Path Coding Penalties and Network Flows. *Journal of Machine Learning Research (JMLR)*, 14(Aug), 2449–2485, 2013.

[21] J. Mairal, F. Bach, and J. Ponce. Task-driven dictionary learning. *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 34(4), 2012.

[22] J. Mairal, R. Jenatton, G. Obozinski, and F. Bach. Convex and network flow optimization for structured sparsity. *Journal of Machine Learning Research (JMLR)*, 12(9), 2649–2689, 2011.

[23] R. Jenatton, J. Mairal, G. Obozinski, and F. Bach. Proximal methods for hierarchical sparse coding. *Journal of Machine Learning Research (JMLR)*, 12(7), 2297–2334, 2011.

[24] J. Mairal, F. Bach, J. Ponce, and G. Sapiro. Online learning for matrix factorization and sparse coding. *Journal of Machine Learning Research (JMLR)*, 11(1), 19–60, 2010.

[25] J. Mairal, G. Sapiro, and M. Elad. Learning multiscale sparse representations for image and video restoration. *SIAM Multiscale Modelling and Simulation*, 7(1):214–241, 2008.

[26] J. Mairal, M. Elad, and G. Sapiro. Sparse representation for color image restoration. *IEEE Transactions on Image Processing*, 17(1):53–69, 2008.

Articles in peer-reviewed international conferences

[24] J. Marrie, M. Arbel, D. Larlus and J. Mairal. SLACK: Stable Learning of Augmentations with Cold-start and KL regularization. *International Conference on Computer Vision and Pattern Recognition (CVPR)*. 2023.

[25] E. Fini, P. Astolfi, K. Alahari, X. Alameda-Pineda, J. Mairal, M. Nabi and E. Ricci. Semi-supervised learning made simple with self-supervised clustering. *International Conference on Computer Vision and Pattern Recognition (CVPR)*. 2023.

[26] M. Alakuijala, G. Dulac-Arnold, J. Mairal, J. Ponce and C. Schmid. Learning Reward Functions for Robotic Manipulation by Observing Humans. *IEEE International Conference on Robotics and Automation (ICRA)*. 2023.

[27] M. Arbel and J. Mairal. Non-Convex Bilevel Games with Critical Point Selection Maps. *Advances in Neural Information Processing Systems (NeurIPS)*. 2022.

[28] B. Lecouat, T. Eboli, J. Ponce and J. Mairal. High Dynamic Range and Super-Resolution From Raw Image Bursts. *ACM SIGGRAPH*. 2022.

[29] G. Beugnot, J. Mairal, and A. Rudi. On the Benefits of Large Learning Rates for Kernel Methods. *International Conference on Learning Theory (COLT)*. 2022.

[30] E. Fini, V. G. Turrisi da Costa, X. Alameda-Pineda, E. Ricci, K. Alahari and J. Mairal. Self-Supervised Models are Continual Learners. *International Conference on Computer Vision and Pattern Recognition (CVPR)*. 2022.

[31] M. Arbel and J. Mairal. Amortized Implicit Differentiation for Stochastic Bilevel Optimization. *International Conference on Learning Representations (ICLR)*. 2022.

[32] M. Choraria, L. T. Dadi, G. Chrysos, J. Mairal and V. Cevher. The Spectral Bias of Polynomial Neural Networks. *International Conference on Learning Representations (ICLR)*. 2022.

[33] H. Zenati, A. Bietti, E. Diemert, J. Mairal, M. Martin and P. Gaillard. Efficient Kernel UCB for Contextual Bandits. *International Conference on Artificial Intelligence and Statistics (AISTATS)*. 2022.

[34] T. Bodrito, A. Zouaoui, J. Chanussot and J. Mairal. A Trainable Spectral-Spatial Sparse Coding Model for Hyperspectral Image Restoration. *Advances in Neural Information Processing Systems (NeurIPS)*. 2021.

[35] G. Beugnot, J. Mairal, and A. Rudi. Beyond Tikhonov: Faster Learning with Self-Concordant Losses via Iterative Regularization. *Advances in Neural Information Processing Systems (NeurIPS)*. 2021.

[36] M. Caron, H. Touvron, I. Misra, H. Jégou, J. Mairal, P. Bojanowski and A. Joulin. Emerging Properties in Self-Supervised Vision Transformers. *International Conference on Computer Vision (ICCV)*. 2021.

[37] B. Lecouat, J. Ponce and J. Mairal. Lucas-Kanade Reloaded: End-to-End Super-Resolution from Raw Image Bursts. *International Conference on Computer Vision (ICCV)*. 2021.

[38] G. Mialon, D. Chen, A. d'Aspremont and J. Mairal. A Trainable Optimal Transport Embedding for Feature Aggregation and its Relationship to Attention. *International Conference on Learning Representations (ICLR)*. 2020.

[39] M. Caron, I. Misra, J. Mairal, P. Goyal, P. Bojanowski, and A. Joulin. Unsupervised Learning of Visual Features by Contrasting Cluster Assignments. *Advances in Neural Information Processing Systems (NeurIPS)*. 2020.

[40] B. Lecouat, J. Ponce and J. Mairal. Designing and Learning Trainable Priors with Non-Cooperative Games. *Advances in Neural Information Processing Systems (NeurIPS)*. 2020.

[41] B. Lecouat, J. Ponce and J. Mairal Fully Trainable and Interpretable Non-Local Sparse Models for Image Restoration *European Conference on Computer Vision (ECCV)*. 2020.

[42] N. Dvornik, C. Schmid and J. Mairal. Selecting Relevant Features from a Multi-Domain Representation for Few-shot Classification. *European Conference on Computer Vision (ECCV)*. 2020.

[43] D. Chen, L. Jacob and J. Mairal. Convolutional Kernel Networks for Graph-Structured Data *International Conference on Machine Learning (ICML)*. 2020.

[44] G. Mialon, A. d'Aspremont, and J. Mairal. Screening Data Points in Empirical Risk Minimization via Ellipsoidal Regions and Safe Loss Function. *International Conference on Artificial Intelligence and Statistics (AISTATS)*. 2020.

[45] D. Chen, L. Jacob and J. Mairal. Recurrent Kernel Networks. *Advances in Neural Information Processing Systems (NeurIPS)*. 2019.

[46] A. Kulunchakov and J. Mairal. A Generic Acceleration Framework for Stochastic Composite Optimization. *Advances in Neural Information Processing Systems (NeurIPS)*. 2019.

[47] A. Bietti and J. Mairal. On the Inductive Bias of Neural Tangent Kernels. *Advances in Neural Information Processing Systems (NeurIPS)*. 2019.

[48] M. Caron, P. Bojanowski, J. Mairal and A. Joulin. Unsupervised Pre-Training of Image Features on Non-Curated Data. *International Conference on Computer Vision (ICCV)*. 2019.

[49] N. Dvornik, C. Schmid and J. Mairal. Diversity with Cooperation: Ensemble Methods for Few-Shot Classification. *International Conference on Computer Vision (ICCV)*. 2019.

[50] A. Kulunchakov and J. Mairal. Estimate Sequences for Variance-Reduced Stochastic Composite Optimization. *International Conference on Machine Learning (ICML)*. 2019.

[51] A. Bietti, G. Mialon, D. Chen, and J. Mairal. A Kernel Perspective for Regularizing Deep Neural Networks. *International Conference on Machine Learning (ICML)*. 2019.

[52] D. Wynen, C. Schmid and J. Mairal. Unsupervised Learning of Artistic Styles with Archetypal Style Analysis. *Advances in Neural Information Processing Systems (NeurIPS)*, 2018.

[53] M. Dvornik, J. Mairal and C. Schmid. Modeling Visual Context is Key to Augmenting Object Detection Datasets. *European Conference on Computer Vision (ECCV)*, 2018.

[54] C. Paquette, H. Lin, D. Drusvyatskiy, J. Mairal and Z. Harchaoui. Catalyst for Gradient-Based Non-Convex Optimization. *International Conference on Artificial Intelligence and Statistics (AISTATS)*. 2018.

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