

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 mathematics”.
- 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 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 – 2022 “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 – 2019 Short course on large-scale machine learning given at PAISS 2018, Grenoble, at the conference QBI 2019, Rennes, and the OBA summer school, Veroli, 2019.
- 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 8 PhD students, 2 post-docs, and 1 engineer, who are all now enjoying successful careers in academia (*e.g.*, post-docs at NYU, ETH, MIT) and industry (*e.g.*, DeepMind, HP, Yandex, local start-ups).

Current with % of supervision

- Romain Ménégaux, post-doc, 100%
- Michael Arbel, post-doc, 100%
- Margot Selosse, post-doc, 100%
- Theo Bodrito, PhD student, 100%
- Gaspard Beugnot, PhD student, 50%
- Alexandre Zouaoui, PhD student, 100%
- Houssam Zenati, PhD student, 50%
- Bruno Lecouat, PhD student, 50%
- Minttu Alakuijala, PhD student, 33%
- Gregoire Mialon, PhD student, 50%
- Mathilde Caron, PhD student, 50%
- Gedeon Muhawenayo, research engineer, 100%
- Thomas Ryckeboer, research engineer, 100%

- Juliette Marrie, MSc student, 50%
- Timothée Darcet, MSc student, 50%

Past with current position

- 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 Wymen, 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.
- 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 2021 Editor for IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI).
- Since 2019 Editor for the Journal of Machine Learning Research (JMLR).
- Since 2015 Editor for the International Journal of Computer Vision (also guest editor for the special issue on sparse coding in 2014).
- Since 2015 Editor for the Journal of Mathematical Imaging and Vision (JMIV).
- 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 PGM.
- 2013 – 2019 Expert for the Agence Nationale de la Recherche (ANR) 2013 – 2019, and the European Research Council (ERC) 2014 and 2018.

Member of Thesis Committees

- 2021 Reviewer for 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 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 Grishchenko, 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 Upcoming collaboration with Naver Labs (CIFRE contract)
- 2022–2025 Upcoming collaboration with Facebook (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

- 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

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 **23800 citations** and my **h-index is 49**. 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)	17
International Conference in Machine Learning (ICML)	9
IEEE International Conference on Computer Vision (ICCV)	7
IEEE Conference on Computer Vision and Pattern Recognition (CVPR)	4
European Conference on Computer Vision (ECCV)	4
International Conference on Artificial Intelligence and Statistics (AISTATS)	2
International Conference on Learning Representations (ICLR)	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

The number of citations given by Google Scholar is given for each paper with more than 50 citations.

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. **518 citations**.
- [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. **1096 citations**.
- [3] F. Bach, R. Jenatton, J. Mairal and G. Obozinski. Structured sparsity through convex optimization. *Statistical Science*, 27(4), 450–468, 2012. **358 citations**.
- [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. **394 citations**.
- [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. **2079 citations**.

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. *to appear at Journal of Machine Learning Research (JMLR)*. 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. **65 citations**.
- [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. **90 citations**.
- [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. **74 citations**.
- [16] A. Tillmann, Y. Eldar and J. Mairal. DOLPHIn-Dictionary Learning for Phase Retrieval. *IEEE Transactions on Signal Processing*, 64(24), 6485–6500. 2016. **51 citations**.
- [17] J. Mairal. Incremental Majorization-Minimization Optimization with Application to Large-Scale Machine Learning. *SIAM Journal on Optimization*, 25(2), 829–855, 2015. **288 citations**.
- [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. **78 citations**.
- [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. **61 citations**.
- [21] J. Mairal, F. Bach, and J. Ponce. Task-driven dictionary learning. *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 34(4), 2012. **951 citations**.
- [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. **106 citations**.
- [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. **374 citations**.
- [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. **2872 citations**.
- [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. **602 citations**.
- [26] J. Mairal, M. Elad, and G. Sapiro. Sparse representation for color image restoration. *IEEE Transactions on Image Processing*, 17(1):53–69, 2008. **1932 citations**.

Articles in peer-reviewed international conferences

- [24] 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.

- [25] 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.
- [26] 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. **111 citations**.
- [27] 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.
- [28] 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.
- [29] 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. **467 citations**.
- [30] B. Lecouat, J. Ponce and J. Mairal. Designing and Learning Trainable Priors with Non-Cooperative Games. *Advances in Neural Information Processing Systems (NeurIPS)*. 2020.
- [31] 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.
- [32] 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.
- [33] D. Chen, L. Jacob and J. Mairal. Convolutional Kernel Networks for Graph-Structured Data *International Conference on Machine Learning (ICML)*. 2020.
- [34] 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.
- [35] D. Chen, L. Jacob and J. Mairal. Recurrent Kernel Networks. *Advances in Neural Information Processing Systems (NeurIPS)*. 2019.
- [36] A. Kulunchakov and J. Mairal. A Generic Acceleration Framework for Stochastic Composite Optimization. *Advances in Neural Information Processing Systems (NeurIPS)*. 2019.
- [37] A. Bietti and J. Mairal. On the Inductive Bias of Neural Tangent Kernels. *Advances in Neural Information Processing Systems (NeurIPS)*. 2019. **99 citations**.
- [38] 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. **128 citations**.
- [39] N. Dvornik, C. Schmid and J. Mairal. Diversity with Cooperation: Ensemble Methods for Few-Shot Classification. *International Conference on Computer Vision (ICCV)*. 2019. **101 citations**.
- [40] A. Kulunchakov and J. Mairal. Estimate Sequences for Variance-Reduced Stochastic Composite Optimization. *International Conference on Machine Learning (ICML)*. 2019.
- [41] A. Bietti, G. Mialon, D. Chen, and J. Mairal. A Kernel Perspective for Regularizing Deep Neural Networks. *International Conference on Machine Learning (ICML)*. 2019. **50 citations**.
- [42] D. Wynen, C. Schmid and J. Mairal. Unsupervised Learning of Artistic Styles with Archetypal Style Analysis. *Advances in Neural Information Processing Systems (NeurIPS)*, 2018.
- [43] M. Dvornik, J. Mairal and C. Schmid. Modeling Visual Context is Key to Augmenting Object Detection Datasets. *European Conference on Computer Vision (ECCV)*, 2018. **92 citations**.

- [44] 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. **79 citations**.
- [45] A. Bietti and J. Mairal. Invariance and Stability of Deep Convolutional Representations. *Advances in Neural Information Processing Systems (NIPS)*, 2017.
- [46] A. Bietti and J. Mairal. Stochastic Optimization with Variance Reduction for Infinite Datasets with Finite-Sum Structure. *Advances in Neural Information Processing Systems (NIPS)*, 2017.
- [47] A. Mensch, J. Mairal, D. Bzok, B. Thirion and G. Varoquaux. Learning Neural Representations of Human Cognition across Many fMRI Studies. *Advances in Neural Information Processing Systems (NIPS)*, 2017.
- [48] N. Dvornik, K. Shmelkov, J. Mairal, and C. Schmid. BlitzNet: A Real-Time Deep Network for Scene Understanding. *International Conference on Computer Vision (ICCV)*, 2017. **132 citations**.
- [49] J. Mairal. End-to-End Kernel Learning with Supervised Convolutional Kernel Networks. *Advances in Neural Information Processing Systems (NIPS)*, 2016. **99 citations**.
- [50] A. Mensch, J. Mairal, B. Thirion and G. Varoquaux. Dictionary Learning for Massive Matrix Factorization. *International Conference on Machine Learning (ICML)*, 2016. **59 citations**.
- [51] A. Tillmann, Y. Eldar and J. Mairal. Dictionary Learning from Phaseless Measurements. *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2016.
- [52] H. Lin, J. Mairal and Z. Harchaoui. A universal catalyst for first-order optimization. *Advances in Neural Information Processing Systems (NIPS)*, 2015. **407 citations**.
- [53] M. Paulin, M. Douze, Z. Harchaoui, J. Mairal, F. Perronnin and C. Schmid. Local Convolutional Features with Unsupervised Training for Image Retrieval. *International Conference on Computer Vision (ICCV)*, 2015. **188 citations**.
- [54] J. Mairal, P. Koniusz, Z. Harchaoui and C. Schmid. Convolutional kernel networks. *Advances in Neural Information Processing Systems (NIPS)*, 2014. **393 citations**.
- [55] Y. Chen, J. Mairal and Z. Harchaoui. Fast and Robust Archetypal Analysis for Representation Learning. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2014. **90 citations**.
- [56] A. Cherian, J. Mairal, K. Alahari and C. Schmidt. Mixing Body-Part Sequences for Human Pose Estimation. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2014. **119 citations**.
- [57] H. O. Song, R. Girshick, S. Jegelka, J. Mairal, Z. Harchaoui and T. Darrell. On learning to localize objects with minimal supervision. In *International Conference on Machine Learning (ICML)*, 2014. **267 citations**.
- [58] J. Mairal. Stochastic Majorization-Minimization Algorithms for Large-Scale Optimization. *Advances in Neural Information Processing Systems (NIPS)*, 2013. **122 citations**.
- [59] A. Nelakanti, C. Archambeau, J. Mairal, F. Bach and G. Bouchard. Log-linear Language Models based on Structured Sparsity. *Proceedings of Empirical Methods on Natural Language Processing (EMNLP)*, 2013.
- [60] J. Mairal. Optimization with First-Order Surrogate Functions. In *International Conference on Machine Learning (ICML)*, 2013. **199 citations**.
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