Dr. Arthur Mensch

Ph.D. in machine learning

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July 17, 1992

Education

2015–2018 **Doctor of Philosophy**, *Université Paris-Saclay, Inria, CEA*, Saclay, France.
Learning representations from functional MRI data.
Supervised by Pr. G. Varoquaux, Pr. J. Mairal and Pr. B. Thirion.

2014–2015 **École Normale Supérieure**, *Master of Science*, Cachan, France.
Master MVA : Mathematics for vision and machine learning. *Highest honors*.

2014–2015 **Télécom ParisTech**, *Engineer Degree*, Paris, France.
Computer Science, Applied Mathematics.

2011–2015 **École Polytechnique**, *Master of Science, Engineer Degree*, Palaiseau, France.
Applied Mathematics, Computer Science, Biology, Mechanics, Physics.

2009–2011 **Preparatory school**, *Lycée Hoche*, Versailles, France.
Mathematics, Physics, Computer Science.

2009 **International Baccalaureate**, *Lycée Jean-Pierre Vernant*, Sèvres, France.

Research positions

10/2018– **École Normale Supérieure, DMA, CNRS**, *Post-doc researcher*, Paris, France.
Laboratory of Pr. G. Peyré. Optimal transport and machine learning.

3/2018–7/2018 **NYU, Courant Institute of Mathematical Sciences**, *Visitor researcher*, New York, USA.
Laboratory of Pr. J. Bruna. Co-supervising a project on n-player games.

5/2015–9/2018 **Inria, CEA, Parietal team**, *Ph.D. candidate*, Saclay, France.
Learning representations from functional MRI data.
Supervised by Pr. G. Varoquaux, Pr. J. Mairal and Pr. B. Thirion.

9/2017–12/2017 **NTT Communication Science Laboratories**, *Intern researcher*, Kyoto, Japan.
Differentiable dynamic progamming. Work with Dr. M. Blondel.

4/2014–7/2014 **McGill University, School of Computer Science**, *Intern researcher*, Montréal, Canada.
Analysis and modelling of heart dynamics and geometry – under Pr. K. Siddiqi supervision.
High rewards from the Department of Applied Mathematics at École Polytechnique.

Publications

S. Jelassi, C. Domingo Enrich, D. Scieur, A. M., and J. Bruna. Extrapolation with player sampling for provable fast convergenc in n-player games. *To appear*, 2019.

A. M., Mathieu Blondel, and Gabriel Peyré. Geometric losses for distributional learning. In *Proceedings of the International Conference in Machine Learning (ICML)*, 2019.

A. M. *Learning representations from functional MRI data*. PhD thesis, 2018.

A. M., J. Mairal, B. Thirion, and G. Varoquaux. Extracting universal representations of cognition across brain-imaging studies. *To appear*, 2018a.

A. M. and M. Blondel. Differentiable dynamic programming for structured prediction and attention. *Proceedings of the International Conference on Machine Learning (ICML)*, 2018.

A. M., J. Mairal, B. Thirion, and G. Varoquaux. Stochastic subsampling for factorizing huge matrices. *IEEE Transactions on Signal Processing*, 2018b.

A. M., J. Mairal, D. Bzdok, B. Thirion, and G. Varoquaux. Learning neural representations of human cognition across many fMRI studies. In *Advances in Neural Information Processing Systems (NIPS)*, 2017.

A. M., J. Mairal, B. Thirion, and G. Varoquaux. Dictionary learning for massive matrix factorization. In *Proceedings of the International Conference on Machine Learning (ICML)*, 2016a.

E. Dohmatob, A. M., G. Varoquaux, and B. Thirion. Learning brain regions via large-scale online structured sparse dictionary learning. In *Advances in Neural Information Processing Systems (NIPS)*, 2016.

A. M., G. Varoquaux, and B. Thirion. Compressed online dictionary learning for fast fMRI decomposition. In *IEEE International Symposium on Biomedical Imaging (ISBI)*, 2016b.

A. M., J. Mairal, B. Thirion, and G. Varoquaux. Subsampled online matrix factorization with convergence guarantees. In *NIPS Workshop on Optimization for Machine Learning*, 2016c.

A. M., E. Piuze, L. Lehnert, A.J. Bakermans, J. Sporring, G.J. Strijkers, and K. Siddiqi. Connection forms for beating the heart. In *MICCAI Workshop on Statistical Atlases and Computational Modelling of the Heart*, 2014.

Software development

Open-source development

Scikit-learn, *Machine learning library in Python*.
Performance of decomposition methods, packaging and CI, SAGA algorithm, linear models, reviews.

Nilearn, *Python library for machine learning in neuro-imaging*.
Decomposition module, documentation, plotting, reviews.

Languages: Python, C++, Java — System: Unix, Azure

Teaching

2018 **Deep learning**, *Master of Data Science*, Université Paris-Saclay, France.
Supervising practical sessions for 2nd year master students.

2018 **Numerical analysis/optimization**, *ENSAE*, Saclay, France.
Tutorials for 3rd year undergraduate students in mathematics.

2012 – 2015 **Analysis/algebra**, *Lycée Pasteur, Lycée Hoche*, Neuilly sur Seine – Versailles, France.
Oral exercises for 2nd year undergraduate students in physics/mathematics.

Community

Conference reviewer.
Neural Information Processing Systems, International Conference in Machine Learning, International Conference in Learning Representations

Ad-hoc journal reviewer.
Journal of Machine Learning Research, Elsevier Neuroimage, IEEE Transactions on Biomedical Engineering

Work experience

7/2013 – 8/2013 **Option**, *Intern web developer*, Santiago du Chili, Chili.
Developed backend tools for administering targeted web advertisement.

12/2011 – 4/2012 **1er Régiment d'Hélicoptères de Combat**, *Deputy platoon leader*, Phalsbourg, France.
Commandeered a platoon of 30 people during their general military training in the French Army.

Languages

French	Native	
English	Fluent – C2	*Working language, baccalauréat international*
Spanish	Working level – C1	*Experience in Latin America*
Japanese	Basic level – training	*Experience in Japan*