Mehdi Bahri *Research & Development Data Scientist*

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Research interests

Bayesian Learning, Compressed Sensing, Component Analysis, Manifold Learning, Network Analysis, Deep Learning

Education

Imperial College London — London, United Kingdom

MSc. Advanced Computing - *Distinction (84%)* *2015 – 2016*
Data Science • Machine Learning • Optimisation • Bayesian Learning

Thesis: Robust Low-Rank modeling on Tensors: New Algorithms and Extensive Comparisons
*Awarded the **Winton Capital Computing MSc Project Prize (rank 1/188 students)***

Grenoble INP - Ensimag — Grenoble, France

Dipl. Ingénieur. Applied Mathematics and Computer Science - *with High Honours (76%)* *2013 – 2016*
Statistics • Bayesian Learning • Data Mining • Operations Research • Algorithms • Numerical Analysis • Numerical Optimisation • Software Engineering • Databases • Concurrent Programming

Mathematical modeling, Graphics, Vision, and Simulation track. Focus: statistics, applied mathematics

Lycée Chateaubriand — Rennes, France

Classes Préparatoires aux Grandes Écoles (Preparatory Program) PC* *2010 – 2013*
Two-year intensive training coursework in advanced mathematics, physics, and chemistry
Leading to the nationwide competitive entrance examinations to the French Grandes Écoles for scientific studies

Research and Professional Experience

Speechmatics - Speech Recognition Engineer — London, United Kingdom

Research & Development internship *04/17 - 07/17*

- Recurrent Neural Networks (GRU, LSTM, vanilla) for language modelling on millions of words
- Improving the existing code-base by moving to TensorFlow and reading research papers
- Experimented with new architectures to reduce the model size by a factor of 4 for the same perplexity
- Technological stack: Python (TensorFlow), C++

HarperCollins Publishers - Data Scientist — London, United Kingdom

Research & Development - Global Pricing and Analytics *09/16 - 03/17*

- In charge of modeling book sales through network analysis and graph mining on hundreds of GB of data
- Predicting the ranking of e-books in terms of impact on the catalogue when put on sale
- Reading research from related fields (social network analysis, bio-informatics, *etc.*)
- Investigation of volume propagation in the network, and inference of structure from attributes
- Technological stack: Python (scikit-learn, networkx) + MongoDB

Imperial College London - Master's Thesis — London, United Kingdom

Robust Low-Rank modeling on Tensors: New Algorithms and Extensive Comparisons *04/16 - 09/16*

- Designed 4 efficient ADMM algorithms for simultaneous learning of structured dictionaries and (sparse and dense) representations
- Ran benchmarks against 11 competing algorithms on 5 computer vision experiments; showed my methods consistently match or outperform the state of the art in terms of MSE and FSIM
- Proposed a Bayesian treatment based on sparse Bayesian learning and Variational Inference
- Maintained low-order polynomial complexity, discussed ways of scaling through distributed computing
- Efficient implementation: MATLAB, C, BLAS/LAPACK, OpenMP

Papers accepted at ICCV 2017 and EUSIPCO 2017, journal version in preparation (PAMI, IJCV)
Supervisors: Dr Stefanos Zafeiriou & Dr Yannis Panagakis.

Morgan Stanley - Technology Summer Analyst — London, United Kingdom
Software Engineering - Technology & Data department — *06/15 - 09/15*

- In charge of designing and testing a prototype for a trade control system
- Devised a client - server architecture; full-stack development (Java, Javascript)
- Worked with legacy code, wrote extensive documentation, git flow

Presented at the global meeting of the sub-department. Project continued for integration into production.

CEA Grenoble & Ensimag - Specialism project — Grenoble, France
Prediction of the nature of missing values in quantitative proteomics — *06/15*

- Research project on unsupervised learning in a team of three
- Supervised by a statistician from the French Alternative Energies and Atomic Energy Commission (CEA)

TIMC-IMAG & Ensimag - Independent Study Option — Grenoble, France
Probabilistic inference and modeling of over-diagnosis — *01/15 - 05/15*

- Joint laboratory with the University of Grenoble's Faculty of Medicine
- Bayesian Modeling of over-diagnosis in a population of patients
- Hybrid MCMC-EM algorithms for inference (R implementation)

Presented results to a committee of researchers. Earned second best mark of the cohort.

Awards and scholarships

2016	Winton Capital Computing MSc Project Prize (£1200)- *Best MSc thesis in the Department of Computing*
2016	Pump it Up: Data Mining the Water Table *DrivenData Competition* - top 7%
2015	Explo'ra Sup grant for studying at Imperial College London (3000€, French government)
2013	First prize at the HackMyCity Hackathon in Grenoble

Publications

- **M. Bahri**, Y. Panagakis, and S. Zafeiriou, "Robust Kronecker-Decomposable Component Analysis for Low Rank Modeling" ICCV 2017, *accepted for publication*, Jul. 2017
- N. Xue, G. Papamakarios, **M. Bahri**, Y. Panagakis, and S. Zafeiriou, "Robust Low-rank Tensor Modelling Using Tucker and CP Decomposition" in 25th European Signal Processing Conference (EUSIPCO 2017), special session on Component Analysis for Computer Vision, *accepted for publication*, 2017

Skills

Computing skills

Programming *(advanced)*	Python, Java, C, Shell
Programming *(intermediate)*	SQL, Javascript, Prolog, C++
Modeling	MATLAB, R, NumPy/SciPy, Mathematica, TensorFlow
Tools	Git, LaTeX, MongoDB

Languages

French	*Native*
English	*Fluent*
Spanish	*Intermediate*

Community Service and Leadership

2013 - 2015	Elected student representative *Ensimag's Education and Student Life Committee*
2014 - 2015	Member of the administration board *Ensimag's Students' Union*
2014 - 2015	Member of the administration board *Ensimag's Junior-Enterprise (Nsigma)*

References available upon request