Mehdi Bahri *PhD Student in Machine Learning*

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Education

Imperial College London — London, United Kingdom

PhD. Machine Learning — *2017 – (2021)*

Geometric Deep Learning & Generative Models with applications to Computer Vision.
Supervisors: Dr Stefanos Zafeiriou & Prof Michael Bronstein.

MSc. Advanced Computing - *Distinction (84%)* — *2015 – 2016*

Focus on statistical machine learning.
Thesis: Robust Low-Rank modeling on Tensors: New Algorithms and Extensive Comparisons.
*Awarded the **Winton Capital Advanced Computing MSc Project Prize**.*

Grenoble INP - Ensimag — Grenoble, France

BSc. and MSc. Applied Mathematics and Computer Science - *with High Honours* — *2013 – 2016*

Focus on statistics, numerical optimization, numerical analysis, databases, software engineering.

Lycée Chateaubriand — Rennes, France

Classes Préparatoires aux Grandes Écoles PC* — *2010 – 2013*

Intensive training in mathematics, physics, and chemistry for the nationwide competitive examinations.

Publications

- **M. Bahri**, Y. Panagakis, and S. Zafeiriou, "Robust Kronecker Component Analysis" *IEEE TPAMI, Special Issue on Compact and Efficient Feature Representation and Learning in Computer Vision, 2018 (accepted for publication)* **(arXiv:1801.06432)**
- **M. Bahri**, Y. Panagakis, and S. Zafeiriou, "Robust Kronecker-Decomposable Component Analysis for Low Rank Modeling" in International Conference on Computer Vision (ICCV) 2017
- N. Xue, G. Papamakarios, **M. Bahri**, Y. Panagakis, and S. Zafeiriou, "Robust Low-rank Tensor Modelling Using Tucker and CP Decomposition" in European Signal Processing Conference (EUSIPCO) 2017

Professional Experience and Selected Projects

Google AI - Research Intern — New York, NY

Machine Intelligence & Machine Perception — *10/18 - 01/19*

- Research Internship on Geometric Deep Learning
- Designing new models, implementation in TensorFlow, Python, C++

JPMorgan Chase & Co - Quantitative Associate Intern — London, United Kingdom

Equities Systematic Trading QR — *06/18 - 08/18*

- Quantitative Research Off-Cycle Internship in Machine Learning
- Time series forecasting and volatility modeling for automated trading of single stocks options

Speechmatics (Cantab Research Ltd.) - Speech Recognition Intern — Cambridge, United Kingdom

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

- Improved the RNN language models by implementing research papers in TensorFlow and C++
- Divided model size by 4 while keeping the same cross-entropy loss / perplexity and WER

HarperCollins Publishers - Data Scientist — London, United Kingdom

Global Pricing and Analytics — *09/16 - 03/17*

- Graph mining and influence maximization to maximize uplift of books on special offers
- Analyzed MongoDB databases of more than 100Gb with scikit-learn and networkx

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

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

- Devised 4 ADMM solvers and a Variational Bayes algorithm for robust tensor factorizations (MATLAB)
- Compared against 11 state-of-the-art methods on computer vision benchmarks
- Analyzed 500Gb of experimental data, showed improvements of up to 16% higher PSNR and FSIM
- Published in top venue

Supervisors: Dr Stefanos Zafeiriou & Dr Yannis Panagakis.

Morgan Stanley - Summer Analyst (Tech & Data) — London, United Kingdom
Full-stack development of a trade control system prototype — *06/15 - 09/15*
- Software engineering (Java, Javascript, git flow, legacy code, tests, architecture design)
- 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

2018	Google Computer Vision Summit *fully-funded invitation to Google Zürich & poster presentation*
2017	Full PhD Scholarship from the Department of Computing
2016	Winton Capital Advanced Computing MSc Project Prize (£1200) *best thesis in Computer Science (1/188 students)*
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

Skills

Computing skills

Programming *(advanced)*	Python, Java, C, Shell
Programming *(intermediate)*	SQL, Javascript, Prolog, C++
Modeling	MATLAB, R, NumPy, TensorFlow, Scikit-learn, Pytorch
Tools	Git, LaTeX, MongoDB

Languages

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

Teaching Activities

Tutorial support

2018	Teaching Assistant for *CO495 - Advanced Statistical Machine Learning*
2018	Teaching Assistant for *CO493 - Data Analysis and Probabilistic Inference*

Student co-supervision

2018	MSc, Shunwang Gong (Independent Study Option and MSc thesis) *Geometric Deep Learning* with Dr Stefanos Zafeiriou

Community Service and Leadership

As a PhD student

2017 - current	Member of the ACM Student Chapter *Imperial College London*
2017	Presented poster at the *Official Launch of the Machine Learning Initiative* at Imperial College London

As an undergraduate

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)*
2014 - 2015	Morgan Stanley Campus Ambassador *Ensimag*

Professional bodies

Student Member of the IEEE and of the Computer Society. Member of the Computer Vision Foundation (CVF).

Interests

Fitness & Nutrition • Cycling

References available upon request.