Belhal **Karimi**

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Education

Ecole Polytechnique, CMAP — *Paris, FR*

PH.D. IN MACHINE LEARNING — *Oct. 2016 - Oct. 2019*

- Nonconvex Optimization for Machine Learning: Algorithms, Analysis and Applications
- Member of the XPOP team (INRIA) focussing on statistics for life sciences
- Under the supervision of Marc Lavielle and Eric Moulines

Mines Paritech, PSL ITI — *Paris, FR*

MASTER OF SCIENCE — *Sept. 2015 - June 2016*

- Main topics: Machine Learning, Computer vision, Optimization, Cognitive sciences

CentraleSupelec, Supelec track — *Paris, FR*

ENG. DEGREE — *Sept. 2011 - June 2015*

- Semester at ESCP Europe: Master in Management. London Campus
- 3rd year at Telecom ParisTech, Master IREN: Economics and Innovation

Skills

Programming Python (TF, Keras, Scikit-Learn), R (Package saemix), Stan, Matlab, SQL, LaTeX, Django, Javascript, HTML5, CSS

Languages French: native, English: fluent, Spanish: advanced, Persian: native

Experience

Baidu Research — *Beijing, CN*

ML RESEARCHER — *Jan. 2020 - Present*

- Cognitive Computing Lab led by Dr. Ping Li
- Machine Learning, Nonconvex Optimization, Probabilistic Deep Learning

Samsung AI — *Moscow, RU*

VISITING SCHOLAR — *Jul. 2019 - Sept. 2019*

- Bayesian Deep Learning: optimization and design
- Working with Dr. Dmitry Vetrov at the Samsung AI - HSE Lab (ANR-11-LABX-0056-LMH, LabEx LMH)

Freelance Contractor — *Paris, FR*

DEEP LEARNING CONSULTANT — *Sept. 2017 - Present*

- Popsy (classifieds): Category and Price prediction based on listing images (using a multi-output multi-class VGGNet)
- OuiCar (P2P car sharing): Damages detection on car pictures (using a Mask R-CNN)

INRIA — *Palaiseau, FR*

PH.D. CANDIDATE — *Oct. 2016 - Oct. 2019*

- Member of the XPOP team, INRIA & CMAP, focussing on Machine Learning for life sciences
- Nonconvex Optimization Methods for PK-PD modeling

Massachusetts Institute of Technology, MIT — *Boston, USA*

VISITING SCHOLAR — *Jan. 2016 - Jul. 2016*

- Machine Learning research, Brain and Cognitive Sciences department, ProbComp Lab. Working on MCMC methods and diagnostic tools. Collaboration with the Gates Foundation. Under the supervision of Vikash Mansinghka.

Avolta Partners — *Paris, FR*

M&A ANALYST — *Mar. 2015 - Sep. 2015*

- Writing of Information Memorandum and Business Plan for high-tech startups (A and B series)
- Analysis on fundraising data in France (Time-to-next series, average first series amount, etc.)

Rocket Internet — *Paris, FR*

GLOBAL VENTURE DEVELOPER — *Feb. 2014 - Aug. 2014*

- Launching Lamudi/Carmudi in 20+ African countries
- Expansion team, helping Business Intelligence team with performance reports

Research Articles

A fast Stochastic Approximation of the EM for nonlinear mixed effects models

B. Karimi, M. Lavielle and E. Moulines

- Computational Statistics and Data Analysis (CSDA), Volume 141, January 2020, p. 123-138

On the Global Convergence of Fast Incremental EM Methods

B. Karimi, Hoi-To Wai, Marc Lavielle and E. Moulines

- Advances in Neural Information Processing Systems (NeurIPS 2019), 2833-2843, Vancouver, CA.

Non-asymptotic Analysis of Biased Stochastic Approximation Scheme

B. Karimi, Hoi-To Wai, B. Miasojedow and E. Moulines

- Conference On Learning Theory (COLT 2019), Phoenix, USA.

On the Convergence Properties of the Mini-Batch EM and MCEM Algorithms

B. Karimi, M. Lavielle and E. Moulines

- HAL preprint hal: 02334485, 2019

MISSO: Minimization by Incremental Stochastic Surrogate for large-scale nonconvex Optimization

B. Karimi and E. Moulines

- Bayesian Deep Learning Workshop (NeurIPS 2018), Montreal, CA.

Efficient Metropolis-Hastings sampling for nonlinear mixed effects models

B. Karimi and M. Lavielle

- International Conference on Bayesian Statistics in Action (BAYSM 2018), p. 85-93, Warwick, UK.

Non linear Mixed Effects Models: Bridging the gap between Independent Metropolis Hastings and Variational Inference

B. Karimi, M. Lavielle and E. Moulines

- Implicit Models Workshop (ICML 2017), Sydney, AU.

Talks and Posters

Nonconvex Optimization for Latent Data Models

Baidu Research (Beijing, Seattle, Sunnyvale)

Fast Incremental EM Methods

NeurIPS 2019 (Vancouver, Canada)

An Incremental and An Online Point of View of Nonconvex Optimization

Samsung AI Center (Moscow, Russia)

MISSO Scheme

NeurIPS 2018: Bayesian Deep Learning Workshop (Montreal, Canada)

Some Accelerations of MLE Algorithms

COMPSTATS 2018 (Iasi, Romania)

Inference in mixed effects models

Facebook HQ (Paris, France)

HBGDki studies with BayesDB (Poster)

McGovern Institute (Boston, USA)

Software

Saemix: Open Source R Package for Nonlinear Mixed Effects Models

Main Contributor

- Project Website `saemixr.github.io`
- Developing features and extensions in R code `github.com/saemixdevelopment`
- Project R Bookdown `saemixdevelopment.github.io`
- Ongoing Chan Zuckerberg Initiative funding application.

Awards

2019	**Jacques Hadamard Researcher Grant**, Samsung AI - HSE Lab visiting scholar grant	*Moscow, RU*
2019	**Student travel award**, COLT Conference	*Phoenix, USA*
2018	**Young researcher travel award**, BAYSM Conference	*Warwick, UK*
2017	**Jacob Startup Competition**, Agora Pitch, 4th place	*Bremen, DE*

Teaching

2017-2018	**MAP534: Machine Learning**, Msc Ecole Polytechnique-HEC	*Palaiseau, FR*
2017-2018	**MAP535: Regression**, Msc Ecole Polytechnique-HEC	*Palaiseau, FR*
2017-2018	**Bayesian Statistics**, Msc Data Science Ecole Polytechnique	*Paris, FR*
2018-2019	**Innovation & Technology**, 3A Ecole Polytechnique	*Palaiseau, FR*

Extracurricular Activity

Entrepreneurship	Agora: Detecting flaws at scale on images. `http://get-agora.com/`
Sports	Basket-ball, Surf, Skateboard, Soccer
Fun	Fashion (needlepoint), Music production (Maschine), Reading (Sociology)