

Belhal Karimi

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Education

Ecole Polytechnique, CMAP

PHD IN MACHINE LEARNING

Paris, France

Oct. 2016 - Sept. 2019

- Nonconvex Optimization for Machine Learning: Algorithms, Analysis and Applications
- Under the supervision of Marc Lavielle and Eric Moulines

MINES ParisTech, PSL

MASTER OF SCIENCE

Paris, FR

Sept. 2015 - June 2016

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

CentraleSupélec, Supélec track

ENG. DEGREE

Paris, France

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 Languages Python (TF, Keras, Scikit-Learn), R (Package saemix), Stan, Matlab, SQL, LaTeX, Django, Javascript, HTML5, CSS
French: native, English: fluent, Spanish: advanced, Persian: native

Experience

Samsung AI - HSE Lab

VISITING SCHOLAR

Moscow, RU

Jul. 2019 - Sept. 2019

- Bayesian Deep Learning: optimization and design
- Working with Dr. Dmitry Vetrov and Dr. Dmitry Kropotov

Freelance consultant

DEEP LEARNING CONSULTANT

Paris, FR

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)

Bill & Melinda Gates Foundation

DATA SCIENTIST

Boston, USA

Feb. 2016 - Apr. 2016

- Applying Bayesian Statistics to enable domain experts that lack statistical expertise to perform qualitative model checking and encode simple forms of qualitative prior knowledge
- Automation of "data sketches" that can quickly identify common-sense relationships between variables

Massachusetts Institute of Technology, MIT

RESEARCH SCIENTIST

Boston, USA

Jan. 2016 - Jul. 2016

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

Avolta Partners

M&A ANALYST

Paris, FR

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

GLOBAL VENTURE DEVELOPER

Paris, FR

Feb. 2014 - Aug. 2014

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

eKomi - the Feedback Company

BUSINESS INTELLIGENCE

Berlin, DE

Jul. 2013 - Feb. 2014

- Business Intelligence (metrics by country, season, segment)
- Improvement of internal processes (Sales planning, Workflow, Business and Market Intelligence)

Extracurricular Activity

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

Research Articles

On the Global Convergence of Fast Incremental EM Methods

B. KARIMI, HOI-TO WAI, MARC LAVIELLE AND E. MOULINES

- Accepted at NeurIPS 2019

A Doubly Stochastic Surrogate Optimization Scheme for Non-convex problems

B. KARIMI, HOI-TO WAI AND E. MOULINES

- Work in Progress

Non-asymptotic Analysis of Biased Stochastic Approximation Scheme

B. KARIMI, HOI-TO WAI, B. MIAOJEDOW AND E. MOULINES

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

Efficient Metropolis-Hastings sampling for nonlinear mixed effects models

B. KARIMI AND M. LAVIELLE

- To be published in Springer Series Statistics and Data Science: new challenges, new generations

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

B. KARIMI, M. LAVIELLE AND E. MOULINES

- Computational Statistics and Data Analysis, Volume 141, January 2020, Pages 123-138

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

B. KARIMI, M. LAVIELLE AND E. MOULINES

- pre-print

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

B. KARIMI, M. LAVIELLE AND E. MOULINES

- ICML 2017 Implicit Models Workshop

Talks and Posters

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)

Fast MCMC algorithm for nonlinear mixed effects models

BAYESIAN YOUNG STATISTICIANS MEETING (COVENTRY, UK)

Inference in mixed effects models

FACEBOOK HQ (PARIS, FRANCE)

HBGDki studies with BayesDB (Poster)

MCGOVERN INSTITUTE (BOSTON, USA)

Awards

- 2019 **Jacques Hadamard Researcher Grant**, Samsung AI - HSE Lab visiting scholar grant
2018 **Young researcher travel award**, BAYSM Conference
2017 **Jacob Startup Competition**, Agora Pitch, 4th place

Moscow, RU
Warwick, UK
Bremen, DE

Teaching

2017-2018 **MAP534: Machine Learning**, Msc Polytechnique-HEC

Palaiseau, FR

2017-2018 **MAP535: Regression**, Msc Polytechnique-HEC

Palaiseau, FR

2017-2018 **Bayesian Statistics**, Msc Data Science Ecole Polytechnique

Paris, FR

2018 **Innovation & Technology**, 3A Ecole Polytechnique

Palaiseau, FR