

ALICE SCHOENAUER SEBAG, PhD  
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[Webpage](#) - [GitHub](#)

## WORK EXPERIENCE

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**French Ministry for the Economy and Finance, General auditing service (*Inspection générale des finances*)**, Paris, France *Chief data scientist* Feb. 2019 - present

- Created and developed the data science practice for public policy evaluation and strategic decision making: defined the goals and designed processes for technical, scientific, legal and HR matters
- Managed a technical team of 3 persons, that contributed to 12 missions
- Completed 4 data science projects (e.g. unsupervised ML applied to Education data)
- Taught; participated to Ministry seminars ; co-created and co-animated a data scientist network within the ministry

**UCSF, Pharmaceutical Chemistry dpt.**, San Francisco, USA *Post-doctoral scholar* Sep. 2016 - Oct. 2018

- Developed a novel method for deep multi-domain learning for image-based drug screens ([ICLR'19](#))
- Designed and implemented a library of visualization tools for biologists (Python)
- Supervised 2 research internships

**Shift technology**, Paris, France *Research scientist* Sep. 2015 - August 2016

- Developed machine learning-based algorithms for automated data processing and insurance fraud detection
- Designed and implemented the corresponding tools for data scientists (C#)
- Supervised 2 research internships (multivariate extremal analysis and anomalous time series detection)

**European Commission, DG Health and Food Safety**, Brussels, Belgium *Consultant* April - July 2012

- Analyzed the trade-off between the protection of business secrets and openness in decision-making process, in the scope of R(EC) N° 1331/2008

**Karolinska Institute, Environmental Medicine Inst.**, Stockholm, Sweden *Intern* Feb. - June 2011

- Combined chemical analysis and gene expression data to build Environmental toxicogenomic profiles (R)

## EDUCATION

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**Deep learning summer school**, Montréal, Canada 2017

**Mines ParisTech - Center for Computational Biology**, Paris, France Graduated 2015

PhD in Bioinformatics: [The versatility of high-content high-throughput time-lapse screening data](#)

Advisors: Jean-Philippe Vert, PhD and Pr. Robert Barouki

Courses: Machine Learning Summer School, Max-Planck Institute, (Tübingen, Germany)

Graphical methods and Kernel methods (MS MVA, ENS Cachan)

**Paris Sorbonne University** Law school, Paris, France Graduated 2012

LLM in *Food and health safety law*, class rank: 1/13

**Ecole Polytechnique**, Palaiseau, France Graduated 2011

Diploma of the Ecole Polytechnique (Rate of admission: 12%)

- Class rank: 59/500
- 14 graduate-level courses in Computer Science, Advanced Mathematics and Biology
- Specialization: MSc *Toxicology, Environment, Health*
- *Outstanding leadership* award

## SKILLS

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**Programming skills** Python, Lua, Torch, C#, SQL, Django, PHP, Doctrine, HTML, CSS, experience with Java, R, Matlab

**Natural Languages** French (mother tongue), English (fluent, TOEFL: 116/120), German, Italian

## PUBLICATIONS

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1. A. Schoenauer Sebag, L. Heinrich, M. Schoenauer, M. Sebag, L. Wu, S. Altschuler: **Multi-domain adversarial learning** *International Conference on Learning Representations* (ICLR 2019). <https://openreview.net/forum?id=SkLv5iRqYX>
2. A. Schoenauer Sebag, M. Schoenauer, M. Sebag: **Stochastic Gradient Descent: Going As Fast As Possible But Not Faster** *CoRR* abs/1709.01427 (2017). <https://arxiv.org/abs/1709.01427>
3. A. Schoenauer Sebag: **The versatility of high-content high-throughput time-lapse screening data: developing generic methods for data re-use and comparative analyses**. PhD thesis, Mines ParisTech (2015). <https://pastel.archives-ouvertes.fr/tel-01297853/document>
4. A. Schoenauer Sebag, S. Plancade, C. Raulet-Tomkiewicz, R. Barouki, J.-P. Vert and T. Walter: **A generic methodological framework for studying single cell motility in high-throughput time-lapse data**. *Bioinformatics*, 31(12):i320-i328 (2015). <http://tiny.cc/lpvwkz>
5. A. Schoenauer Sebag, S. Plancade, C. Raulet-Tomkiewicz, R. Barouki, J.-P. Vert and T. Walter: **Inferring an ontology of single cell motions from high-throughput microscopy data**. *Proceedings of the 12th IEEE international symposium on biomedical imaging* (ISBI):160-163 (2015) <http://tiny.cc/hfqauy>

## TALKS

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- **UCB Statistics and Genomics seminar**, Berkeley (CA), USA Nov. 2017  
"Single Cell Dynamics in High-Throughput Time-Lapse Screening Data" [3]
- **ISMB/ECCB conference**, Dublin, Ireland July 2015  
"A generic methodological framework for studying single cell motility in HT time-lapse data" [4]
- **Bioimage Informatics conference**, Leuven, Belgium Oct. 2014  
"A generic methodological framework for studying single cell motility in HT time-lapse data" [4]
- **Women in Machine Learning workshop**, Lake Tahoe (NV), USA Dec. 2013  
"MoGDIW: an integrated workflow for cell motility gene discovery in HT time-lapse screening data"
- **Annual meeting of the French Association for Research in Toxicology**, Paris, France June 2013  
"Environmental toxicology and bioinformatics: automatic toxicity evaluation from video-microscopy data"

## POSTERS

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- **International Conference on Learning Representations**, New Orleans (LA), USA [1] May 2019
- **Optimization for ML workshop, NIPS conference**, Long Beach (CA), USA [2] Dec. 2017
- **Baylearn**, Cupertino (CA), USA [2] Sep. 2017
- **ISBI conference**, Brooklyn (NY), USA [5] April 2015
- **Quantitative Bioimaging conference**, Paris, France [4] Jan. 2015
- **FEBS/EMBO conference**, Paris, France [4] Sep. 2014
- **ML for Comp. Bio. workshop, NIPS conference**, Lake Tahoe (NV), USA Dec. 2013

## EXTRA-CURRICULAR ACTIVITIES

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**Scientific paper reviews** 2017 - présent  
*Nature Biotechnology*, *Cell Chemical Biology*, *IEEE Journal of Selected Topics in Signal Processing*, *IEEE Transactions on Computational Biology and Bioinformatics*, "Women in Machine Learning" workshop, *Pattern Recognition Letters*

**Mentoring** 2015 - présent  
 Guiding undergraduate students in their educational/professional decisions (e.g. Ecole Polytechnique, EPFL)

**Feminine student association**, Ecole Polytechnique, *Treasurer* 2009  
 Created the association to promote Science among female high schoolers and students.

**Arts et Développement association**, Marseille, France, *Volunteer* 2007-2008  
 Animated painting workshops with children from housing projects, managed and designed the overhaul of the association communication supports (website, booklet)

**Interests** literature (XIX<sup>th</sup> and XX<sup>th</sup> centuries), Russian and Italian opera (XIX<sup>th</sup> century), swimming, yoga (vinyasa, 200hrs teacher training)