Alice Schoenauer Sebag, PhD

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Webpage - *GitHub*

Accomplished machine learning expert, passionate about leveraging data science for public policy evaluation and strategic decision making. Looking forward to capitalize on my academic and professional experience in the private and public sectors, to support the African Department at the International Monetary Fund.

Work Experience

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

- Started 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 20 missions
- Completed 6 data science projects (e.g. unsupervised ML applied to Education data, NLP for topic modeling in citizen contributions - *link to results*)
- 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^o 1331/2008

Education

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

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

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://bit.ly/3itz3Se*
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). *https://bit.ly/3ketCY6*
5. A. Schoenauer Sebag, S. Plancade, C. Raulet-Tomkiewicz, R. Barouki, J.-P. Vert and T. Walter: **Infering 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) *https://bit.ly/3mmtsQm*

Talks

- **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

- **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

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 (XIXth and XXth centuries), Russian and Italian opera (XIXth century), swimming, yoga (vinyasa, 200hrs teacher training)