Daniel Levy ai.stanford.edu/∼danilevy

EDUCATION

Stanford University, *Ph.D. in Computer Science.* Sept 2018-Dec 2021
- Advised by: Prof. John Duchi.
- **Thesis:** Advancing optimization to address the challenges of modern machine learning.

Stanford University, *M.S. in Computer Science.* **GPA: 4.04** Sept 2015-June 2018
- Advised by: Prof. Stefano Ermon.
- Relevant Coursework: Machine Learning, Stochastic Control, Convex Optimization (I and II), Convolutional Neural Networks, Graphical Models and Automated Reasoning.

Ecole Polytechnique, *Diplome d'ingenieur.* **Major GPA: 3.9** Sept 2012-July 2015
- France's top university for sciences and engineering.
- Ranked #13 at the nationwide entrance exam.
- Relevant Coursework: Game Theory, Data Science, Random Algorithms, Numerical Analysis and Optimization, Real and Complex Analysis, Distribution Theory, Algorithms and Programming.

Lycee Louis-Le-Grand, *Preparatory Program.* **GPA: 4.0** Sept 2010-June 2012
Two-year intensive program leading to the entrance exams to the French Grandes Ecoles for scientific studies. Mathematics, Physics and Computer Science track.

PROFESSIONAL EXPERIENCE

OpenAI, San Francisco. *Member of Technical Staff.* March 2022-
Leading the Optimization team.

Google Research, New York (remote). *Research Intern.* Summer 2020
Worked with Ananda Theertha Suresh, Satyen Kale and Mehryar Mohri on differential privacy.

Google Brain, Mountain View. *Research Intern.* Summer 2017
Worked with Jascha Sohl-Dickstein and Matt Hoffman on MCMC methods.

Facebook Applied Machine Learning Group, Menlo Park. *Intern* Summer 2016
Core Machine Learning Team. Bandits and RL methods applied to active learning for text classification.

Shift Technology, Paris. *Intern.* March 2015-July 2015
ML startup. Bandit methods for anomaly detection and labeling of unbalanced datasets. Algorithms are currently in production for several large insurance companies in fraud detection.

Microsoft, Paris. *Intern.* Summer 2014
Analyzed and unearthed valuable analytics from the Big-Data Platform (Cosmos). Led a project in machine learning to predict the user churn rate for the XBox Music service.

IN SUBMISSION OR PREPARATION

[1] C. Cheng, J. Duchi, D. Levy. Geometry and complexity in the Gaussian Sequence Model and Stochastic Convex Optimization. *In preparation (journal paper).*

[2] D. Levy, J. Duchi, L. Schmidt, Y. Carmon. A phenomenological analysis of memorization in deep learning. *In preparation.*

CONFERENCE PUBLICATIONS

[3] **D. Levy***, Z. Sun*, K. Amin, S. Kale, A. Kulesza, M. Mohri, A.T. Suresh. Learning with user-level differential privacy. *NeurIPS 2021. (* indicates equal contribution.)*

[4] H. Asi*, **D. Levy***, J. Duchi. Adapting to function difficulty in private optimization. *NeurIPS 2021.*

[5] C. Zhou*, **D. Levy***, M. Ghazvininejad, X. Li, G. Neubig. Distributionally robust multilingual machine translation. *EMNLP 2021.*

[6] **D. Levy***, Y. Carmon*, J. Duchi, A. Sidford. Large-Scale Methods for Distributionally Robust Optimization *NeurIPS 2020.*

[7] **D. Levy**, J. Duchi. Necessary and Sufficient Conditions for Gradient Algorithms. *NeurIPS 2019.* **Selected for oral presentation, top 36 out of 6743 submissions.**

[8] S. Eismann, **D. Levy**, R. Shu, S. Barztsch, S. Ermon. Bayesian Optimization and Attribute Adjustement. *UAI 2018.*

[9] **D. Levy**, M.D. Hoffman, J. Sohl-Dickstein. Generalizing Hamiltonian Monte Carlo with Neural Networks. *ICLR 2018.*

[10] **D. Levy**, S. Ermon. Deterministic Policy Optimization by Combining Pathwise and Score Function Estimators for Discrete Action Spaces. *AAAI 2018.*

[11] S. Mussman*, **D. Levy***, S. Ermon. Fast Amortized Inference and Learning in Log-linear Models with Randomly Perturbed Nearest Neighbor Search. *UAI 2017.*

[12] Z. Xie, S.I.Wang, J. Li, **D. Levy**, A. Nie, D. Jurafsky, A.Y. Ng. Data Noising as Smoothing in Neural Network Language Models. *ICLR 2017.*

WORKSHOP PUBLICATIONS

[13] **D. Levy**, S. Ermon. Trading-off Learning and Inference in Deep Latent Variable Models. *UAI 2018 Uncertainty in Deep Learning Workshop.*

[14] **D. Levy**, D. Chen, S. Ermon. LSH Softmax: Sub-Linear Learning and Inference of the Softmax Layer in Deep Architectures. *NeurIPS 2017 Deep Learning: Bridging Theory and Practice Workshop.*

[15] **D. Levy**, A. Jain. Breast Mass Classification from Mammograms using Deep Convolutional Neural Networks. *NeurIPS 2016 Machine Learning for Healthcare Workshop.*

HONORS

- Ranked 13th nationally at the Polytechnique entrance exam.
- Selected for the Google Brain Residency Program in 2017 ($\approx$ top 1% of applicants).
- Selected for an oral presentation at NeurIPS 2019 (top 0.5% of submissions).
- Facebook Fellowship 2020 finalist (top 4% of applicants).
- Nominated by Stanford University for the Google Fellowship (2 students per university).

INVITED TALKS

- **University of Toronto**, *Prof. Nicolas Papernot's group* – 2021.
- **Simons Institute**, *Reading Group* – 2020.
- **Neural Information Processing Systems**, *Vancouver, Canada* – 2019.
- **Google Brain, Mountain View** – 2018.
- **New York University**, *Prof. Joan Bruna's group* – 2017.
- **Massachusetts Institute of Technology**, *Prof. Tamara Broderick's group* – 2017.
- **UC Berkeley**, *Prof. Laurent El-Ghaoui's group* – 2017.
- **Facebook AI Research Paris** – 2017.

PROFESSIONAL SERVICE

- **Journal reviewer:** SIAM Journal on Optimization (SIOPT).
- **Conference reviewer:** ICML (2019, 2020, 2021) ICLR (2019, 2020), AAAI (2020), NeurIPS (2020, 2021).
- **Workshop reviewer:** Advances in Approximate Bayesian Inference (at NeurIPS 2018), Relational Representational Learning (at NeurIPS 2018).

TEACHING

EE364A Convex Optimization. *Teaching Assistant.* Winter 2021
CS229 Machine Learning. *Teaching Assistant.* Fall 2016

Education Nationale, Aulnay-Sous-Bois *Full-time Teaching Assistant.* Sept 2012-Apr 2013
Priority Action Zone school in one of Paris' economically deprived suburbs.

- Tutored struggling high-school students in sciences.
- Mentored them individually in overcoming their ordeals.
- Supervised remedial-work sessions in small groups.

LANGUAGES

Python, TensorFlow, PyTorch, Java, OCaml, PHP, HTML/CSS.

HOBBIES

Sports: Swimming, Water Polo, Table Tennis. *Arts:* Piano, Violin, Drawing, Painting.