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Google Scholar Profile

Gauthier Gidel

Fourth-year Ph.D. Candidate at Université de Montréal and Mila

Education

2017-2020	**PhD candidate**, *Montréal*, Université de Montréal, DIRO, Mila. Expected graduation: May 2020
2015–2016	**M2 (equivalent to a MS degree) with *highest honors* in mathematics and machine learning**, *Paris*, E.N.S de Cachan, MVA.
2014–2015	**M1 (equivalent to the first year of a MS) in mathematics**, *Paris*, E.N.S. de Paris, Université Paris Diderot.
2013–2014	**Licence (equivalent to Bachelor's degree) in mathematics**, *Paris*, E.N.S. de Paris, Université Paris Diderot.

Grants and Awards

2018-2019	**Borealis AI graduate fellowship**, *Borealis AI*.
2018-2019	**Highest scoring reviewer**, *NeurIPS2018, NeurIP2019, ICML2019*.
2018	**DIRO excellence grant**, *Université de Montréal*.
2017	**DIRO excellence grant**, *Université de Montréal*.

Reviewing and Workshop Organization

2019	**Chair**, *Bridging Game Theory and Deep Learning*, SGO&ML (NeurIPS2019). Co-organized with Ioannis Mitliagkas, Niao He, Reyhane Askari Hemmat, Nika Haghtalab and Simon Lacoste-Julien
2018-2019	**Reviewer**, *MAIS, AISTATS, ICLR, JMLR, ICML and NeurIPS*.
2018	**Chair**, *Smooth Games Optimization and Machine Learning*, SGO&ML (NeurIPS2018). Co-organized with Simon Lacoste-Julien, Ioannis Mitliagkas and Vasilis Syrgkanis

Teaching and Supervision

Spring-Summer 2019	**Internship co-supervision of Waïss Azizan**. Topic: Spectral analysis of extragradient (Supervised with Simon Lacoste Julien)
Fall 2018	**Graduate student lectures on RNNs**, *Université de Montréal, Mila*, Deep Learning course.
2015-2018	**Undergrad Math oral examiner**, *Lycée Henri IV*, Mathematics, in CPGE equivalent of undergrad class. Two 1h sessions a week to test student's knowledge and understanding of previous courses.
2015-2016	**Undergrad Math oral examiner**, *Lycée Buffon, Lycée Saint Louis*. Similar as above, Lycée Saint Louis and Lycée Henri IV are among the most selective mathematics undergrad studies in France.

Recent Employments and Research Internships

Fall 2019 - Winter 2020	**Internship supervised by Yoram Bachrach and David Baluzzi**, *DeepMind*, London. Topic: Geometry of multi-agent learning
Spring 2019	**Internship supervised by Amjad Almairi**, *ElementAI*, Montreal. Topic: Landscapes of Generative Adversarial Networks
Fall 2016	**Internship supervised by Simon Lacoste-Julien**, *INRIA*, Paris. Topic: The Frank-Wolfe Algorithms for Saddle Point Problem
Fall 2015	**Data scientist at Monsieur drive**, *Paris*.
Spring 2015	**Internship supervised by Tony Jebara**, *Columbia U.*, NYC. Topic: The Frank-Wolfe Algorithm for Learning Latent and Conditional Graphical Models

Conference Papers

[1] Waïss Azizian, Ioannis Mitliagkas, Simon Lacoste-Julien and **Gauthier Gidel**, *A Tight and Unified Analysis of Gradient Methods for a Whole Spectrum of Differentiable Games*, **AISTATS 2020** (to appear).

[2] Waïss Azizian, Damien Scieur, Ioannis Mitliagkas, Simon Lacoste-Julien and **Gauthier Gidel**, *Accelerating Smooth Games by Manipulating Spectral Shapes*, **AISTATS 2020** (to appear).

[3] Hugo Berard*, **Gauthier Gidel***, Pascal Vincent and Simon Lacoste-Julien, *A Closer Look at the Optimization Landscapes of Generative Adversarial Networks*, **ICLR 2020** (to appear), *equal contribution.

[4] **Gauthier Gidel**, Francis Bach and Simon Lacoste-Julien, *Implicit Regularization of Discrete Gradient Dynamics in Linear Neural Networks*, **NeuriPS 2019**.

[5] Tatjana Chavdarova*, **Gauthier Gidel***, François Fleuret and Simon Lacoste-Julien, *Reducing Noise in GAN Training with Variance Reduced Extragradient*, **NeuriPS 2019**.

[6] Giancarlo Kerg, Kyle Goyette, Maximilian Puelma Touzel, **Gauthier Gidel**, Eugene Vorontsov, Yoshua Bengio and Guillaume Lajoie, *Non-normal Recurrent Neural Network: learning long time dependencies while improving expressivity with transient dynamics*, **NeuriPS 2019**.

[7] Sharan Vaswani, Aaron Mishkin, Issam Laradji, **Gauthier Gidel**, Mark Schmidt and Simon Lacoste-Julien, *Painless Stochastic Gradient: Interpolation, Line-Search, and Convergence Rates*, **NeuriPS 2019**.

[8] **Gauthier Gidel***, Hugo Berard*, Pascal Vincent and Simon Lacoste-Julien, *A Variational Inequality Perspective on Generative Adversarial Networks*, **ICLR 2019** (top 2% submission).

[9] **Gauthier Gidel***, Reyhane Askari Hemmat*, Mohammad Pezeshki, Gabriel Huang, Remi Lepriol, Simon Lacoste-Julien and Ioannis Mitliagkas, *Negative momentum for Improved Games Dynamics*, **AISTATS 2019**.

[10] Fabian Pedragosa, **Gauthier Gidel**, *Adaptive Three Operator Splitting*, **ICML 2018**.

[11] **Gauthier Gidel**, Fabian Pedregosa and Simon Lacoste-Julien, *Frank-Wolfe Splitting via Augmented Lagrangian Method*, **AISTATS 2018**.
Accepted as an oral presentation (Top 5% of submitted papers)

[12] **Gauthier Gidel**, Tony Jebara and Simon Lacoste-Julien, *Frank-Wolfe Algorithms for Saddle Point Problem*, **AISTATS 2017**.
Accepted as an oral presentation at NeurIPS OPT2016 workshop. (top 10% of accepted submissions)

Prepublications

[13] James P. Bailey, **Gauthier Gidel** and Georgios Piliouras, *Finite Regret and Cycles with Fixed Step-Size via Alternating Gradient Descent-Ascent*, arXiv 2019.

[14] Adam Ibrahim, Waïss Azizian, **Gauthier Gidel** and Ioannis Mitliagkas, *Lower Bounds and Conditioning of Differentiable Games*, arXiv 2019 (under review).
Presented at the Bridging Game Theory and Deep Learning workshop at NeurIPS2019 and at the Montreal AI symposium 2019

[15] Gabriel Huang, Hugo Berard, Ahmed Touati, **Gauthier Gidel**, Pascal Vincent and Simon Lacoste-Julien, *Parametric Adversarial Divergences are Good Task Losses for Generative Modeling*, arXiv 2017.
Presented at PADL ICML2017 and as an oral presentation (top 15% of accepted submissions) at the Montreal AI symposium 2018

Invited talks

2019 **ICCOPT**, *Reducing Noise in GAN Training with Variance Reduced Extragradient*, Berlin.

2019 **Google Brain**, *New Optimization Perspectives on GANs*, Montreal.

2019 **Microsoft Research**, *New Optimization Perspectives on GANs*, Montreal.

2018 **Mila tea talk**, *A Variational Inequality Perspective on GANs*, Montreal.

2018 **Workshop on Learning in Presence of Strategic Behavior**, *Negative Momentum for Improved Game Dynamics*, TTIC, Chicago.

2017 **SIAM-OP**, *Frank-Wolfe Algorithms for Saddle Point Problems*, Vancouver.

Competitive Exams

2013 **Ranked 31eme at École Normale Supérieure's competitive exam**, $\sim$ 10000 *CPGE (preparatory classes) students in math-physics-cs*, this competitive exam is one of the most prestigious in France, École Normale Supérieure graduated 11 Field medalists with only 40 students every year.

Languages

French	Mother tongue		
Spanish	Intermediate	English	Fluent