Antonio José SILVETI-FALLS

Personal Data

Place and Date of Birth:	Mexico City, Mexico | 09 October 1992
Address:	6 Impasse Baour Lormian, 31000 Toulouse
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Research Interests

Nonsmooth optimization, stochastic optimization, machine learning (theory of deep learning), signal/image processing, inverse problems.

Current Position (Feb 2021 - Aug 2022)

Post-doc in optimization for deep learning under Jérôme Bolte and Edouard Pauwels at the Toulouse School of Economics.

Ph.D. Thesis (Oct 2017 - Feb 2021)

Title	First-order Noneuclidean Splitting Methods for Large-scale Optimization: Deterministic and Stochastic Algorithms
University	Université de Caen Normandie
Advisors	Jalal Fadili (UniCaen, ENSICAEN) and Gabriel Peyré (ENS Paris, CNRS)
Jury	Amir Beck, Jérôme Bolte, Antonin Chambolle, Emilie Chouzenoux, Alexandre d'Aspremont, Jalal Fadili, Gabriel Peyré, Silvia Villa

Education

Aug 2015 - June 2017	M.Sc. in Applied Mathematics - Nonlinear Dynamical Systems (GPA: 3.87), San Diego State University, USA. Adviser: Jérôme Gilles. (Thesis: Empirical Gabor Frames)
Aug 2010 - June 2015	B.Sc. in Mathematics, California State University - Chico, USA. Adviser: Thomas Mattman.
Aug 2010 - June 2015	B.Sc. in Applied Mathematics, California State University - Chico, USA. Adviser: Vladimir Rosenhaus.
Aug 2010 - June 2015	B.Sc. in Statistics, California State University - Chico, USA. Adviser: Kathy Gray.

Professional Experience

Present	**Postdoctoral Researcher at Toulouse School of Economics** Development and analysis of a novel theory of nonsmooth implicit differentiation for deep learning applications under Jérôme Bolte and Edouard Pauwels.
	Chargé de cours (Lecturer) at Toulouse Business School Teaching 2 sections of Business Analytics for master's level (M1) students using R and RStudio.
2017 - 2021	**Graduate Research Assistant at ENSICAEN/UNICAEN** Development and analysis of novel optimization algorithms for applications in machine learning and image/signal processing under Jalal Fadili and Gabriel Peyré.
2015-2017	**Graduate Teaching Assistant at San Diego State University** Taught 3 semesters (2 sections per semester) of introductory differential calculus.
2016	**Graduate Research Assistant at San Diego State University** Studied empirical wavelet frames and nonstationary Gabor frames under Jérôme Gilles.

Publications

2021	Jérôme Bolte, Tâm Lê, Edouard Pauwels, Antonio Silveti-Falls, *"Nonsmooth Implicit Differentiation for Machine Learning and Optimization"* (Accepted to NeurIPS 2021).
2021	Antonio Silveti-Falls, Cesare Molinari, Jalal Fadili, *"An Inexact Bregman Primal-Dual Splitting Algorithm for Composite Optimization"* (To be submitted).
2021	Antonsio Silveti-Falls, Cesare Molinari, Jalal Fadili, *"Inexact and Stochastic Generalized Conditional Gradient with Augmented Lagrangian and Proximal Step"* Journal of Nonsmooth Analysis and Optimization, Vol. 2, 2021.
2020	Antonio Silveti-Falls, Cesare Molinari, Jalal Fadili, *"Generalized Conditional Gradient with Augmented Lagrangian for Composite Minimization"* SIAM Journal on Optimization, Vol. 30, No. 4, pp. 2687-2725, 2020.
2015	Kathy Gray, Brittany Hampton, Tony Silveti-Falls, Allison McConnel, Casey Bausell, *"Comparison of Bayesian Credible Intervals to Frequentist Confidence Intervals"* Journal of Modern Applied Statistical Methods, Vol. 14, No. 1, pp. 43-52, 2015.

Conference and Seminar Talks

2021	University of Tubingen MOP Research Seminar - *A Stochastic Bregman Primal-Dual Splitting Algorithm for Composite Optimization*
2020	Journée du GREYC Caen - *Projection Free Methods for Nonsmooth Optimization in Machine Learning*
2019	Cambridge Image Analysis Seminars - *Generalized Conditional Gradient with Augmented Lagrangian for Composite Minimization – Exact and Inexact Perspectives*
2019	GRETSI Lille - *Generalized Conditional Gradient with Augmented Lagrangian for Composite Minimization.*
2019	SPARS Toulouse - *Generalized Conditional Gradient with Augmented Lagrangian for Composite Optimization* **(Winner of Best Student Paper award)**.
2019	Institut de Mathématiques de Bordeaux, Séminaire IOP - *Generalized Conditional Gradient with Augmented Lagrangian for Composite Minimization.*
2019	Normastic Rouen - *Generalized Conditional Gradient with Augmented Lagrangian for Composite Minimization.*
2017	San Diego State University Student Research Symposium - *Empirical Wavelet Frames for Signal Processing.*
2015	MAA Golden Section Student Poster Session - *Comparison of Bayesian Credible Intervals to Frequentist Confidence Intervals.*
2015	Northern California Undergraduate Mathematics Conference - *Comparison of Bayesian Credible Intervals to Frequentist Confidence Intervals.*
2013	Northern California Undergraduate Mathematics Conference - *An Application of Bayesian Inference.*

Editorial Activity

I am or have been a reviewer for the journal Mathematical Programming (2021-present) and for the International Conference on Learning Representations (ICLR) (2021-present).

Languages

English:	Mother tongue
French:	C1