

Vassilis Apidopoulos

Assistant professor

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Personal information

Nationality Greek
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Main research interests

- Optimization
- Algorithms
- Convex analysis
- Machine learning
- Dynamical systems
- Inverse problems

Research experience

- 2026– now **Assistant professor**
Department of Informatics, Athens University of Economics and Business, Athens.
- 2024–2026 **Post-doctoral researcher in Optimization**
Archimedes Research Unit - Athena Research Center, Athens
Main collaborator: Panayotis Mertikopoulos
- 2019–2023 **Post-doctoral researcher in Machine Learning**
Laboratory for Computational and Statistical Learning - MaLGA center, Genoa
Main collaborators : Lorenzo Rosasco, Silvia Villa

Education

- 2016–2019 **Ph.D. in Applied Mathematics**
Institut de Mathématiques de Bordeaux, Université de Bordeaux, France.
Thesis : Inertial Gradient-Descent algorithms for convex minimization.
Advisors : Charles Dossal, Jean-François Aujol.
Comitee : Samir Adly, Hedy Attouch, Jérôme Bolte, Guillaume Garrigos, Aude Rondepierre, Silvia Villa.
- 2014–2016 **Master Degree in theoretical and applied Mathematics, Parcours Équations aux dérivées partielles**
Université-Claude Bernard Lyon 1-École Normale Supérieure de Lyon, France.
Master thesis : Analysis of proximal algorithms.
Advisors : Charles Dossal, Jean-François Aujol.
- 2012–2013 **Erasmus program**
Institut de Mathématiques de Jussieu, Université Pierre et Marie Curie (Paris 6), France.

2009–2014 **Degree in Mathematics**
Aristotle University of Thessaloniki, Greece.

Publications and preprints

Publications

1. V. Apidopoulos, I. Lytras, P. Mertikopoulos: Taming Stochastic Gradient Descent: Almost Sure Convergence and Saddle-Point Avoidance under (L0, L1)-smoothness, Proceedings of the 43rd International Conference on Machine Learning, 2026.
2. V. Apidopoulos, C. Molinari, J. Peypouquet and S. Villa : Preconditioned primal-dual dynamics in convex optimization: non-ergodic convergence rates, Nonlinear Analysis: Hybrid Systems 60 (2026): 101674, <https://doi.org/10.1016/j.nahs.2025.101674>.
3. V. Apidopoulos, T. Poggio, L. Rosasco and S. Villa : Iterative regularization in classification via hinge loss diagonal descent, IOP Inverse Problems 41 035010, 2025, <https://doi.org/10.1088/1361-6420/adb06f>.
4. Ch. Traore, V. Apidopoulos, S. Salzo and S. Villa : Variance reduction techniques for stochastic proximal point algorithms, Journal of Optimization Theory and Applications, 203, 1910–1939, 2024, <https://doi.org/10.1007/s10957-024-02502-6>.
5. V. Apidopoulos, C. Molinari, L. Rosasco, S. Villa : Regularization properties of dual subgradient flow, 2023 European Control Conference (ECC), pp. 1-8, 2023. <https://doi.org/10.23919/ECC57647.2023.10178128>.
6. V. Apidopoulos, N. Ginatta, S. Villa : Convergence rates for the Heavy-Ball continuous dynamics for non-convex optimization, under Polyak-Łojasiewicz conditioning, Journal of Global Optimization, 2022. <https://doi.org/10.1007/s10898-022-01164-w>.
7. V. Apidopoulos, J.-F. Aujol, Ch. Dossal, A. Rondepierre : Convergence rates of an inertial gradient descent algorithm under growth and flatness conditions, Mathematical Programming 2021. <https://doi.org/10.1007/s10107-020-01476-3>.
8. V. Apidopoulos, J.-F. Aujol, Ch. Dossal : Convergence rate of inertial Forward-Backward algorithm beyond Nesterov’s rule, Mathematical programming, 2020, <https://doi.org/10.1007/s10107-018-1350-9>.
9. V. Apidopoulos, J.-F. Aujol, Ch. Dossal : The Differential Inclusion Modeling FISTA Algorithm and Optimality of Convergence Rate in the Case $b \leq 3$, SIAM Journal on Optimization, 2018, Vol. 28, No. 1 : pp. 551-574. <https://doi.org/10.1137/17M1128642>.
10. V. Apidopoulos, J.-F. Aujol, Ch. Dossal : An ODE-based Modeling of Inertial Forward-Backward Algorithms. Proceedings of Signal Processing with Adaptive Sparse Structured Representations (SPARS) workshop, 2017, Lisbon. (URL)

Preprints

1. V. Apidopoulos, V. Mavrogeorgou, P. Mertikopoulos and Th. G. Tsiro-
nis : Heavy-ball dynamics with Hessian-driven damping for non-convex
optimization under the Łojasiewicz condition, submitted, 2025. Preprint
<https://doi.org/10.48550/arXiv.2506.11705>.

Teaching

- 2025 Invited lecture "Proximal Gradient methods" in the course "Special Topics in Algorithms: Nonlinear Programming", 1st year Master.
- 2022-2023 Optimization and operational research, TA for coding exercises (Python), 1st year Master).
- 2021-2022 Mathematics for machine learning, TA for coding exercises (Matlab), 1st year Master.
- 2018-2019 Introduction to numerical analysis, TA for theoretical and coding exercises (Scilab), 2nd year Bachelor.
- 2017-2018 Mathematical bases for sciences, lectures and exercise sessions, 1st year Bachelor.
- 2013-2014 Algebraic structures, TA, 2nd year Bachelor.

Supervision

- Master Petros Antonios Koutsis (2025–2026). Restarting policies for accelerated gradient methods.
- Undergraduate Vasiliki Mavrogeorgou (2024–2025). Performance of inertial methods in min-max problems.

Presentations in conferences

- January 2024 Winter seminar at the research unit "Archimedes", Athens, Greece.
- November 2023 Seminar (online) at the Department of Electrical and Computer Engineering, Technical University of Crete, Chania, Greece.
- June 2023 Workshop in Optimization at Bernoulli institute, Groningen, Netherlands.
- June 2023 European Control Conference at University Politehnica of Bucarest, Bucarest, Romania.
- January 2023 Seminar in department of mechanical engineering University of Thessaly, Volos, Greece.
- December 2022 Seminar in Mathematics department of Aristotle University, Thessaloniki, Greece.
- October 2022 Journées annuelles 2022 du GdR MOA, Nice, France.
- September 2022 International Conference on Optimization and Decision Science, Firenze, Italy.
- February 2020 Séminaire Modélisation, Optimisation, Dynamique, Limoges, France.
- December 2019 Seminar in Mathematics department of Aristotle University, Thessaloniki, Greece.
- May 2019 Congrès SMAI 2019, Guidel, France.

- October 2018 Journées annuelles 2018 des GdR MOA et MIA, Pau, France.
- May 2018 Colloque Inter'Actions 18, Lyon, France.
- April 2018 Ph.D. Students Lambda Seminar, Bordeaux, France.
- June 2017 Signal Processing with Adaptive Sparse Structured Representations (SPARS), Lisbon, Portugal.
- October 2017 Journées annuelles 2017 des GdR MOA et MIA, Bordeaux, France.

Participation in conferences

- February 2019 Workshop "Variational methods and optimization in imaging" : The mathematics of Imaging, Paris, France.
- January 2019 CIRM winter-school : The mathematics of Imaging, Marseille, France.
- January 2018 Mathematics and Image Analysis (MIA), Berlin, Germany.
- October 2016 Workshop CAVALIERI on Optimal Transport and Optimization in Imaging, Paris, France.
- December 2015 Winter school "Nonlinear Function Spaces in Mathematics and Physical Sciences", Lyon, France.

Awards & scholarships

- 2019-2023 Research fellowship funded from ERC-2018-COG, Efficient algorithms for sustainable machine learning-SLING, Università di Genova, Italy.
- 2016-2019 National scholarship for doctoral studies Institut de Mathématiques de Bordeaux (IMB), University of Bordeaux, France

Organization responsibilities

- 2024-2025 Main organizer of the optimization reading group in the research unit Archimedes, Athens, Greece
- 2022-2023 Organizer of the optimization bi-weekly group meeting, LCSL, Genova, Italy.
- 2019-2022 Organizer of the LCSL (Laboratory for Computational and Statistical Learning) weekly group meeting, LCSL, Genova, Italy.
- 2018-2019 Organizer of the Ph.D. Students Seminar, IMB, Bordeaux, France.
- 2018-2019 Co-organizer of Colloque Inter'Actions 19 in Bordeaux, for Ph.D. students in Mathematics in France.

Computer skills

- Programs Matlab, Scilab, Mathematica
- Programming Juila, Python
- languages
- Others $\text{\LaTeX}$

Miscellaneous

2018-2019 President of the Ph.D. students association in Bordeaux (Lambda).

Reviewing activity

Journals Mathematical Programming (2024 meritorious service award), SIAM journal on Optimization, Journal of Optimization Theory and Applications, Journal of Machine Learning Research, IMA Journal of Numerical Analysis, Automatica, SIAM Journal on Imaging Sciences, Journal of Nonlinear and Variational Analysis, Discrete and Continuous Dynamical Systems, Annals of Operations Research, Computational Optimization and Applications.

Conferences COLT 2021

Languages

Greek Mother tongue
French Fluent
English Fluent
Italian Intermediate

References

- Panayotis Mertikopoulos: panayotis.mertikopoulos@imag.fr
- Lorenzo Rosasco : lorenzo.rosasco@unige.it
- Silvia Villa : villa@dima.unige.it
- Charles Dossal : charles.dossal@insa-toulouse.fr
- Jean François Aujol : Jean-Francois.Aujol@math.u-bordeaux.fr