List of Publications

Alberto De Marchi

November 21, 2025

Papers listed by type and year. List available online in BibTeX format here.bib.
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Journal articles

[De 25b] Alberto De Marchi. "Mixed-integer linearity in nonlinear optimization: a trust region approach". In: *Optimization Letters* 19.9 (2025), pp. 1883–1904. DOI: 10.1007/s11590-025-02190-9. arXiv: 2310.17285.

[DT25] Alberto De Marchi and Andreas Themelis. "A penalty barrier framework for nonconvex constrained optimization". In: *Journal of Nonsmooth Analysis and Optimization* 5.14585 (2025). DOI: 10.46298/jnsao-2025-14585. arXiv: 2406.09901.

[NDG25] Viktoriya Nikitina, Alberto De Marchi, and Matthias Gerdts. "Hybrid optimal control with mixed-integer Lagrangian methods". In: *IFAC-PapersOnLine* 59.19 (2025). 13th IFAC Symposium on Nonlinear Control Systems NOLCOS 2025, pp. 585–590. DOI: 10.1016/j.ifacol.2025.11.098. arXiv: 2403.06842.

[De 24b] Alberto De Marchi. "Implicit augmented Lagrangian and generalized optimization". In: *Journal of Applied and Numerical Optimization* 6.2 (2024), pp. 291–320. DOI: 10.23952/jano.6.2024.2.08. arXiv: 2302.00363.

[DM24] Alberto De Marchi and Patrick Mehlitz. "Local properties and augmented Lagrangians in fully nonconvex composite optimization". In: *Journal of Nonsmooth Analysis and Optimization* 5 (2024). DOI: 10.46298/jnsao-2024-12235. arXiv: 2309.01980.

[DT24] Alberto De Marchi and Andreas Themelis. "An interior proximal gradient method for nonconvex optimization". In: *Open Journal of Mathematical Optimization* 5 (2024), pp. 1–22. DOI: 10.5802/ojmo.30. arXiv: 2208.00799.

[Sci+24b] Luca Sciullo, Alberto De Marchi, Angelo Trotta, Federico Montori, Luciano Bononi, and Marco Di Felice. "Relativistic Digital Twin: Bringing the IoT to the future". In: *Future Generation Computer Systems* 153 (2024), pp. 521–536. DOI: 10.1016/j.future.2023.12.016. arXiv: 2301.07390.

[BDR23] Andreas Britzelmeier, Alberto De Marchi, and Rebecca Richter. "Dynamic and nonlinear programming for trajectory planning". In: *IEEE Control Systems Letters* 7 (2023), pp. 2569–2574. ISSN: 2475-1456. DOI: 10.1109/LCSYS.2023.3285746.

[De 23a] Alberto De Marchi. "Proximal gradient methods beyond monotony". In: *Journal of Nonsmooth Analysis and Optimization* 4 (2023). DOI: 10.46298/jnsao-2023-10290. arXiv: 2211.04827.

[De 23b]   Alberto De Marchi. "Regularized interior point methods for constrained optimiza-
             tion and control". In: *IFAC-PapersOnLine* 56.2 (2023). 22nd IFAC World Congress,
             pp. 1247–1252. DOI: 10.1016/j.ifacol.2023.10.1747. arXiv: 2210.15825.

[De +23a]   Alberto De Marchi, Axel Dreves, Matthias Gerdts, Simon Gottschalk, and Sergejs
             Rogovs. "A function approximation approach for parametric optimization". In: *Journal
             of Optimization Theory and Applications* 196.1 (2023), pp. 56–77. DOI: 10.1007/s10957-
             022-02138-4.

[De +23b]   Alberto De Marchi, Xiaoxi Jia, Christian Kanzow, and Patrick Mehlitz. "Constrained
             composite optimization and augmented Lagrangian methods". In: *Mathematical Pro-
             gramming* 201.1 (2023), pp. 863–896. DOI: 10.1007/s10107-022-01922-4. arXiv:
             2203.05276.

[De 22]   Alberto De Marchi. "On a primal-dual Newton proximal method for convex quadratic
             programs". In: *Computational Optimization and Applications* 81.2 (2022), pp. 369–395.
             DOI: 10.1007/s10589-021-00342-y.

[DT22]   Alberto De Marchi and Andreas Themelis. "Proximal gradient algorithms under local
             Lipschitz gradient continuity". In: *Journal of Optimization Theory and Applications*
             194.3 (2022), pp. 771–794. DOI: 10.1007/s10957-022-02048-5. arXiv: 2112.13000.

[Cal+21]   Francesca Calà Campana, Alberto De Marchi, Alfio Borzí, and Matthias Gerdts. "On
             the numerical solution of a free end-time homicidal chauffeur game". In: *ESAIM: ProcS*
             71 (2021), pp. 33–42. DOI: 10.1051/proc/202171104.

[De 19]   Alberto De Marchi. "On the mixed-integer linear-quadratic optimal control with switch-
             ing cost". In: *IEEE Control Systems Letters* 3.4 (2019), pp. 990–995. ISSN: 2475-1456.
             DOI: 10.1109/LCSYS.2019.2920425.

[DG19b]   Alberto De Marchi and Matthias Gerdts. "Free finite horizon LQR: a bilevel perspective
             and its application to model predictive control". In: *Automatica* 100 (2019), pp. 299–
             311. ISSN: 0005-1098. DOI: 10.1016/j.automatica.2018.11.032.

[DG18]   Alberto De Marchi and Matthias Gerdts. "Traffic flow on single-lane road networks:
             Multiscale modelling and simulation". In: *IFAC-PapersOnLine* 51.2 (2018). 9th Vienna
             International Conference on Mathematical Modelling (MATHMOD), pp. 162–167. DOI:
             10.1016/j.ifacol.2018.03.028.

Conference proceedings

[Cia+25]   Leonardo Ciabattini, Luca Sciullo, Alberto De Marchi, Lorenzo Gigli, Luciano Bononi,
             and Marco Di Felice. "Generative digital twin for predictive modeling in dynamic IoT
             scenarios". In: *2025 IEEE International Conference on Smart Computing (SMART-
             COMP)*. Cork, Ireland, 2025, pp. 98–105. DOI: 10.1109/SMARTCOMP65954.2025.
             00071.

[RDG24]   Rebecca Richter, Alberto De Marchi, and Matthias Gerdts. "Collision avoidance using
             iterative dynamic and nonlinear programming with adaptive grid refinements". In:
             2024 European Control Conference (ECC). 2024, pp. 52–57. DOI: 10.23919/ECC64448.
             2024.10591064. arXiv: 2311.03148.

[Sci+24a] Luca Sciullo, Alberto De Marchi, Lorenzo Gigli, Monica Palmirani, and Fabio Vitali. "AAA: A blockchain-based architecture for ethical, robust authenticated anonymity". In: *Proceedings of the 2024 International Conference on Information Technology for Social Good*. GoodIT '24. Bremen, Germany: Association for Computing Machinery, 2024, pp. 1–9. DOI: 10.1145/3677525.3678676.

[De 21b] Alberto De Marchi. "Augmented Lagrangian methods as dynamical systems for constrained optimization". In: *2021 60th IEEE Conference on Decision and Control (CDC)*. 2021. DOI: 10.1109/CDC45484.2021.9683199.

[De 20] Alberto De Marchi. "Constrained and sparse switching times optimization via augmented Lagrangian proximal methods". In: *2020 American Control Conference (ACC)*. Denver, CO, USA: IEEE, 2020, pp. 3633–3638. DOI: 10.23919/ACC45564.2020.9147892.

[DG20] Alberto De Marchi and Matthias Gerdts. "Sparse switching times optimization and a sweeping Hessian proximal method". In: *Operations Research Proceedings 2019*. Ed. by Janis S. Neufeld, Udo Buscher, Rainer Lasch, Dominik Möst, and Jörn Schönberger. Cham: Springer International Publishing, 2020, pp. 89–95. ISBN: 978-3-030-48439-2. DOI: 10.1007/978-3-030-48439-2_11.

[DG19a] Alberto De Marchi and Matthias Gerdts. "An iterative method for final time optimization in nonlinear optimal control". In: *2019 Proceedings of the Conference on Control and its Applications*. SIAM, 2019, pp. 60–66. DOI: 10.1137/1.9781611975758.10.

[DG19c] Alberto De Marchi and Matthias Gerdts. "Nonsmooth Newton's method: Some structure exploitation". In: *ICCS 2019, LNCS 11538*. Ed. by J. M. F. Rodrigues et al. Springer, 2019, pp. 409–420. DOI: 10.1007/978-3-030-22744-9_32.

[BDG18] Andreas Britzelmeier, Alberto De Marchi, and Matthias Gerdts. "An iterative solution approach for a bi-level optimization problem for congestion avoidance on road networks". In: *Numerical Methods for Optimal Control Problems*. Ed. by Maurizio Falcone, Roberto Ferretti, Lars Grüne, and William M. McEneaney. Springer International Publishing, 2018, pp. 23–38. DOI: 10.1007/978-3-030-01959-4_2.

[Bir+16] Francesco Biral, Enrico Bertolazzi, Paolo Bosetti, Alberto De Marchi, and Martin M. Hanczyc. "Optimal control of a laser source to generate a minimum time trajectory of a droplet in a liquid layer". In: *2016 Future Technologies Conference (FTC)*. 2016, pp. 1208–1216. DOI: 10.1109/FTC.2016.7821754.

Theses

[De 21a] Alberto De Marchi. "Augmented Lagrangian and Proximal Methods for Constrained Structured Optimization". PhD thesis. Munich, Germany: University of the Bundeswehr Munich, 2021. DOI: 10.5281/zenodo.4972535.

[De 16] Alberto De Marchi. "Modelling and optimal control of laser-driven thermocapillary motion of a droplet". MA thesis. University of Trento, 2016. DOI: 10.5281/zenodo.1481663.

Preprints

[Ber+25]   Jeremy Bertoncini, Alberto De Marchi, Matthias Gerdts, and Simon Gottschalk. *Reinforcement learning for online hyperparameter tuning in convex quadratic programming.* 2025. arXiv: 2509.07404.

[BD25]   Hòa T. Bùi and Alberto De Marchi. *Cutting plane methods with gradient-based heuristics.* 2025. arXiv: 2511.00520.

[De 25a]   Alberto De Marchi. *A condensing approach for linear-quadratic optimization with geometric constraints.* 2025. arXiv: 2510.17465.

[DHM25]   Alberto De Marchi, Tim Hoheisel, and Patrick Mehlitz. *Augmented Lagrangian methods for fully convex composite optimization.* 2025. arXiv: 2511.07117.

[Mén+25]   Etienne Ménager, Antoine Bambade, Wilson Jallet, Alberto De Marchi, and Justin Carpentier. *Contact-Implicit Inverse Dynamics.* 2025. HAL: hal-05201780.

[De 24a]   Alberto De Marchi. *Affordable mixed-integer Lagrangian methods: optimality conditions and convergence analysis.* 2024. arXiv: 2406.12436.