

List of Publications

Alberto De Marchi

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Papers listed by type and year. List available online in BibTeX format [here.bib](#).
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Journal articles

- De Marchi, Alberto (2025). “Mixed-integer linearity in nonlinear optimization: a trust region approach”. In: *Optimization Letters*. DOI: [10.1007/s11590-025-02190-9](#). arXiv: [2310.17285](#).
- Nikitina, Viktoriya, Alberto De Marchi, and Matthias Gerdts (2025). “Hybrid optimal control with mixed-integer Lagrangian methods”. In: *IFAC-PapersOnLine*. 13th IFAC Symposium on Nonlinear Control Systems (NOLCOS). arXiv: [2403.06842](#).
- De Marchi, Alberto (2024b). “Implicit augmented Lagrangian and generalized optimization”. In: *Journal of Applied and Numerical Optimization* 6.2, pp. 291–320. DOI: [10.23952/jano.6.2024.2.08](#). arXiv: [2302.00363](#).
- De Marchi, Alberto and Patrick Mehlitz (2024). “Local properties and augmented Lagrangians in fully nonconvex composite optimization”. In: *Journal of Nonsmooth Analysis and Optimization* 5. DOI: [10.46298/jnsao-2024-12235](#). arXiv: [2309.01980](#).
- De Marchi, Alberto and Andreas Themelis (2024b). “An interior proximal gradient method for nonconvex optimization”. In: *Open Journal of Mathematical Optimization* 5, pp. 1–22. DOI: [10.5802/ojmo.30](#). arXiv: [2208.00799](#).
- Sciullo, Luca, Alberto De Marchi, Angelo Trotta, Federico Montori, Luciano Bononi, and Marco Di Felice (2024). “Relativistic Digital Twin: Bringing the IoT to the future”. In: *Future Generation Computer Systems* 153, pp. 521–536. DOI: [10.1016/j.future.2023.12.016](#). arXiv: [2301.07390](#).
- Britzelmeier, Andreas, Alberto De Marchi, and Rebecca Richter (2023). “Dynamic and nonlinear programming for trajectory planning”. In: *IEEE Control Systems Letters* 7, pp. 2569–2574. ISSN: 2475-1456. DOI: [10.1109/LCSYS.2023.3285746](#).
- De Marchi, Alberto (2023a). “Proximal gradient methods beyond monotony”. In: *Journal of Nonsmooth Analysis and Optimization* 4. DOI: [10.46298/jnsao-2023-10290](#). arXiv: [2211.04827](#).
- (2023b). “Regularized interior point methods for constrained optimization and control”. In: *IFAC-PapersOnLine* 56.2. 22nd IFAC World Congress, pp. 1247–1252. DOI: [10.1016/j.ifacol.2023.10.1747](#). arXiv: [2210.15825](#).
- De Marchi, Alberto, Axel Dreves, Matthias Gerdts, Simon Gottschalk, and Sergejs Rogovs (2023). “A function approximation approach for parametric optimization”. In: *Journal of Optimization Theory and Applications* 196.1, pp. 56–77. DOI: [10.1007/s10957-022-02138-4](#).
- De Marchi, Alberto, Xiaoxi Jia, Christian Kanzow, and Patrick Mehlitz (2023). “Constrained composite optimization and augmented Lagrangian methods”. In: *Mathematical Programming* 201.1, pp. 863–896. DOI: [10.1007/s10107-022-01922-4](#). arXiv: [2203.05276](#).

- De Marchi, Alberto (2022). “On a primal-dual Newton proximal method for convex quadratic programs”. In: *Computational Optimization and Applications* 81.2, pp. 369–395. DOI: [10.1007/s10589-021-00342-y](https://doi.org/10.1007/s10589-021-00342-y).
- De Marchi, Alberto and Andreas Themelis (2022). “Proximal gradient algorithms under local Lipschitz gradient continuity”. In: *Journal of Optimization Theory and Applications* 194.3, pp. 771–794. DOI: [10.1007/s10957-022-02048-5](https://doi.org/10.1007/s10957-022-02048-5). arXiv: [2112.13000](https://arxiv.org/abs/2112.13000).
- Calà Campana, Francesca, Alberto De Marchi, Alfio Borzì, and Matthias Gerdts (2021). “On the numerical solution of a free end-time homicidal chauffeur game”. In: *ESAIM: ProcS* 71, pp. 33–42. DOI: [10.1051/proc/202171104](https://doi.org/10.1051/proc/202171104).
- De Marchi, Alberto (2019). “On the mixed-integer linear-quadratic optimal control with switching cost”. In: *IEEE Control Systems Letters* 3.4, pp. 990–995. ISSN: 2475-1456. DOI: [10.1109/LCSYS.2019.2920425](https://doi.org/10.1109/LCSYS.2019.2920425).
- De Marchi, Alberto and Matthias Gerdts (2019b). “Free finite horizon LQR: a bilevel perspective and its application to model predictive control”. In: *Automatica* 100, pp. 299–311. ISSN: 0005-1098. DOI: [10.1016/j.automatica.2018.11.032](https://doi.org/10.1016/j.automatica.2018.11.032).
- (2018). “Traffic flow on single-lane road networks: Multiscale modelling and simulation”. In: *IFAC-PapersOnLine* 51.2. 9th Vienna International Conference on Mathematical Modelling (MATHMOD), pp. 162–167. DOI: [10.1016/j.ifacol.2018.03.028](https://doi.org/10.1016/j.ifacol.2018.03.028).

Conference proceedings

- Ciabattini, Leonardo, Luca Sciallo, Alberto De Marchi, Lorenzo Gigli, Luciano Bononi, and Marco Di Felice (2025). “Generative digital twin for predictive modeling in dynamic IoT scenarios”. In: *2025 IEEE International Conference on Smart Computing (SMARTCOMP)*. Cork, Ireland, pp. 98–105. DOI: [10.1109/SMARTCOMP65954.2025.00071](https://doi.org/10.1109/SMARTCOMP65954.2025.00071).
- Richter, Rebecca, Alberto De Marchi, and Matthias Gerdts (2024). “Collision avoidance using iterative dynamic and nonlinear programming with adaptive grid refinements”. In: *2024 European Control Conference (ECC)*, pp. 52–57. DOI: [10.23919/ECC64448.2024.10591064](https://doi.org/10.23919/ECC64448.2024.10591064). arXiv: [2311.03148](https://arxiv.org/abs/2311.03148).
- Sciallo, Luca, Alberto De Marchi, Lorenzo Gigli, Monica Palmirani, and Fabio Vitali (2024). “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, pp. 1–9. DOI: [10.1145/3677525.3678676](https://doi.org/10.1145/3677525.3678676).
- De Marchi, Alberto (2021b). “Augmented Lagrangian methods as dynamical systems for constrained optimization”. In: *2021 60th IEEE Conference on Decision and Control (CDC)*. DOI: [10.1109/CDC45484.2021.9683199](https://doi.org/10.1109/CDC45484.2021.9683199).
- (2020). “Constrained and sparse switching times optimization via augmented Lagrangian proximal methods”. In: *2020 American Control Conference (ACC)*. Denver, CO, USA: IEEE, pp. 3633–3638. DOI: [10.23919/ACC45564.2020.9147892](https://doi.org/10.23919/ACC45564.2020.9147892).
- De Marchi, Alberto and Matthias Gerdts (2020). “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, pp. 89–95. ISBN: 978-3-030-48439-2. DOI: [10.1007/978-3-030-48439-2_11](https://doi.org/10.1007/978-3-030-48439-2_11).

- De Marchi, Alberto and Matthias Gerdts (2019a). “An iterative method for final time optimization in nonlinear optimal control”. In: *2019 Proceedings of the Conference on Control and its Applications*. SIAM, pp. 60–66. DOI: [10.1137/1.9781611975758.10](https://doi.org/10.1137/1.9781611975758.10).
- (2019c). “Nonsmooth Newton’s method: Some structure exploitation”. In: *ICCS 2019, LNCS 11538*. Ed. by J. M. F. Rodrigues et al. Springer, pp. 409–420. DOI: [10.1007/978-3-030-22744-9_32](https://doi.org/10.1007/978-3-030-22744-9_32).
- Britzelmeier, Andreas, Alberto De Marchi, and Matthias Gerdts (2018). “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, pp. 23–38. DOI: [10.1007/978-3-030-01959-4_2](https://doi.org/10.1007/978-3-030-01959-4_2).
- Biral, Francesco, Enrico Bertolazzi, Paolo Bosetti, Alberto De Marchi, and Martin M. Hanczyc (2016). “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)*, pp. 1208–1216. DOI: [10.1109/FTC.2016.7821754](https://doi.org/10.1109/FTC.2016.7821754).

Theses

- De Marchi, Alberto (2021a). “Augmented Lagrangian and Proximal Methods for Constrained Structured Optimization”. PhD thesis. Munich, Germany: University of the Bundeswehr Munich. DOI: [10.5281/zenodo.4972535](https://doi.org/10.5281/zenodo.4972535).
- (2016). “Modelling and optimal control of laser-driven thermocapillary motion of a droplet”. MA thesis. University of Trento. DOI: [10.5281/zenodo.1481663](https://doi.org/10.5281/zenodo.1481663).

Preprints

- De Marchi, Alberto (2024a). *Affordable mixed-integer Lagrangian methods: optimality conditions and convergence analysis*. arXiv: [2406.12436](https://arxiv.org/abs/2406.12436).
- De Marchi, Alberto and Andreas Themelis (2024a). *A penalty barrier framework for nonconvex constrained optimization*. arXiv: [2406.09901](https://arxiv.org/abs/2406.09901).