Abdellah Bulaich Mehamdi

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Ph.D. candidate in applied mathematics.
Research in bilevel optimization, and principal-agent models.

Professional experience

2025-2028 **Ph.D. candidate - research associate**, EDF Lab–Paris Saclay, France.

Research on pricing models for electricity pricing in the residential market.

Supervised by Wim van Ackooij and Quentin Jacquet.

2024 **Research intern in optimization**, EDF Lab Paris-Saclay, France.

Research on principal–agent model approximation and its applications to electricity pricing.

2023 **Research intern in operations research**, Huawei Paris Research Center, France.

Research on column generation acceleration.

2022 **Data science intern**, SNCF Réseau, France.

Natural language processing for semantic analysis.

Education

2025-2028 **Ph.D. in applied mathematics**, École Polytechnique, France.

Thesis subject: "Bilevel Optimization and Principal–Agent Approach for Designing Incentive Models Applied to Electricity Pricing."

Supervised by Stéphane Gaubert and Luce Brotcorne, in collaboration with EDF (Électricité de France) and INRIA (Institut National de Recherche en Sciences et Technologies du Numérique).

2023-2024 **M.Sc. in optimization (M2)**, Institut Polytechnique de Paris, France.

2020-2024 **Polytechnician engineer's degree**, École Polytechnique, France.

2018-2020 **Classe préparatoire (MPSI - MP*)**, Lycée Moulay Al Hassan (Tangier) & Lycée Moulay Youssef (Rabat), Morocco.

Publications

1. **A. Bulaich Mehamdi**, W. van Ackooij, L. Brotcorne, S. Gaubert, Q. Jacquet. "Joint Design of Time-of-Use Schedules and Price Levels: a Bilevel Model with Client Participation and Load Flexibility." *arXiv preprint* arXiv:2609.15496, 2026.

2. **A. Bulaich Mehamdi**, W. van Ackooij, L. Brotcorne, S. Gaubert, Q. Jacquet. "Duality between polyhedral approximation of value functions and optimal quantization of measures." In: *2025 IEEE 64th Conference on Decision and Control (CDC)*, Dec. 2025, pp. 2842–2849. IEEE.

3. **A. Bulaich Mehamdi**, M. Lacroix, and S. Martin. "Pricing filtering in Dantzig-Wolfe decomposition". In: Operations Research Letters 58 (2025), p. 107207.

Contributions in international conferences

2026 **ICBO** (International Conference on Bilevel Optimization). Contributed talk. Pittsburgh, United States. Aug. 2026.

2025 **VC** (16th Viennese Conference on Optimal Control and Dynamic Games). Talk in an invited session. Vienna, Austria. Jul. 2025.

2025 **EUROPT** (22nd Conference on Advances in Continuous Optimization). Talk in an invited session. Southampton, United Kingdom. Jul. 2025.

Contributions in national conferences

2026 **ROADEF** (27ème congrès annuel de la Société Française de Recherche Opérationnelle). Contributed talk. Tours, France. Feb. 2026.

2025 **ROADEF** (26ème congrès annuel de la Société Française de Recherche Opérationnelle). Contributed talk. Champs-sur-Marne, France. Feb. 2025.

2024 **PGMODAYS** (Programme Gaspard Monge pour l'Optimisation). Contributed talk. Palaiseau, France. Dec. 2024.

2024 **ROADEF** (25ème congrès annuel de la Société Française de Recherche Opérationnelle). Talk in an invited session. Amiens, France. Mar. 2024.

Additional skills

- **Programming:** Python, AMPL and LaTeX.
- **Languages:** Arabic (Native), French (C1–C2), English (C1–C2), Spanish (Notions).