LIDING XU

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BIO

Zuse Institute Berlin, Germany *April 2024 - Present*
- Postdoc researcher, Interactive Optimization and Learning Lab

LIX CNRS, École Polytechnique, France *September 2020 - December 2023*
- PhD in Computer Science: "Relaxation methods for mixed-integer nonlinear programming"
- Supervisors: Leo Liberti (director), Claudia D'Ambrosio (co-director), Sonia Haddad-Vanier (co-supervision)

Université Paris-Saclay, France *September 2019 - September 2020*
- M2 in Applied Mathematics, Optimization

École Polytechnique, France *September 2018 - August 2019*
- M1 in Computer Science

Peking University, China *September 2014 - June 2018*
- Bachelor in Machine Intelligence

RESEARCH INTERESTS

Mixed integer nonlinear programming, their applications, and algorithmic implementations.

PUBLICATIONS

Liding Xu, Yechao Liu and Sebastian Pokutta. 2025. "Convex semidefinite tensor optimization and quantum entanglement".

Liding Xu and Claudia D'Ambrosio. 2025. "A computational framework for continuous edge covering on networks" submitted.

Liding Xu, Gioni Mexi, and Ksenia Bestuzheva. 2025. "Sparsity-driven Aggregation of Mixed Integer Programs." 23rd International Symposium on Experimental Algorithms (SEA 2025).

Liding Xu and Leo Liberti. 2024. "Relaxations for binary polynomial optimization via signed certificate." arxiv preprint (Under major revision for Mathematics of Operations Research).

Liding Xu and Claudia D'Ambrosio. 2024. "Formulations of the continuous set-covering problem on networks: a comparative study" arxiv preprint.

Liding Xu and Leo Liberti. 2024. "Submodular Maximization and its Generalization through Intersection Cuts." Mathematical Programming.

Liding Xu and Claudia D'Ambrosio and Leo Liberti and Sonia Haddad Vanier. 2023. "On Cutting Planes for Signomial Programming" arxiv preprint (accepted by SIAM Journal on Optimization).

Liding Xu and Claudia D'Ambrosio and Emiliano Traversi and Sonia Haddad, Vanier. 2023. "Branch and Price for Submodular Bin Packing." EURO Journal on Computational Optimization.

Mercedes Pelegrín and Liding, Xu. 2023. "Continuous Covering on Networks: Improved Mixed Integer Programming Formulations." Omega.

Liding Xu, and Sonia Haddad Vanier. 2022. "Branch-and-Price for Energy Optimization in Multi-Hop Wireless Sensor Networks." Networks.

Antoine Oustry and Liding Xu, Sonia Haddad-Vanier, Juan-Antonio Cordero and Thomas Clausen. "Optimization in Wireless Networks." Encyclopedia of Optimization.

Liding Xu, Claudia D'Ambrosio, Sonia Haddad-Vanier and Emiliano Traversi. "Urban Air Mobility." Encyclopedia of Optimization.

PRESENTATIONS AND ATTENDANCE

ICCOPT2025, Los Angeles, USA *July 2025*
Talk: Relaxations for Binary Polynomial Optimization via Signed Certificates

EURO2024, Copenhagen, Denmark *July 2024*
Talk: Modelling of piece-wise linear concave constraints in continous covering problems

43e Journée Francilienne de Recherche Opérationnelle: BinPacking workshop *February 2024*
Talk: Branch and price for submodular bin packing

Oberwolfach Workshop: Mixed-integer Nonlinear Optimization *August 2023*
Attendance

Aussois combinatorial optimization workshop, Aussois, France *January 2023*
Talk: Intersection cut meet submodularity

PGMO2022, Paris, France *November 2022*
Talk: On a concept of a generic intersection cut callback

SCIP2022, Berlin, German *November 2022*
Talk: On a concept of a generic intersection cut callback

HUGO2022, Szeged, Hungary *September 2022*
Talk: (Three) cutting planes for signomial programming

EURO2022, Espoo, Finand *July 2022*
Talk: An algorithmic toolkit for continuous set-covering on networks

EURO2021, Athens, Greece *July 2021*
Talk: Optimal location of safety landing sites

ROADEF2021, Mulhouses, France *April 2021*
Talk: Optimal location of safety landing sites

FUNDS AND FELLOWSHIP

Research Campus MODAL funded by the German Federal Ministry of Education and Research (BMBF): 1 year *April 2024 - March 2025*

FX-Conseil - Fondation de l'Ecole Polytechnique (Research Foundation of the Ecole Polytechnique): 6 months *October 2024 - March 2024*

École doctorale IP Paris (French Ministry of Higher Education and Research): 3 years *September 2020 - September 2024*

Labex DigiCosme scholarship for master students: 1 year *September 2018 - August 2019*

SOFTWARE (SELECTED)

cbp: branch-and-price algorithms for conic submodular binpacking.

cflg: an algorithmic toolkit for continuous set covering on networks.

wUMCFC: a solver for wireless unsplittable multi-commodity flow routing with network coding.

SymMIP.jl: symmetry analysis for MIPs.

Traces.jl: a traces wrapper for graph canonical labeling and automorphism group computation.

LANGUAGES

Chinese: Mother Tongue
English: Fluent
French: Beginner