

# LIDING XU

📍 Berlin, Germany

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## BIO

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**Zuse Institute Berlin, Berlin**

*April 2024 - Present*

- Postdoc researcher, Interactive Optimization and Learning Lab

**LIX CNRS, École Polytechnique, Palaiseau**

*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, Orsay**

*September 2019 - September 2020*

- M2 in Applied Mathematics, Optimization

**École Polytechnique, Palaiseau**

*September 2018 - August 2019*

- M1 in Computer Science

**Peking University, Beijing**

*September 2014 - June 2018*

- Bachelor in Machine Intelligence

## RESEARCH INTERESTS

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

## PUBLICATIONS

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Liding, Xu and Leo, Liberti. 2024. “Relaxations for binary polynomial optimization via signed certificate.” arxiv preprint (submitted).

Liding, Xu and Claudia, D’Ambrosio. 2024. “Formulations of the continuous set-covering problem on networks: a comparative study” arxiv preprint (submitted).

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*.

## SOFTWARE (SELECTED)

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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.

## PRESENTATIONS AND ATTENDANCE

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**EURO2024, Copenhagen, Denmark** *July 2024*

Talk: Modelling of piece-wise linear concave constraints in continuous 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, Finland** *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

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**Research Campus MODAL SynLab, Bundesministerium für Bildung und Forschung (German Federal Ministry of Education and Research): 1 year** *April 2024 - March 2025*

**FX-Conseil - Fondation de l'École 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*

## LANGUAGES

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**Chinese: Mother Tongue**

**English: Fluent**

**French: Beginner**