Name : Thodoris   **Surname :** Koukouvinos

Contact Details: Email: thkoukouv@gmail.com, tkoukouv@mit.edu   Tel mobile: +1 (617) 6851544

EDUCATION

Massachusetts Institute of Technology, Cambridge, MA (2020-2025)

Ph.D. Candidate in Operations Research

Topics: Nonconvex Optimization, Robust Optimization, Machine Learning

Advisor**:** Prof. Dimitris Bertsimas

National Technical University of Athens, Athens, Greece (2014-2019)

Diploma-Master in Engineering

Major: Applied Mathematics, Minor: Physics, Economics

Advisor: Prof. Nikolaos S. Papageorgiou

PAPERS PUBLISHED (Author order alphabetical)

Robust linear algebra
Dimitris Bertsimas, **Thodoris Koukouvinos**
European Journal of Operational Research (*EJOR*), 2024

Interpretable algorithmic fairness in structured and unstructured data
Hari Bandi, Dimitris Bertsimas, **Thodoris Koukouvinos,** Sofie Kupiec
Journal of Machine Learning Research (*JMLR*), 2024

PAPERS UNDER REVIEW

Cone product reformulation for global optimization
Dimitris Bertsimas, Danique de Moor, Dick den Hertog, **Thodoris Koukouvinos,** Jianzhe Zhen
Under Revision in *INFORMS Journal on Computing* (*IJOC*)

Constructing uncertainty sets from covariates in power systems
Dimitris Bertsimas, **Thodoris Koukouvinos**, Angelos Georgios Koulouras
Under Revision in *IEEE Transactions on Power Systems*

A novel algorithm for a broad class of nonconvex optimization problems
Dimitris Bertsimas, Danique de Moor, Dick den Hertog, **Thodoris Koukouvinos,** Jianzhe Zhen
Under Review

An exact method for a class of robust nonlinear optimization problems
Dimitris Bertsimas, Danique de Moor, Dick den Hertog, **Thodoris Koukouvinos,** Jianzhe Zhen
Under Review

Optimized oversampling
Dimitris Bertsimas, **Thodoris Koukouvinos**, Angelos Georgios Koulouras
Under Review

PAPERS UNDER PREPARATION

An interior point algorithm for robust linear programs
Dimitris Bertsimas, Dick den Hertog, Bram Gorissen, **Thodoris Koukouvinos**

RPT for polynomial optimization
Dimitris Bertsimas, Dick den Hertog, **Thodoris Koukouvinos**

Improving algorithmic fairness in language models
Dimitris Bertsimas, **Thodoris Koukouvinos**

Adaptive linear algebra
Dimitris Bertsimas, **Thodoris Koukouvinos**

CONFERENCE PUBLICATIONS

Ensembling Wind Forecasting Models to Construct Data-Driven Uncertainty Sets in Robust Optimization
Panagiotis Andrianesis, Dimitris Bertsimas, **Thodoris Koukouvinos,** Angelos Georgios Koulouras
IEEE Power & Energy Society General Meeting (PESGM), 2024

BOOKS IN PREPARATION

Nonconvex Optimization: A New Perspective
Dimitris Bertsimas, Danique de Moor, Dick den Hertog, **Thodoris Koukouvinos,** Jianzhe Zhen
Dynamic Ideas Press

PROFESSIONAL EXPERIENCE

Amazon Inc., Seattle, WA, (Summer 2022)
Research Intern
- Position: Applied Scientist
- Project: Cancellation aware trailer relocation optimizer
- Manager: Dr. Ivan Oliveira

TEACHING EXPERIENCE (MIT)

Robust Modeling, Optimization, and Computation (15.094J)   Spring 2022
- Graduate-level course on theory, modeling, algorithms and applications of robust optimization.
- Led recitations and weekly office hours, graded homeworks, final exams and supervised final projects
- Designed class content for robust convex and concave optimization, probabilistic guarantees in robust optimization , robust queueing theory
- Class size: 21 students

Optimization Methods (6.215 / 15.093J)   Fall 2022
- Qualifying course for Ph.D.s in Electrical Engineering and Computer Science (EECS)
- Core course of the Master of Business Analytics (MBAn)
- Led recitations and weekly office hours, graded homeworks, final exams and supervised final projects
- Designed material for assignments, exams, and recitations
- Class size: 168 students across MIT and Harvard

Optimization Methods (6.215 / 15.093J)   Fall 2023
- Qualifying course for Ph.D.s in Electrical Engineering and Computer Science (EECS)
- Core course of the Master of Business Analytics (MBAn)
- Led recitations and weekly office hours, graded homeworks, final exams and supervised final projects
- Designed material for assignments, exams, and recitations
- Class size: 239 students across MIT and Harvard

Robust Modeling, Optimization, and Computation (15.094J)   Spring 2024
- Graduate-level course on theory, modeling, algorithms and applications of robust optimization
- Led recitations and weekly office hours, graded homeworks, final exams and supervised final projects
- Designed material for assignments, exams, and recitations
- Class size: 19 students

SERVICE AND OUTREACH

Session Chair for INFORMS Optimization Society (IOS) Conference, 2024
Served as a reviewer for: European Journal of Operational Research, IEEE Transactions on Knowledge and Data Engineering

SELECTED TALKS

A novel algorithm for a broad class of nonconvex optimization problems
- SIAM Conference on Optimization, Seattle, 2023
- Robust Optimization Webinar, Online, 2023 (Video:
  ▶ Dick den Hertog and Thodoris Koukouvinos - A novel algorithm for a broad class of no…
)

Cone product reformulation for global optimization
- INFORMS Optimization Society (IOS) Conference, Houston, 2024
- INFORMS Annual Meeting, Seattle, 2024 (upcoming)

An exact method for a class of robust nonlinear optimization problems
- International Symposium on Mathematical Programming (ISMP), Montreal, 2024

AWARDS

Chrysovergis Award (2020)
Excellency Award from National Scholarship Foundation of Greece (2020)
Thomaidio Award (2019)

PROGRAMMING LANGUAGES

Python, Julia, Java, R, SQL