ANTHIMOS VARDIS KANDIROS

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RESEARCH INTERESTS

Causal Inference, Machine Learning Theory, High-Dimensional Probability and Statistics

EDUCATION

Massachusetts Institute of Technology *September 2019 - May 2025*
Ph.D. in Electrical Engineering and Computer Science (EECS)
Dissertation: Estimation, Prediction and Counterfactual Inference with Dependent Observations
Advisor: Constantinos Daskalakis

National Technical University of Athens *September 2013 - May 2018*
Diploma (5 year degree) in Electrical and Computer Engineering
GPA: 9.94/10.0 (Excellent)
Major: Computer Science and Engineering, Computational Systems
Minor: Networks and Telecommunications, Mathematics
Diploma Thesis: Opinion Dynamics with Limited Information
Advisor: Dimitris Fotakis

ACADEMIC APPOINTMENTS

Columbia University *Fall 2025*
Postdoctoral Research Scientist, Data Science Institute New York, NY
Advisor: Christopher Harshaw

ACADEMIC WRITING

Preprints and Working Papers

· *Leveraging the Collection of Network Data in Network Experiments*
Anthimos Vardis Kandiros and Christopher Harshaw.
Manuscript in progress.

· *A Design-Based Minimax Theory for Network Experiments*
Anthimos Vardis Kandiros, Christopher Harshaw, and Fredrik Sävje.
arXiv:2608.04909. 2026
ArXiv Version: Link

Published Papers

· *The Conflict Graph Design: Estimating Causal Effects under Arbitrary Neighborhood Interference*
Anthimos Vardis Kandiros, Charilaos Pipis, Constantinos Daskalakis, and Christopher Harshaw.
The Annals of Statistics. To Appear.
ArXiv Version: https://arxiv.org/pdf/2411.10908

· *Estimating Ising Models in Total Variation Distance*
Constantinos Daskalakis, Anthimos Vardis Kandiros, and Rui Yao.
Thirty Ninth Conference on Learning Theory (COLT). 2026.
ArXiv Version: https://arxiv.org/pdf/2511.21008

· *Learning Gaussian DAG Models without Condition Number Bounds*
Constantinos Daskalakis, Anthimos Vardis Kandiros, and Rui Yao.
Forty-Second International Conference on Machine Learning (ICML). 2025.
ArXiv Version: https://arxiv.org/pdf/2511.06164

· *On Sampling from Ising Models with Spectral Constraints*
Andreas Galanis, Alkis Kalavasis, and Anthimos Vardis Kandiros.
International Conference on Randomization and Computation (RANDOM). 2024.
ArXiv Version: https://arxiv.org/pdf/2407.07645

· *Learning Hard-Constrained Models with One Sample*
Andreas Galanis, Alkis Kalavasis, and Anthimos Vardis Kandiros.
ACM-SIAM Symposium on Discrete Algorithms (SODA). 2024.
Revise and Resubmit, IEEE Transactions on Information Theory.
ArXiv Version: https://arxiv.org/pdf/2311.03332

· *Learning and Testing Latent-Tree Ising Models Efficiently*
Anthimos Vardis Kandiros, Yuval Dagan, Constantinos Daskalakis, and Davin Choo.
Thirty Sixth Conference on Learning Theory (COLT). 2023.
ArXiv Version: https://arxiv.org/pdf/2211.13291

· *EM's convergence in Gaussian latent tree models*
Yuval Dagan, Constantinos Daskalakis and Anthimos Vardis Kandiros.
Thirty Fifth Conference on Learning Theory (COLT). 2022.
ArXiv Version: https://arxiv.org/pdf/2211.11904

· *Statistical Estimation from Dependent Data*
Yuval Dagan, Constantinos Daskalakis, Nishanth Dikkala, Surbhi Goel and Anthimos Vardis Kandiros
Thirty-Eighth International Conference on Machine Learning (ICML). 2021.
ArXiv Version: https://arxiv.org/pdf/2107.09773

· *Learning Ising Models from One or Multiple Samples*
Yuval Dagan, Constantinos Daskalakis, Nishanth Dikkala and Anthimos Vardis Kandiros
Fifty-Third Symposium on Theory of Computing (STOC). 2021.
ArXiv Version: https://arxiv.org/pdf/2004.09370

· *Node-max-cut and the Complexity of Equilibrium in Linear Weighted Congestion Games*
Dimitris Fotakis , Anthimos Vardis Kandiros, Thanasis Lianeas, Nikos Mouzakis,
Panagiotis Patsilinakos and Stratis Skoulakis.
International Colloquium on Automata, Languages, and Programming (ICALP). 2020.
ArXiv Version: https://arxiv.org/pdf/1911.08704

· *Opinion Dynamics with Limited Information*
Dimitris Fotakis, Anthimos Vardis Kandiros, Vasilis Kontonis and Stratis Skoulakis.
Web and Internet Economics (WINE). 2019.

Journal Version: Algorithmica, Volume 85, pages 3855–3888 (2023).
Link

INVITED TALKS

The Conflict Graph Design: Estimating Causal Effects under Arbitrary Neighborhood Interference

- Aug 2025, Session on Study Designs for Social Networks at Different Stages of the Experimental Process, JSM.
- Oct 2024, Session on Algorithm Design for Randomized Experiments, INFORMS.

Learning and Testing Latent-Tree Ising Models Efficiently

- Aug 2023, Athens Colloquium on Algorithms and Complexity (ACAC)

On the Convergence of EM in Latent Gaussian Tree Models

- Aug 2022, Athens Colloquium on Algorithms and Complexity (ACAC)
- Mar 2022, EWSC Lab Meeting, Broad Institute of MIT and Harvard.

Statistical Estimation from Dependent Data

- Nov 2022, Yale Institute of Network Science (YINS) Seminar.
- Nov 2022, Theory Seminar, Northeastern University.

Learning Ising Models from One or Multiple Samples

- Sep 2021, International Symposium on Fundamentals of Computation Theory (FCT) 2022, Young Researchers Forum
- Aug 2021, Athens Colloquium on Algorithms and Complexity (ACAC)

AWARDS

2021 - 2023 **Eric and Wendy Schmidt Center (EWSC) PhD Fellowship**, Broad Institute of MIT and Harvard

2019 - 2023 **Onassis Foundation Scholarship** for graduate studies

2019 **Paris Kanellakis Fellowship**, awarded by MIT EECS Department

2018 **Kondoulis Award** for graduating 1st among the approximately 1500 graduating students of NTUA

2019 **Limmat Stiftung Award**, **Chrysovergis Award** for graduating 1st among the 350 students of my graduating class in EECS at NTUA.

2015, 2016 **Thomaideion Award** for achieving the second highest GPA among all undergraduate students of the ECE department

2018 **Thomaideion Award** for publications for publishing original research work as an undergrad

2016 **Second Prize & Fair Play and Personal Honesty Award** in the 23rd International Mathematics Competition for University Students (IMC)

2013, 2014 **Papakyriakopoulos Award**, **Nikolaos Kritikos Award** for excellent performance in Mathematics courses

TEACHING EXPERIENCE

STAT GR5294, *Theory of Diffusion Models*, Columbia University, Statistics Department — Fall 2023
I was the instructor for a two week course on the mathematics behind modern diffusion-based generative AI models. Course Website, Course Reviews

6.S982, *Diffusion Models: From Theory to Practice*, MIT EECS — Spring 2025
As a Teaching Assistant, I helped design and gave several lectures for a new class on the theory and practical implementation of diffusion models. Course Website

Algorithms and Complexity, NTUA ECE Department — Fall 2018
While an undergraduate student, I served as a Teaching Assistant for this fourth-year undergraduate course.

SERVICE

Seminar Organization

Data Science Institute Computational Social Science Seminar Series, Columbia University — Fall 2026
I am co-organizing a seminar series on computational social science, with speakers from a variety of disciplines, including statistics, economics and political science. For more information, see the website.

Reviewing

Conference Reviewer: FOCS, STOC, SODA, ITCS, NeurIPS, ICML, ICLR, ALT, RANDOM, WINE.
Journal Reviewer: The Annals of Statistics, Journal of the American Statistical Association, Annals of Applied Statistics, IEEE Transactions on Information Theory

Campus Involvement

Controller at Sidney Pacific Graduate Dormitory, MIT — Fall 2021
Volunteered to process all reimbursement requests of the dormitory.

GRADUATE COURSES ATTENDED

Theory of Probability, Probabilistic Methods in Combinatorics, Advanced Complexity Theory, Information Theory, Algebraic Topology I, Stochastic Calculus, Advanced Algorithms, Algorithms for Inference — *MIT, 2019-2025*

Computability and Complexity, Cryptography and Number Theory, Advanced Algorithms, Approximation Algorithms — *NTUA, 2013-2018*

SKILLS

Languages: Greek (native), English (Fluent-C2), German (Fluent - C1), Chinese (Very Good - B1)
Technical Skills: Windows, Linux/UNIX, C, C++, Python, SML, Java, Prolog, Matlab, Javascript