Ilias Papanikolaou

PhD Student in Computer Science, Northwestern University

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Education

Northwestern University — Evanston, IL, USA
Ph.D. in Theoretical Computer Science — *Sep. 2023 – Present (expected 2028)*
Advisor: Prof. Konstantin Makarychev

National Technical University of Athens — Athens, Greece
Integrated Master (MEng) in Electrical and Computer Engineering, GPA: 8.93/10 — *Oct. 2017 – Apr. 2023*
Diploma thesis: "Explainable Clustering Under Perturbation Stability" — *Sep. 2022 – Apr. 2023*
Advisor: Prof. Dimitris Fotakis

Publications

Authors contributed equally and are listed in alphabetical order, as is common in theoretical computer science.

A Simple Proof of the Exact $(H_{k-1} + 1)$ Competitive Ratio for Explainable ℓ_1 Clustering
Konstantin Makarychev, Yury Makarychev, **Ilias Papanikolaou**, Liren Shan
To appear in the SIAM Symposium on Simplicity in Algorithms (SOSA), 2027

Near-optimal Explainable k-means Clustering under ℓ_p Norm
Xinyuan Cao, Konstantin Makarychev, **Ilias Papanikolaou**, Liren Shan
To appear in the Conference on Neural Information Processing Systems (NeurIPS), 2026

Dynamic Algorithm for Explainable k-medians Clustering under the ℓ_p Norm [Google Scholar]
Konstantin Makarychev, **Ilias Papanikolaou**, Liren Shan
Conference on Neural Information Processing Systems (NeurIPS), 2025. **Spotlight Presentation**

Teaching Experience

Northwestern University, Teaching Assistant

- CS436: Graduate Algorithms — Fall 2026
- CS336: Design and Analysis of Algorithms — Winter 2026
- CS212: Discrete Math — Winter 2025

National Technical University of Athens

- Algorithms and Complexity, Teaching Assistant — 2022
- Computer Programming, Lab Assistant — 2022

Academic Service

Reviewer: International Conference on Learning Representations (ICLR) 2027

Skills and Languages

Programming: C/C++, Python, Java
Machine Learning: PyTorch; implemented basic language-model architectures and fine-tuned models for question answering and text generation, including parameter-efficient fine-tuning with LoRA (CS461: Deep Learning for NLP)
Languages: Greek (native), English (full professional proficiency), German (elementary)