

Emmanouil (Manos) Kariotakis

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[Website](#) ♦ [Google Scholar](#) ♦ [GitHub](#) ♦ [LinkedIn](#)

EDUCATION

- KU Leuven, Belgium** Sep 2023 – present
Doctoral Programme in Engineering Science (PhD), Department of Electrical Engineering (ESAT)
Advisor: [Aritra Konar](#)
- Technical University of Crete (TUC), Greece** Sep 2017 – Oct 2022
Integrated BSc & MEng in Electrical and Computer Engineering
Advisor: [Aggelos Bletsas](#)
Grade 9.36/10, **Summa cum laude**, top 1% of all graduates of the school (as of Oct 2022)

RESEARCH INTERESTS

Graph Machine Learning, Algorithmic Fairness, Theoretical Machine Learning, Optimization, Signal Processing

RESEARCH EXPERIENCE

- PhD Researcher** Sep 2023 – present
STADIUS Center for Dynamical Systems, Signal Processing and Data Analytics, ESAT – KU Leuven, Belgium
- Research on algorithmic fairness in graph machine learning and graph mining: designing methods with provable guarantees that satisfy group-fairness criteria defined by sensitive attributes of the nodes.
 - **Fair graph representation learning**: a fairness-aware alternative to GNNs based on differentiable propagation layers, for node classification, link prediction and node regression (preprint, 2026).
 - **Fair PageRank**: a convex optimization framework for computing PageRank vectors under group-fairness constraints, with a guaranteed target fairness level at the same asymptotic cost as standard PageRank (ICML 2026).
 - **Dense subgraph discovery**: fairness-aware dense subgraph discovery (TMLR 2025) and optimal quasi-clique detection via Lasry–Lions double envelopes, in collaboration with [Panos Patrinos](#) group (ICASSP 2026).
- Research Assistant** Nov 2022 – Aug 2023
Signal Processing Laboratory, Institute of Computer Science – FORTH, Greece
- Design and study of a system that leverages sparsity across the input and intermediate layers of a neural network that is trained and operates in a distributed manner by resource-constrained workers.
 - Advisors: [Grigorios Tsagkatakis](#), [Anastasios Kyrillidis](#) (Rice University)
- Undergraduate Research Assistant** Mar 2022 – Sep 2022
Telecommunication Systems Research Institute (TSI), TUC, Greece
- Research on asynchronous, in-network processing with probabilistic graphical model (PGM)-based inference algorithms.
- Research Intern** Jul 2020 – Aug 2020
Signal Processing Laboratory, Institute of Computer Science – FORTH, Greece

PUBLICATIONS

- **[ICML 2026]** E. Kariotakis, A. Konar. *FairRARI: A Plug and Play Framework for Fairness-Aware PageRank*. International Conference on Machine Learning (ICML), 2026. [\[paper\]](#) [\[project\]](#)
- **[ICASSP 2026]** E. Kariotakis, A. Bodard, P. Patrinos, A. Konar. *Optimal Quasi-Clique Detection via Lasry-Lions Double Envelopes*. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2026. [\[paper\]](#)
- **[TMLR 2025]** E. Kariotakis, N.D. Sidiropoulos, A. Konar. *Fairness-Aware Dense Subgraph Discovery*. Transactions on Machine Learning Research (TMLR), 2025. [\[paper\]](#)
- **[CPAL 2024]** E. Kariotakis, G. Tsagkatakis, P. Tsakalides, A. Kyrillidis. *Leveraging Sparse Input and Sparse Models: Efficient Distributed Learning in Resource-Constrained Environments*. Conference on Parsimony and Learning (CPAL), PMLR, 2024. [\[paper\]](#)
- **[EUSIPCO 2023]** E. Kariotakis, A. Bletsas. *Probabilistic Asynchronous Inference in Wireless Networks with Spectral Clustering*. IEEE European Signal Processing Conference (EUSIPCO), 2023. [\[paper\]](#)

PREPRINTS

- **[arXiv 2026]** E. Kariotakis, A. Konar. *FairProp: Fair Node Representation Learning via Differentiable Propagation Layers*. arXiv:2610.06484. [\[preprint\]](#)

WORKSHOPS & SYMPOSIUMS

- **[Greeks in AI 2026]** E. Kariotakis, A. Konar. *FairRARI: A Plug and Play Framework for Fairness-Aware PageRank*. Greeks in AI Symposium, Athens, Greece, 2026. **Spotlight Oral Presentation**.

- **[Greeks in AI 2025]** E. Kariotakis, N.D. Sidiropoulos, A. Konar. *Fairness-Aware Dense Subgraph Discovery*. First Greeks in AI Symposium, Athens, Greece, 2025.
- **[EWAF 2025]** E. Kariotakis, N.D. Sidiropoulos, A. Konar. *Fairness-Regulated Dense Subgraph Discovery*. Fourth European Workshop on Algorithmic Fairness (EWAF), Eindhoven, The Netherlands, 2025.

TEACHING ASSISTANTSHIP

Mining and Learning on Graphs (B-KUL-H0O99a), Faculty of Engineering Science, KU Leuven, Belgium	Spring 2025
Linear Algebra (B-KUL-I0D38b), Faculty of Engineering Science, KU Leuven, Belgium	Fall 2024, 2025, 2026
Applied Stochastic Processes (CS317), Computer Science Department, University of Crete, Greece	Spring 2023
Probability Theory (CS217), Computer Science Department, University of Crete, Greece	Fall 2022

HONORS & AWARDS

- **Summa cum laude**, Technical University of Crete, Greece Oct 2022

SKILLS

Programming Languages	Python, MATLAB, C++, Git, $\text{\LaTeX}$ English (fluent), Greek (native), French (A2)
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ACTIVITIES

- Volunteer at the 2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)
- Degree in Music Harmony, June 2016
- Playing the piano and the guitar