

Chrysanthi Kosyfaki

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About me

My research interests lie in the area of spatiotemporal data management and flow analytics in large graphs, with a particular focus on a new class of networks called Temporal Interaction Networks (TINs). These networks model dynamic systems where entities exchange quantities, such as financial transactions, transportation flows, or communication data.

Over the past few years, I have been developing efficient solutions to optimize classical problems—such as max-flow computation—by introducing the temporal dimension. Currently, my work focuses on data provenance analytics in large graphs, with an emphasis on designing techniques to trace the origin of transmitted quantities in graph-structured data.

Recently, I have also started exploring the Text-to-SQL domain, focusing on addressing challenges related to text ambiguity in natural language database queries.

Employment

Hong Kong University of Science and Technology, Hong Kong SAR

May 2025 – present

Postdoctoral research fellow, CSE Department

- Working on projects related to spatiotemporal data management and data provenance on graphs

University of Hong Kong, Hong Kong SAR

January 2025 – now

Part-time Lecturer, CS Department

- Teaching a course at the master program of the department

University of Hong Kong, Hong Kong SAR

Aug 2023 – April 2025

Postdoctoral research fellow, CS Department

- Worked on projects related to spatiotemporal data management and graph analytics

University of Hong Kong, SAR

Jun 2022 – Oct 2022

Research Assistant, CS Department

- Worked on developing spatiotemporal data management algorithms for a funding project with MTR

University of Ioannina, Greece

Oct 2020 – May 2023

Software Developer, CSE Department

- Worked on a research funding project called SmartCityBus.

University of Ioannina, Greece

Apr 2020 – Sept 2020

Software Developer, CSE Department

- Worked on a research funding project called ProximIoT.

University of Hong Kong, SAR

Aug 2019 – Oct 2019

Research Assistant, CS Department

- Worked on developing optimized algorithms for flow computation in temporal networks

University of Ioannina, Greece

Mar 2019 – Jul 2019

Software Developer, CSE Department

- Worked on a research funding project called Seek and Go.

University of Hong Kong, SAR

Research Assistant, CS Department

- Worked on developing optimized algorithms for enumerating flow motifs in temporal networks

Aug 2018 – Dec 2018

Education

Ionian University, Greece

BS in Computer Science

Sept 2013 – Sept 2017

- **Thesis:** Sentimental Analysis in Social Networks
- **Advisor:** Phivos Mylonas

University of Ioannina, Greece

M.Sc in Computer Science

Oct 2017 – Feb 2019

- **Thesis:** Flow Motifs in Interaction Networks
- **Advisor:** Nikos Mamoulis

University of Ioannina, Greece

Ph.D in Computer Science

Feb 2019 – Apr 2023

- **Thesis:** Flow Analytics in Large Graphs
- **Advisor:** Nikos Mamoulis

Academic Service

Organization Committees

Co-chair for TKDE posters @ICDE
Publicity chair for @MDM 2026

2025-2026
2026

Program Committees

PVLDB	2024-2026
ICDE	2025-2026
SIGSPATIAL	2025
VLDLBJ	2024 - 2025
TKDE	2023-2025
PAKDD	2022-23

External Reviewer

ICDE	2019-2024
PVLDB	2019-2023
SIGMOD	2021-2023
EDBT	2018-2020
KDD	2019

Student Volunteer

PVLDB	2020
EDBT	2023

Awards

Christine Collet EDBT/ICDT Student Participation Award 2019

2019

Teaching Experience

The University of Hong Kong, SAR
Course Title: Network Data Analytics

Spring 2025

- *Instructor*

University of Ioannina, Greece
Course Title: Complex Data Management

Spring 2019-2023

- *Teaching Assistant*

University of Ioannina, Greece
Course Title: Object Oriented Programming

Spring 2018

- *Teaching Assistant*

University of Ioannina, Greece
Course Title: Introduction to Programming

Fall 2017-2022

- *Teaching Assistant*

Skills

Programming Languages

C, C++, Python

Environments

MATLAB, Octave, QGIS, Neo4j

Operating Systems

Windows, MacOS, Linux

Publications

Multigranularity Spatiotemporal Flow Patterns C. Kosyfaki , N. Mamoulis, R. Cheng, B. Kao - under review (<i>Geoinformatica</i>)	2026
A Unified and Lightweight Data Engine for Spatiotemporal Data Management and Analytics - under review Z. Li, W. Sun, L. Li, J. Li, C. Kosyfaki , J. Li, Z. Tian, X. Zhou	2026
BEACON: A Benchmark for Efficient and Accurate Counting of Subgraphs @ ICDE X. Zhu, M. Najafi, C. Kosyfaki , L. VS. Lakshmanan, R. Cheng	2026
Data-Aware Socratic Query Refinement in Database Systems - under review DEFT @ ICDE R. Zhang, C. Kosyfaki , X. Zhou	2026
Generalized Origin-Destination-Time Flow Patterns @ SSTD C.Kosyfaki , N. Mamoulis, R. Cheng, B.Kao	2025
A Sampling-based Framework for Hypothesis Testing on Large Attributed Graphs @ PVLDB Y. Wang, C. Kosyfaki , S. Amer-Yahia, R. Cheng	2024
SmartCityBus - A Platform for Smart Transportation Systems @ WSDM G. Bouloukakis, C. Zeginis, N. Papadakis, K. Magoutis, G. Christodoulou, C. Kosyfaki , K. Lampropoulos, N. Mamoulis	2023
Spatiotemporal Flow Patterns @ arxiv C. Kosyfaki , N. Mamoulis, R. Cheng, Ben Kao	2023
Provenance in Temporal Interaction Networks @ ICDE C.Kosyfaki and N. Mamoulis	2022
Flow Provenance in Temporal Interaction Networks @ SIGMOD (<i>short paper</i>) C.Kosyfaki and N. Mamoulis	2021
Flow Computation in Temporal Interaction Networks @ ICDE C.Kosyfaki , N. Mamoulis, E. Pitoura, P. Tsaparas	2021

Flow Motifs in Interaction Networks @ EDBT C.Kosyfaki , N. Mamoulis, E. Pitoura, P. Tsaparas	2019
Flow Motifs in Complex Networks @ HDMIS (<i>poster contribution</i>) C.Kosyfaki	2018
The Privacy Paradox in the Context of Online Health Data Disclosure by Users @ EMCIS C.Kosyfaki , N. Angelova, A. Tsohou, E. Mangos	2017

Student Supervision

PhD Students	HKUST
<ul style="list-style-type: none"> ◦ Sau Lai YIP - <i>working on Text-to-SQL problems</i> ◦ Nujibieke Shabuerjiang <i>working on spatiotemporal data management topics</i> ◦ Jounghoon Kim - <i>working on ANNS problems</i> 	
PhD Students	HKU
<ul style="list-style-type: none"> ◦ Carrie Wang - <i>working on hypothesis testing on graphs</i> ◦ Xiangju Zhu - <i>working on subgraph counting problems</i> ◦ Matin Najafi - <i>worked on subgraph counting problems, now a researcher at Huawei, Hong Kong</i> 	
Bachelor Students	UoI
<ul style="list-style-type: none"> ◦ Ioanna Papayianni (2020) - <i>Thesis: Developing efficient algorithms for analyzing flow patterns in large networks</i> ◦ Dimitris Zervas (2021) - <i>Thesis: Detecting the origin of transactions in the Bitcoin Network</i> ◦ Sotiria Kastana (2021) - <i>Thesis: Design and development of a synthetic indoor movement generator</i> ◦ Vasileios Georgoulas (2023) - <i>Thesis: A web application for passenger movement with public transport</i> 	