Dimitris Tsitsigkos

username | mysite.com | DBLP | Google Scholar | username
tsitsigkosdim@gmail.com | +30 6942951698

Summary

Postdoctoral Researcher and Software Engineer with extensive experience in data management, including indexing, query optimization, and query processing. Skilled in developing efficient indices for parallel processing of relational, spatial, and multi-dimensional data. Experienced in designing and implementing research-based software frameworks. Strong collaborator with excellent communication skills, bridging research insights and practical software engineering solutions.

Work Experience

Archimedes unit of Athena Research Center, Athens, Greece Feb. 2025 - present

Postdoctoral Researcher

- Member of the data science team, focusing on multi-dimensional and vector data.

Dept. of Computer Science & Engineering, Univ. of Ioannina, Greece Jan. 2024 – Dec. 2024

Doctoral Researcher

Participated in the Greek funding project MESA: In-memory Spatial Analytics Made Scalable.

- Implemented novel parallel and non-parallel index structures for spatial queries, including spatial join, range queries, and k-NN.
- Contributed to the design and development of a prototype distributed spatial data management framework using MPI and OpenMP.

Information Management Systems Institute, Athens, Greece Sep. 2012 – Dec. 2023

Software Engineer

Participated in several Greek and European funding projects, including:

- MoDisSENSE: A Distributed Spatio-Temporal and Textual Processing Platform for Social.
  - Implemented a distributed version of the DBSCAN algorithm for POI discovery.
  - Developed a distributed algorithm to collect GPS traces and reconstruct end-user trajectories.
  - Utilized Hadoop, HBase, and PostGIS for large-scale data processing.
  - Designed and implemented web services supporting POI discovery and recommendation.
- Amnesia: A Powerful Data Anonymization Platform.
  - I designed and built the framework from the start as the main software engineer.
- MORE: Management of Real-time Energy data.
  - Developed a continuous evaluation module for edge-based sliding-window aggregations in Java.
  - Built parallel and distributed pattern extraction methods using Python and Dask, improving processing. efficiency.

Johannes Gutenberg University Mainz, Germany May. 2022 – Jul. 2022

Research Visitor

- PhD internship at the Institute of Computer Science working with professor Panagiotis Bouros.

Hellenic Army Information Technology Support Center, Athens, Greece Apr. 2017 – Nov. 2018

Software Engineer

- Maintain and update code for multiple Java applications, while developing new features.

Education

Ph.D., Computer Science Jul. 2019 – Dec. 2024

Department of Computer Science & Engineering, University of Ioannina

Thesis: In-memory Indexing for Parallel Processing of Single and Multi-Dimensional Queries

M.Sc., Computing Systems: Software and Hardware, Computer Science Nov. 2012 – Sep. 2016

Department of Informatics and Telecommunications, University of Athens

Thesis: Complex Event Processing(CEP) for Intrusion Detection

B.Sc., Computer Science Sep. 2006 – Jun. 2012

Department of Informatics and Telecommunications, University of Athens

Thesis: Clustering Wikipedia resources

Technical Skills

Programming Languages	C, C++, Java, Python
Databases	MySQL, PostgreSQL, PostGIS, HBase
Parallel & Distributed Systems	Hadoop, Dask, OpenMP, MPI, Spark
Frameworks	Spring
Web Development	JavaScript, JSP, JSF, PHP
Operating Systems	Ubuntu, Microsoft Windows, macOS

Professional Activities

Member of Program Committee	TSAS 2023, ICDE 2026, IEEE BigData 2025
External Reviewer	ICDE 2019-2025, VLDB 2019-2023, SIGMOD 2020, SIGSPATIAL 2020-2023, EDBT 2021-2025, ICDM 2025

Selected Publications

Dimitrios Tsitsigkos, Panagiotis Bouros, Nikos Mamoulis, and Manolis Terrovitis (2019). "Parallel In-Memory Evaluation of Spatial Joins". In: *ACM International Conference on Advances in Geographic Information Systems (SIGSPATIAL)*.

Panagiotis Bouros, Nikos Mamoulis, Dimitrios Tsitsigkos, and Manolis Terrovitis (2021). "In-Memory Interval Joins". In: *International Journal on Very Large Databases (VLDB J.)*

Dimitrios Tsitsigkos, Konstantinos Lampropoulos, Panagiotis Bouros, Nikos Mamoulis, and Manolis Terrovitis (2021). "A Two-layer Partitioning for Non-point Spatial Data". In: *IEEE International Conference on Data Engineering, (ICDE)*.

Dimitrios Tsitsigkos, Panagiotis Bouros, Konstantinos Lampropoulos, Nikos Mamoulis, and Manolis Terrovitis (2024). "Two-Layer Space-Oriented Partitioning for Non-Point Data". In: *IEEE Transactions on Knowledge and Data Engineering (TKDE)*.

Dimitrios Tsitsigkos, Achilleas Michalopoulos, Nikos Mamoulis, and Manolis Terrovitis (2025). "BS-tree: A gapped data-parallel B-tree". In: *Revision (ICDE 2026)*.

Other

Languages	Greek (native), English (Advanced)
Awards	3rd place - Future of Database Programming Contest (March 2025, Athens).