

Dimitris Tsitsigkos

Software Engineer

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SUMMARY

Software engineer and researcher focused on data management and parallel computing, with a strong background in data processing, indexing, and query optimization. Experienced in C++, Java, and Python, developing algorithms and frameworks for high-performance data systems. Looking to work in a challenging environment where I can apply my skills and continue developing as part of an engineering team.

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.
- Designing and implementing indexing techniques to enhance query performance for 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

Dec 2012 – Dec 2023

Software Engineer

Participated in several Greek and European funding projects, including:

- [MORE](#): Management of Real-time Energy data.
(Oct 2020 – Dec 2023)
 - 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.
- [Amnesia](#): A Powerful Data Anonymization Platform.
(Aug 2015 – Sep 2020)
 - Designed and built the framework from scratch as the lead software engineer.
- [MoDisSENSE](#): A Distributed Spatio-Temporal and Textual Processing Platform for Social.
(Dec 2012 - Jul 2015)
 - Engineered scalable algorithms for POI discovery and trajectory reconstruction using Hadoop, HBase, and PostGIS.
 - Designed and implemented web services supporting POI discovery and recommendation.

Institute of CS, Johannes Gutenberg University Mainz, Germany

May 2022 – Jul 2022

Research Visitor

- PhD internship at the Institute of Computer Science with Professor Panagiotis Bouros, focusing on spatial joins.

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.

AWARDS

3rd place - [Future of Database Programming Contest](#) (March 2025, Athens).

EDUCATION

Ph.D., Computer Science Department of Computer Science & Engineering, University of Ioannina <i>Thesis: In-memory Indexing for Parallel Processing of Single and Multi-Dimensional Queries</i>	Jul 2019 – Dec 2024
M.Sc., Computing Systems: Software and Hardware, Computer Science Department of Informatics and Telecommunications, University of Athens <i>Thesis: Complex Event Processing (CEP) for Intrusion Detection</i>	Nov 2012 – Sep 2016
B.Sc., Computer Science Department of Informatics and Telecommunications, University of Athens <i>Thesis: Clustering Wikipedia resources</i>	Sep 2006 – Jun 2012

TECHNICAL SKILLS

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

ACADEMIC SERVICE

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, Achilleas Michalopoulos, Nikos Mamoulis, and Manolis Terrovitis (2026). “B^S-tree: A gapped data-parallel B-tree”. 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)*.

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

OTHER

Languages	Greek (native), English (Advanced)
Volunteer	European Data Forum 2014, EDBT/ICDT 2023 Joint Conference, 6th ACM Europe Summer School on Data Science 2025, HDMS 2025.