Dr. Dimitrios Tomaras

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https://scholar.google.com/citations?user=RXumhywAAAAJ

Short Bio

- Dr. Dimitrios Tomaras is Teaching and Research Faculty Member at UNIC Athens. Previously, he was Post-Doctoral Researcher at Athens University of Economics and Business. Born and raised in Athens, Greece, studied Computer Science at the Department of Informatics and Telecommunications at the National and Kapodistrian University of Athens (2012), holds a Master in Computer Science (2014) from Athens University of Economics and Business and a PhD in Urban Data Analytics and Applications in the Big Data Era (2023) from Athens University of Economics and Business. After his post-graduate studies, he has served as a Postdoctoral Fellow and Senior Researcher in Athens University of Economics and Business and National and Kapodistrian University of Athens. His research interests include Data Analysis in Computer Systems and Sensor Networks, Data Mining of urban and mobile data, Big Data Management in Parallel and Distributed Architectures, Big Data Analytics, Fairness and Explainability of AI/ML Systems. Dr Dimitrios Tomaras has extensive experience in European Projects (INCEPTION, NGHCS, AutoFair, CoDiet) where he has participated as a Postdoctoral Fellow, Quality Assurance Coordinator, Senior Researcher and Developer. He has published papers in International Conferences and Scientific Journals related to his areas of expertise (e.g. ACM/IFIP Middleware, DEBS, ICDCS, ICDE, IEEE MDM, IEEE BigData, EuroSys, Information Systems) and has co-organized a workshop of Fairness in AI/ML systems, FAIR'24@ICDE. According to Google Scholar, his research work has been cited so far 140 times in the literature and has an h-index=7. He has served the program committee of conferences (Mobiquitous, MDM, Euro-Par) and has also served as a chair from various organization positions in conferences (Local Organization Chair @MDM 2026, Publicity Chair @EuroSys 2024, Co-Organizer @FAIR 2024).

Research Interests

- Data Analysis in Computer Systems and Sensor Networks, Data Mining of Urban and Mobile data, Big Data Management in Parallel and Distributed Architectures, Big Data Processing and Analytics, Fairness and Explainability of AI/ML Systems

Education

2015 – 2023 — **Ph.D. Computer Science, Department of Informatics**, Athens University of Economics and Business.
Thesis title: *Urban Data Analytics and Applications in the Big Data Era*
(Supervisor: Prof. Vana Kalogeraki).

2012 – 2014 — **M.Sc. Computer Science, Department of Informatics**, Athens University of Economics and Business.
Thesis title: *A scalable index structure for participatory sensing data*
(Supervisor: Prof. Vana Kalogeraki).

2007 – 2012 — **B.Sc. Computer Science, Department of Informatics and Telecommunications**, National and Kapodestrian University of Athens.
Thesis title: *Simple Data Replication Protocol in Unstructured Peer-to-Peer Networks*
(Supervisor: Prof. Alexios Delis).

Employment History

May 2026 – now — **Teaching and Research Faculty Member,** UNIC Athens

2014 – Apr 2026 — **Researcher,** Athens University of Economics and Business and National and Kapodistrian University of Athens, on the projects:

- CoDiet: Combatting Diet Related Non-Communicable Disease Through Enhanced Surveillance (Horizon Europe) - [2023 - May 2026]
  - Postdoctoral Fellow, Quality Assurance Coordinator and Senior Researcher
- AutoFair: Human-Compatible Artificial Intelligence with Guarantees (Horizon Europe) - [2022 - 2025]
  - Postdoctoral Fellow, Quality Assurance Coordinator and Senior Researcher
  - Developer and maintainer of AutoFair's automated toolkit
- NGHCS: Creating the Next-Generation Mobile Human-Centered Systems (ERC) [2015-2018]
  - Researcher
- INCEPTION: Incentives driven Participatory Sensing (European Social Fund ESF and Greek national funds through the Operational Program "Education and Lifelong Learning" of the National Strategic Reference Framework (NSRF) - Research Funding Program: Aristeia - INCEPTION) - [2014]
  - Researcher

Aug. 2019 – Feb. 2020 — **Visiting Researcher.** Competence Center Machine Learning Rhine-Ruhr, Technische Universität Dortmund (currently Lamarr Institute for Machine Learning and Artificial Intelligence).

- Data Analysis and Modeling of warehouse data

Jul. 2020 – Apr. 2021 — **Military Service.** Fulfilled military obligations for the Greek Army.

Teaching Experience

2015 – 2022 — **Teaching Assistant,** Athens University of Economics and Business, on the undergraduate courses:

- Distributed Systems: Spring Semester - [2015 - 2022]
- Introduction to programming: Fall Semester - [2015]
- Compilers: Fall Semester - [2021]

2023 – now — **Participation in Thesis Supervision,** Athens University of Economics and Business, actively participated in the supervision process of theses at undergraduate and postgraduate level, providing mentoring, guidance on methodology, system implementation, and experimental evaluation in collaboration with students' primary supervisor, Professor Vana Kalogeraki.

Teaching Experience (continued)

2023 – 2025 **Guest Lectures,** Athens University of Economics and Business, Master Programs, Thesis Presentation tailored to each course requirements

- Distributed Systems, Big Data and Cloud Computing, MSc in Computer Science
- Digital Infrastructure Technologies, MSc in Information Systems Development and Security

Publications (Citations: 140, h-index: 7)

Journal Articles

1. **Tomaras**, **D.**, Buschjäger, S., Kalogeraki, V., Morik, K., & Gunopulos, D. (2026). STRATA2.0: A Serverless Middleware for Machine Learning Training. *Transactions on Parallel and Distributed Systems, TPDS*.
2. **Tomaras**, **D.**, Boutsis, I., & Kalogeraki, V. (2023). A holistic approach for modeling and predicting bike demand. *Inf. Syst., 111*, 102129.

Refereed Conference Proceedings

1. Dadamis, P., **Tomaras, D.**, Kalogeraki, V., Gunopulos, D., RAGNN: A Resource-Aware System for Graph Neural Network Training at Scale. (2026), In *32nd International European Conference on Parallel and Distributed Computing, Euro-Par, August 24-28, 2026, Pisa, Italy*.
2. Kavouras, L., Psaroudaki, E., Tsopelas, K., Rontogiannis, D., Theologitis, N., Sacharidis, D., Giannopoulos, G., **Tomaras, D.**, Markou, K., Gunopulos, D., Fotakis, D., Emiris, I., GLANCE: Global Actions in a Nutshell for Counterfactual Explainability (poster). (2026), In *40th Annual AAAI Conference on Artificial Intelligence, AAAI, January 20 – January 27, Singapore*.
3. **Tomaras**, **D.**, Kalogeraki, V., & Gunopulos, D. (2026). E^2-AVID: Content-Adaptive Motion-Aware Video Stream Processing for Energy-Efficient Edge Inference. In *ACM/IEEE Symposium on Edge Computing, SEC 2026, Santa Clara, California, USA, October 13-16, 2026 (to appear)*.
4. Dadamis, P., **Tomaras**, **D.**, Kalogeraki, V., & Gunopulos, D. (2025). IgNITE: Scheduling Pipeline-Parallel DNN Training Jobs on Heterogeneous Infrastructures. In *Proceedings of the 19th ACM International Conference on Distributed and Event-based Systems, DEBS 2025, Gothenburg, Sweden, June 10-13, 2025*, ACM.
5. **Tomaras**, **D.**, Kalogeraki, V., & Gunopulos, D. (2025). Trustworthy Scheduling for Big Data Applications. In *13th IEEE International Conference on Big Data (IEEE BigData), 8-11 December, Macau SAR, China*.
6. **Tomaras, D.**, Kalogeraki, V., Varytimidis, C., Anagnostopoulos, E., Nair, R., Daly, E. M., Marecek, J., Gunopulos, D., AutoFairML: An Automated Middleware for Fairness Auditing in Real-world AI Pipelines. (2025), In *2025 IEEE 45th International Conference on Distributed Computing Systems Workshops (ICDCSW), July 20-23, Glasgow, Scotland, UK*. IEEE.
7. Douka, E., **Tomaras**, **D.**, & Gunopulos, D. (2024). On evaluating counterfactual explanations for ML models in distributed systems (poster). In *Proceedings of the Nineteenth European Conference on Computer Systems, EuroSys 2024, Athens, Greece, April 22-25, 2024*.
8. Markou, K., **Tomaras**, **D.**, Kalogeraki, V., & Gunopulos, D. (2024a). A Framework for Feasible Counterfactual Exploration incorporating Causality, Sparsity and Density. In *40th International Conference on Data Engineering, ICDE 2024 - Workshops, Utrecht, Netherlands, May 13-16, 2024*, IEEE.

9. Markou, K., **Tomaras**, **D.**, Kalogeraki, V., & Gunopulos, D. (2024b). Feasibility in counterfactual explanations (Poster). In *Proceedings of the Nineteenth European Conference on Computer Systems, EuroSys 2024, Athens, Greece, April 22-25, 2024*.

10. Peri, A., **Tomaras**, **D.**, Kalogeraki, V., & Gunopulos, D. (2024). Pricefair: On fair scheduling of heterogeneous resources. In *40th International Conference on Data Engineering, ICDE 2024 - Workshops, Utrecht, Netherlands, May 13-16, 2024*, IEEE.

11. Poulis, A., **Tomaras**, **D.**, Kalogeraki, V., & Gunopulos, D. (2024). AutoFair Toolkit: An automated tool for evaluating fairness in AI/ML models (Poster). In *Proceedings of the Nineteenth European Conference on Computer Systems, EuroSys 2024, Athens, Greece, April 22-25, 2024*.

12. **Tomaras**, **D.** (2024). On Urban Data Analytics and Applications in the Big Data Era. In *25th IEEE International Conference on Mobile Data Management, MDM 2024, Brussels, Belgium, June 24-27, 2024*, IEEE.

13. **Tomaras**, **D.**, Buschjäger, S., Kalogeraki, V., Morik, K., & Gunopulos, D. (2024). STRATA: Random Forests going Serverless. In *Proceedings of the 25th International Middleware Conference, MIDDLEWARE 2024, Hong Kong, SAR, China, December 2-6, 2024*, ACM.

14. **Tomaras**, **D.**, Kalogeraki, V., Panagiotou, N., & Gunopulos, D. (2024). On energy-aware training of Deep Neural Networks in containerized environments (Poster). In *Proceedings of the Nineteenth European Conference on Computer Systems, EuroSys 2024, Athens, Greece, April 22-25, 2024*.

15. **Tomaras**, **D.**, Tsenos, M., Kalogeraki, V., & Gunopulos, D. (2024). TIMBER: On supporting data pipelines in Mobile Cloud Environments. In *25th IEEE International Conference on Mobile Data Management, MDM 2024, Brussels, Belgium, June 24-27, 2024*, IEEE.

16. **Tomaras**, **D.**, Tsenos, M., & Kalogeraki, V. (2023). Prediction-driven resource provisioning for serverless container runtimes. In *IEEE International Conference on Autonomic Computing and Self-Organizing Systems, ACSOS 2023, Toronto, ON, Canada, September 25-29, 2023*, IEEE.

17. **Tomaras**, **D.**, Tsenos, M., & Kalogeraki, V. (2022a). A Framework for Supporting Privacy Preservation Functions in a Mobile Cloud Environment (Demo). In *23rd IEEE International Conference on Mobile Data Management, MDM 2022, Paphos, Cyprus, June 6-9, 2022*, IEEE.

18. **Tomaras**, **D.**, Tsenos, M., & Kalogeraki, V. (2022b). Practical Privacy Preservation in a Mobile Cloud Environment. In *23rd IEEE International Conference on Mobile Data Management, MDM 2022, Paphos, Cyprus, June 6-9, 2022*, IEEE.

19. **Tomaras**, **D.** (2018). Crowdsourcing techniques for smart urban mobility. In *2018 IEEE International Conference on Pervasive Computing and Communications Workshops, PerCom Workshops 2018, Athens, Greece, March 19-23, 2018*, IEEE Computer Society.

20. **Tomaras**, **D.**, Boutsis, I., & Kalogeraki, V. (2018). Modeling and Predicting Bike Demand in Large City Situations. In *2018 IEEE International Conference on Pervasive Computing and Communications, PerCom 2018, Athens, Greece, March 19-23, 2018*, IEEE Computer Society.

21. **Tomaras**, **D.**, Kalogeraki, V., Liebig, T., & Gunopulos, D. (2018). Crowd-Based Ecofriendly Trip Planning. In *19th IEEE International Conference on Mobile Data Management, MDM 2018, Aalborg, Denmark, June 25-28, 2018*, IEEE Computer Society.

22. **Tomaras**, **D.**, Kalogeraki, V., Zygouras, N., Panagiotou, N., & Gunopulos, D. (2018). Evaluating the Health State of Urban Areas Using Multi-source Heterogeneous Data. In *19th IEEE International Symposium on "A World of Wireless, Mobile and Multimedia Networks", WoWMoM 2018, Chania, Greece, June 12-15, 2018*, IEEE Computer Society.

23. **Tomaras**, **D.**, Boutsis, I., & Kalogeraki, V. (2017). Lessons Learnt from the analysis of a bike sharing system. In *Proceedings of the 10th International Conference on PErvasive Technologies Related to Assistive Environments, PETRA 2017, Island of Rhodes, Greece, June 21-23, 2017*, ACM.

24 **Tomaras, D.**, Kalogeraki, V., Zygouras, N., & Gunopulos, D. (2017). An efficient technique for event location identification using multiple sources of urban data. In *Proceedings of the 1st ACM SIGSPATIAL Workshop on Recommendations for Location-based Services and Social Networks, LocalRec@SIGSPATIAL 2017, Redondo Beach, CA, USA, November 7-10, 2017*, ACM.

25 **Tomaras, D.**, Boutsis, I., Kalogeraki, V., & Gunopulos, D. (2016). Local: A personalized cache mechanism for location-based social networks. In *Proceedings of the 24th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, GIS 2016, Burlingame, California, USA, October 31 - November 3, 2016*, ACM.

26 **Tomaras, D.**, Boutsis, I., & Kalogeraki, V. (2015). Travel time estimation in real-time using buses as speed probes. In *2015 IEEE International Conference on Pervasive Computing and Communication Workshops, PerCom Workshops 2015, St. Louis, MO, USA, March 23-27, 2015*, IEEE Computer Society.

27 Boutsis, I., **Tomaras, D.**, & Kalogeraki, V. (2014). Towards real-time emergency response using crowdsourcing. In *Proceedings of the 7th International Conference on PErvasive Technologies Related to Assistive Environments, PETRA 2014, Island of Rhodes, Greece, May 27 - 30, 2014*, ACM.

Conference Organization

Organizing Committee

2026 **MDM'26**, Local Organization Chair, IEEE International Conference on Mobile Data Management

2024 **FAIR'24**, Co-Organizer, 1st International Workshop on Fairness in AI, International Conference on Data Engineering, ICDE

EuroSys'24, Publicity Chair, European Conference on Computer Systems

EuroSys'24, Doctoral Session Chair, European Conference on Computer Systems

MDM'24, Session Chair, IEEE International Conference on Mobile Data Management

Technical Program Committee Member

2026 **MDM'26**, IEEE International Conference on Mobile Data Management

Euro-Par'26, European Conference on Parallel and Distributed Processing

2024 **Mobiquitous'24**, EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services

FAIR'24, International Conference on Data Engineering, ICDE

2023 **Mobiquitous'23**, EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services

Grants

Awards and Grants

2024 **Student Travel Grant**, AUEB, Athens University of Economics and Business.

2022 **Student Grant**, GEC, 4th Summit on Gender Equality in Computing.

2021 **Student Grant**, ACSOS, IEEE International Conference on Autonomic Computing and Self-Organizing Systems.