



Prof. RNDr. Tomáš Skopal, PhD.

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Research interests

similarity search in unstructured data, multimedia databases, information retrieval, database indexing, content-based retrieval, data representations, analytics and visualization, AI

Professional experience

since 2022 vice-rector for information technologies at Charles University,
2012-2021 head of the Department of Software Engineering,
Faculty of Mathematics and Physics (**MFF**), Charles University (**UK**)
2011-2012 deputy head of the Department of Software Engineering, MFF UK
since 2010 part-time professor at the Department of Software Engineering,
Faculty of Information Technology (**FIT**), Czech Technical University (**ČVUT**), Prague
since 2008 associate and full professor at the Department of Software Engineering, MFF UK
since 2006 founder and head of the SIRET research group at the Dept. of Soft. Eng., MFF UK
2005-2007 assistant professor at the Department of Software Engineering, MFF UK
1998-2002 software developer/analyst/consultant

Stays abroad

2020-2022 visiting professor, University of Passau, Germany (3 semesters)
2016-2017 visiting professor at the Data Analysis and Visualization Group, Department
of Computer and Information Science, University of Konstanz, Germany (6 months)
2011 researcher at the Department of Computer Science, Faculty of Physical and
Mathematical Sciences, University of Chile (3 months)

Education and qualifications

2019 full professor of Computer Science – software systems at Charles University
2007 habilitation in Computer Science – software engineering at Charles University
2001-2004 doctoral studies in Computer Science and Applied Mathematics
at VSB-Technical University of Ostrava, CZ
2004 RNDr. in Computer Science, Faculty of Mathematics and Physics, Charles University
1999-2001 master studies (with honors) in Computer Science at Palacký University, Olomouc, CZ
1996-1999 bachelor studies in Computer Science at Faculty of Science, Palacký University

Research Projects

2022-2024 principal investigator, Czech Science Foundation (**GAČR**) project GAČR 22-21696S,
Deep representations of unstructured data (evaluated as **excellent**)
2021 co-investigator, Median and MFF UK research agreement,
EyeMeter – Detection of advertisement in video
2019-2021 principal investigator, Czech Science Foundation (**GAČR**) project 19-01641S,
Contextual similarity search in open data
2017-2019 principal investigator, Czech Science Foundation (**GAČR**) project 17-22224S,
User preference analytics in multimedia exploration models
2013-2014 principal investigator, CISCO Systems and MFF UK research agreement,
Finding similar events within intrusion detection systems
2011-2014 principal investigator, Czech Science Foundation (**GAČR**) project P202/11/0968,
Large-scale nonmetric similarity search in complex domains (evaluated as **excellent**)

- 2009-2011 co-investigator, Czech Science Foundation (**GAČR**) project 201/09/0683, *Similarity searching in very large multimedia databases* (evaluated as **excellent**),
- 2005-2007 principal investigator, Czech Science Foundation (**GAČR**) project 201/05/P036, *Efficient metric search in large multimedia databases* (evaluated as **excellent**)

Service

Conference (co-)chair/proceedings editor

SISAP 2022 (Springer, CORE B) in Bologna, MMM 2021 (Springer, CORE B) in Prague, CBMI 2015 (IEEE) in Prague, SISAP 2009 (IEEE, ACM, CORE B) in Prague

Member of conference program committees

CORE A*/A ICDE 2014, ICDE 2007, ICML 2010, ER 2008, ENC 2007

CORE B MMM 2018-2022, ADBIS (2017, 2016, 2011, 2005), ECIR 2006, SOFSEM 2005-2007, SISAP 2008-2025

Member of journal editorial board of Information Systems, Elsevier (long-term Q1-Q2), since 2012

Guest editor of Inf. Systems special issues 2024, 36(4), 2011, Multimedia Tools and Applications, 82, 2023

Reviews for journals with impact factor

ACM CSur, VLDB Journal, ACM TODS, ACM TOIS, Computer (IEEE), IEEE TKDE, MTAP (Springer), and many others

Academic service

Member of Academic Advisory Council of Heidelberg University (since 2025), Member of scientific boards (CUNI 2022+, FIT CTU 2018+, FEI VSB-TUO 2010-2022), panel P103 of GACR (2013-2017, 2021-2025), reviewer for NAÚ (2017-2022), SAAVS (2021,2023,2025), 8 graduated PhD students (2 in progress)

Selected publications

In overall, 120 papers in journals and conference proceedings indexed in the SCOPUS and/or WoS. Among them, 26 articles in journals with impact factor and additional 64 papers in proceedings of top-tier conferences (1x CORE A*, 13x CORE A, 50x CORE B).

- L. Peška, I. Sixtová, D. Hoksza, D. Bernhauer, J. Lokoč, T. Skopal. Unified Visual-Aware Representations for Data Analytics, IEEE Access 13: 19694-19715, 2025
- T. Skopal, L. Peška, D. Hoksza, I. Sixtová, D. Bernhauer. Visualizations for universal deep-feature representations: survey and taxonomy, Knowl. Inf. Syst. 66(2): 811-840, 2024
- D. Bernhauer, M. Nečaský, P. Škoda, J. Klímek, T. Skopal. Open dataset discovery using context-enhanced similarity search, Knowl. Inf. Syst. 64(12): 3265-3291, 2022
- T. Grošup, L. Peška, T. Skopal. On augmenting database schemas by latent visual attributes. Knowl. Inf. Syst. 63(9): 2277-2312, 2021
- T. Skopal. On Visualizations in the Role of Universal Data Representation, ACM ICMR, Dublin, Ireland, ACM, 2020
- R. Bača, M. Krátký, I. Holubová, M. Nečaský, T. Skopal, M. Svoboda, S. Sakr. Structural XML Query Processing, ACM Computing Surveys, 50(5), pp.: 64:42, ACM, 2017
- T. Skopal, B. Bustos. On Nonmetric Similarity Search Problems in Complex Domains, ACM Computing Surveys, 43(4):34:1–34:50, October 2011
- T. Skopal, J. Lokoč, B. Bustos. D-cache: Universal Distance Cache for Metric Access Methods, IEEE Trans. on Knowledge and Data Engineering, 24(5):868–881, 2012
- M. L. Hetland, T. Skopal, J. Lokoc, C. Beecks. Ptolemaic access methods: Challenging the reign of the metric space model, Information Systems, 38(7): 989-1006, 2013
- B. Bustos, S. Kreft, T. Skopal. Adapting metric indexes for searching in multi-metric spaces, Multimedia Tools and Applications, 58(3):467–496, 2012
- B. Bustos, T. Skopal. Nonmetric similarity search problems in very large collections, ICDE 2011, IEEE, 2011
- T. Skopal. Unified Framework for Fast exact and approximate search in dissimilarity spaces, ACM Transactions on Database Systems, 32(4):29:1–29:47, 2007

Citations

SCOPUS: h-index 19, 755 citations (self-citations excluded), as of May, 2025

Google Scholar: h-index 26, 2100+ citations (including self-citations), as of May, 2025