

Database Research Group

- **People:**

- 2 academics, 100%: prof. Michal Krátký, doc. Radim Bača
 - 1 academic, 20%: Petr Lukáš
 - 1 lector, 20%: Peter Chovanec
 - 1 internal PhD student
- 10 courses in bachelor and master study programs: the main topic includes database management systems.
 - Our research topics include mainly algorithms of query processing, data structures, data compression and so on.
 - For other information see: <http://db.cs.vsb.cz/>

Projects and publications - RadekastDB

- A prototype of a database management system.
- **It includes the following parts:**
 - A relational data storage – mainly multidimensional data structures, compression of data structures, query processing.
 - Native XML database.
- **Publications (6 articles in D1, 2/11 in Computer and Information Sciences, Hodnoceni VaV 2022):**
 - P. Lukáš, R. Bača, M. Krátký, T. W. Ling: Demythization of Structural XML Query Processing: Comparison of Holistic and Binary Approaches. In IEEE Transactions on Knowledge and Data Engineering. Vol. 33, No. 4, April 2021.
 - R. Bača, M. Krátký, I. Holubová, M. Nečaský, T. Skopal, M. Svoboda, S. Sakr: Structural XML Query Processing. In ACM Computing Survey, Volume 50 Issue 5, November 2017.

Applied Research - Detection of Covered Conductor Faults

- Cooperation with Department of Power Engineering – an European patent related to the detection of covered conductor faults.
- Our work: handling data of detectors, analysis, design and implementation of algorithms of the detector.
- There are 20 prototype detectors in power networks in the Czech Republic.
- **Publications (1/8 in Electrical engineering, electronic engineering, information engineering, Hodnoceni VaV 2022):**
 - M. Krátký, S. Mišák, P. Gajdoš, P. Lukáš, R. Bača, P. Chovanec: A Novel Method for Detection of Covered Conductor Faults in Medium Voltage Overhead Line Systems. IEEE Transactions on Industrial Electronics. January 2018, Volume: 65, Issue: 1.

Current topics

- Optimization of SQL query processing.
- Multidimensional queries and their processing.

Problems

- A low number of internal PhD students.
- No articles in proceedings of A* conferences.
- The number of citations is low compared to elite academics in the area of database systems.