Curriculum Vitae

# Assoc. Prof. Dr. Jan Sedmidubský



## Personal Information

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| Born: | 1982, Mostiště, Czech Republic |
| Address: | Uhřínov, Vysočina, Czech Republic |
| Contact: | sedmidubsky [at] gmail.com |

## Education

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| 2022: | FI MU[1] – habilitation in the field "Informatics" (degree doc.) |
| 2006–2011: | FI MU – postgraduate programme "Informatics" (degree Ph.D.) – evaluated as excellent |
| 2008: | FI MU – advanced rigorous examination in programme "Informatics" (degree RNDr.) |
| 2004–2006: | FI MU – master programme "Applied Informatics" (degree Mgr.) |
| 2001–2004: | FI MU – bachelor programme "Applied Informatics" (degree Bc.) |
| 1994–2001: | Gymnázium Velké Meziříčí (High school) |

## Work Experience

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| 7/2015–now: | Scientific researcher (FI MU) |
| 2009–6/2015: | Research and development worker (FI MU) |
| 2002–2011: | Analyst and programmer (external cooperation for commercial companies) |

## Awards

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| 2017: | co-author of publication "A Real-Time Annotation of Motion Data Streams" awarded as the best student paper at the 19th International Symposium on Multimedia (in Taiwan) |
| 2016: | co-author of publication "Building a Web-scale Image Similarity Search System" evaluated as excellent within the Czech publication evaluation programme "Pilíř II" |
| 2014: | award for an excellent presentation at the European conference "Analytical Prague" |
| 2011: | Rector's award at Masaryk University for distinguished dissertation thesis "Self-organizing Similarity Search: The Social Network Approach" |
| 2011: | Dean's award at FI MU for distinguished dissertation thesis "Self-organizing Similarity Search: The Social Network Approach" |
| 2008: | member of the team which was awarded by the prestigious *IBM Shared University Research (SUR) Award* for the "Web-scale Similarity Search in Multimedia Data" project |

## Invited Talks & Tutorials

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| 2019: | "Similarity Search in 3D Human Motion Data" – tutorial at the ACM International Conference on Multimedia Retrieval (ACM ICMR); Ottawa, Canada |
| 2018: | "Similarity-Based Processing of Motion Capture Data" – tutorial at the $A^*$ ACM International Conference on Multimedia (ACM MM); Seoul, South Korea |
| 2018: | "Advanced MoCap Data Processing" – a 3-hour invited talk at the prestigious ESMAC 2018 international conference |
| 2014: | "Face and Motion Retrieval for Security Applications" – invited talk at the Europol European conference "Analytical Prague" |

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[1]Faculty of Informatics, Masaryk University, Brno, Czech Republic

## Scientific and Research Activities

Areas of interest: similarity search, content-based processing of multimedia and motion capture data, deep neural networks, databases, information systems

Projects:
FI MU – cooperation on **2** European, **7** scholarly, **5** application-oriented, and **2** educational projects; selected projects:

- "Diagnosis of Dyslexia using Eye-Tracking and Artificial Intelligence" (No. TL05000177); Technology Agency of the Czech Republic (TAČR) – ÉTA; 5/2021–12/2023
- "Improving Treatments in Cerebral-Palsy Children using Artificial Intelligence" (No. MUNI/G/1585/2019); Masaryk University – interdisciplinary projects; 3/2020–12/2022
- "Searching, Mining, and Annotating Human Motion Streams" (No. GA19-02033S); Czech Science Foundation (GAČR); 2019–2021
- "Center of Excellence on Multi-modal Data Interpretation on a Very Large Scale" (No. GBP103/12/G084); GAČR – projects to promote excellence in basic research; 2012–2018
- "Efficient Searching in Large Biometric Data" (No. VG20122015073); Ministry of the Interior of the CR – Security Research for the Needs of the State 2010—2015; 2012–2015
- "A Self-organizing Similarity Search System for Multimedia Data" (No. MUNI/E/0066/2009); Masaryk University – Rector's programme to support MU student's creative work; 2009–2010
- "Search In Audio Visual Content Using Peer-to-peer Information Retrieval" (No. EU IST FP6 045128); EU – 6th Specific RTD Programme; 12/2006–5/2009

Publications:
45+ research publications (+6 software outputs)[2], 500+ citations in Google Scholar (h-Index: 12)[3]; selected research publications:

- Sedmidubsky, J., Budikova, P., Dohnal, V. and Zezula, P.: Motion Words: A Text-like Representation of 3D Skeleton Sequences. *42nd European Conference on Information Retrieval (ECIR)*, Springer, pp. 527–541, 2020.
- Sedmidubsky, J., Elias, P., Zezula, P.: Searching for Variable-Speed Motions in Long Sequences of Motion Capture Data. *Information Systems*, 80(Feb), pp. 148–158, 2019.
- Carrara, F., Elias, P., Sedmidubsky, J. and Zezula, P.: LSTM-Based Real-Time Action Detection and Prediction in Human Motion Streams. *Multimedia Tools and Applications*, 78(19), pp. 27309–27331, 2019.
- Sedmidubsky, J., Elias, P., Zezula, P.: Effective and efficient similarity searching in motion capture data. *Multimedia Tools and Applications*, 77(10), pp. 12073–12094, 2018.
- Batko, M., Falchi, F., Lucchese, C., Novak, D., Perego, R., Rabitti, F., Sedmidubsky, J., Zezula, P.: Building a Web-scale Image Similarity Search System. *Multimedia Tools and Applications*, 47(3), pp. 599–629, 2010.

Presentations:
20+ research presentations at international forums (e.g., in USA, Taiwan, Canada, Japan, Russia, Malaysia, Mexico, South Korea, Germany, Scotland, Greece or Spain)

## Pedagogical Experience

2016–now: FI MU – teaching course "Advanced Search Techniques for Large Scale Data Analytics"

2006–now: FI MU – teaching practices in "Database Systems"

2007–2009: Support Center for Students with Special Needs, Brno, Czech Republic – teaching course "Database Systems" for stone-deaf and blind students

2006–now: FI MU – supervision of bachelor/master students, consultant of **4** Ph.D. students; selected outcomes:

- 2020: Petr Eliáš – Dean's award for a distinguished dissertation thesis
- 2018: Michal Balážia – Rector's award for a distinguished dissertation thesis
- 2016: Jakub Valčík – dissertation thesis evaluated as excellent
- 2013: Zuzana Zatrochová – Dean's award for bachelor thesis
- 2013: Michal Balážia – Swedish embassy award for master thesis
- 2012: Lukáš Holecy – Dean's award for bachelor thesis

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**Other Skills**

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| Languages: | • Czech (native), English (very good), German (basic knowledge) |
| Systems & DBs: | • analysis, design, implementation, testing, and deployment of applications |
| | • analysis and design of database systems – relational and object models |
| | • management and optimization of database systems and SQL queries |
| Coding: | • Java, Spring, Hibernate, PostgreSQL, Delphi |
| | • development of applications, distributed systems, search algorithms, and user interfaces |
| | • training deep neural-network models |
| Licenses: | • driving license "B" |

doc. RNDr. Jan Sedmidubský, Ph.D.
In Uhřínov, 01 January 2022