

Masaryk University	
Faculty	Faculty of Informatics
Procedure field	Informatics
Applicant	RNDr. Jan Sedmidubský, Ph.D.
Applicant's home unit, institution	Faculty of Informatics, Masaryk University
Habilitation thesis	Content-Based Processing of Human Motion Data
<u>Board members</u>	
Chair	prof. RNDr. Ivana Černá, CSc. <i>Faculty of Informatics, Masaryk University</i>
Members	prof. RNDr. Roman Ďurikovič, PhD. <i>Comenius University in Bratislava, Slovakia</i> prof. Ing. Adam Herout, Ph.D. <i>FIT VUT v Brně</i> doc. RNDr. Barbora Kozlíková, Ph.D. <i>Faculty of Informatics, Masaryk University</i> Univ.-Prof. Dr. Tobias Schreck, M.Sc. <i>Graz University of Technology, Austria</i>

Evaluation of the applicant's scholarly/artistic qualifications

For the evaluation of the applicant's scientific contribution, the Board has considered all the materials submitted by the applicant as well as publicly available data about the applicant's scientific activities. The applicant has published as co-author 7 journal articles indexed in the WoS database. The list of publications also includes 36 papers in proceedings of refereed international conferences. The CORE rank of these conferences ranges mostly between B and sometimes C; especially there are at least 4 conferences with rank A. On top of that, there is one publication as a chapter in book publication and 6 software products (out of these, 3 are publicly available). In most cases, the publications have a small number of authors (up to 4), from which the committee concludes that the contribution of the applicant is significant in most cases (though all publications but 4 have the same co-author).

The scientific output of the applicant is also internationally accepted. The number of citations to the applicant's publications is up to 150 (excluding self-citations). The most cited paper has 74 citations (excluding self-citations); most of the citations are in databases WoS and Scopus.

The applicant participated as a team member in a couple of research projects: two European projects (SAPIR and Network of Excellence on Digital Libraries), 5 projects of the Czech Science Foundation (GAČR), one project of the Ministry of Education (Centre of Excellence). Moreover, he participated in educational and university projects. He gave two invited talks at ESMAC (Prague, 2018) and Analytical Prague (2014) conferences and two tutorials at renowned conferences ACM Multimedia and ACM ICMR.

The applicant has no direct experience with placement in another institution. The applicant reports no services as a member of a program committee nor editorial Board of journals. The Board finds the volume of applicant's activities in these directions as minimal.

Conclusion: The applicant's scholarly/artistic capabilities **meet** the requirements expected of applicants participating in a habilitation appointment procedure in the field of Informatics.

Evaluation of the applicant's pedagogical experience

The applicant Jan Sedmidubský received his PhD. In Computer Science in 2011. Since 2009 he has been employed as a Research and development worker (2009 – 6/2015) and Scientific researcher (7/2015 -present) at the Department of Machine Learning and Data Processing, Faculty of Informatics, Masaryk University.

The applicant has taught several subjects since 2006. These include 5 semesters of lectures of *PA212 Advanced Search Techniques for Large Scale Data Analysis* (lectures conducted together with prof. Pavel Zezula) and 2 semesters of lectures of *PB154 Database Systems* (lectures conducted by prof. Pavel Zezula, the applicant taught the course for students with special needs), 14 semesters of class exercises of *PB154 Database Systems* (out of these 3 semesters also for students with special needs). As for the regular teaching, the committee finds the volume of regular teaching conducted by the applicant as minimal and on the bottom level of satisfaction for the associate professor position. The volume roughly corresponds to three years of the FTE teaching load of an assistant professor according to the local standards. However, this load spans over 15 years and all teaching activities were concentrated into two subjects.

The applicant has supervised 9 Bachelor' thesis and 8 Masters' thesis. There are also three Masters' thesis in which the applicant played the role of consultant. These numbers are good, the count is on average 2 theses per year, and show the applicant's readiness for promotion to the Associate Professor level.

The Board has also evaluated the applicant's public lecture entitled *Action Recognition in Human Motion Data*, which took place on October 15, 2021, partly online at FI MU (cf. a separate report). The lecture demonstrated the applicant's technical and presentations skills, and his knowledge of the area.

Conclusion: The applicant's pedagogical capabilities **meet** the requirements expected of applicants participating in a habilitation appointment procedure in the field of Informatics.

Habilitation thesis evaluation

The applicant has submitted a habilitation thesis entitled *Content-Based Processing of Human Motion Data*. The thesis takes the form of a collection of articles that is accompanied by an extended introduction.

The Board has selected and invited the following three reviewers on the Habilitation thesis.

Prof. Sonia Bergamaschi (Universita degli Studi di Modena a Reggio Emilia)

Prof. Tomáš Skopal (MFF UK Praha)

Assoc. Prof. Klaus Schoffmann (Alpen-Adria-Universität Klagenfurt).

All three reviews are generally positive on the quality of the thesis. The Board would like especially highlight the following part of the reviews:

(Prof Bergamaschi) The habilitation thesis consists of a collection of the ten most significant previously published scholarly works and of a commentary clearly and extensively explaining the problem faced, the methods and techniques adopted. Notably, the candidate clarifies the evolution of his research activity on the very complex problem of modelling human mobility data up to the achievement of significant scientific results.

(Assoc. Prof. Klaus Schoffmann) Dr. Sedmidubský ... has proposed several novel methods that provide significant contributions to fundamental research questions in this field. In particular, he has performed substantial research on the topic of 3D human skeleton processing and published a significant amount of papers in the areas of (i) metric learning, (ii) gait recognitions, (iii) actions recognition, (iv) subsequence search, and (v) action detection. The research works of Jan Sedmidubský propose novel methodologies for effective and efficient processing of motion data, to be used content analysis and content-based search/retrieval.

(Prof. Skopal) The whole work is compiled as a coherent series of consecutive works, which together solve the issue comprehensively in its entirety. ... In terms of methodology, approaches, and quality of results, I must appreciate the originality of the approaches and, at the same time, the effort to integrate the research with state-of-the-art results from other areas, especially in the field of machine learning. All results are verified experimentally.

The Board members carefully evaluated all the reviews of the experts and reached a positive overall conclusion about the quality of the habilitation theses.

Conclusion: The applicant's habilitation thesis **meet** the requirements expected of habilitation theses in the field of Informatics.

