Evaluation Board Decision on the Nomination for Appointment to Professor

Masaryk University	
Faculty	Faculty of Informatics
Procedure field	Informatics
Applicant	doc. Dr. rer. nat. RNDr. Mgr. Bc. Jan Křetínský, Ph.D.
Applicant's home unit, institution	Technical University of Munich, Germany
Board members	
Chair	prof. RNDr. Daniel Kráľ, Ph.D., DSc.
	Faculty of Informatics, Masaryk University
Members	prof. RNDr. Jiří Barnat, Ph.D.
	Faculty of Informatics, Masaryk University
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	Palacký University Olomouc
	prof. RNDr. Jiří Sgall, DrSc.
	Charles University, Faculty of Mathematics and Physics

Evaluation of the applicant's scholarly/artistic qualifications

The research of Jan Křetínský concerns various topics related to formal verification. In particular, he has been extending the classical verification settings to the probabilistic setting, employing machine learning techniques in verifications, using verification tools in neural networks, and contributing to the theory of automata working with infinite words.

The results obtained by Jan Křetínský form a subject of 13 research papers published in prestigious journals and 73 extended abstracts published in computer science conference proceedings listed in Scopus (out of his 13 journal papers, 11 are stemming from conference papers). The highlight among his journal publications is his work on translation of formulas in linear temporal logic (LTL) to deterministic automata on infinite words, which was published in the Journal of the ACM, the most prestigious journal in computer science. The extended abstracts containing his work appeared in proceedings of the top conferences in the area of his research, which include 13 contributions at CAV, 11 at CONCUR, 5 at LICS and 6 at TACAS conferences; his work related to artificial intelligence has appeared in the proceedings of the UAI conference. According to Scopus, the work of Jan Křetínský has been cited 591 times (excluding self-citations even from the coauthors); his current citation count according to Google Scholar is 1917 (however, the citation counts given by Google Scholar tend to be inflated). The number of citations of the work of Jan Křetínský has a very clear increasing tendency during the last five years.

The research record of Jan Křetínský clearly demonstrates his ability to conduct research at the top world level. In the quantitative terms, his research record significantly exceeds the minimum requirements set by the guidelines approved for computer science professorship appointment procedures, which require 40 publications with at least 15 in journals or conferences of good standing, and 100 non-self citations. It should be noted that the number of the citations of his results demonstrates the very high quality of his results.

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

Evaluation of the applicant's pedagogical experience

Jan Křetínský has been involved in teaching at the university level since 2007. Between 2007 and 2012, when he was a master student at the Masaryk University and later a PhD student at the Technical University of Munich, he was in charge of support classes for different lectures in the computer science curricala of the two universities. Their topics ranged from foundations of mathematics, linear algebra and discrete probability to computational logic, computational complexity and automata theory.

Jan Křetínský has lectured university courses since 2015, when he joined the Technical University of Munich as a tenure-track assistant professor (W2 level). In the period between 2015 and 2021, he lectured seven different courses, some multiple times; this amounts to the total experience of having taught 23,5 semester courses. The courses that he has lectured include introductory theoretical computer science courses and master level courses on algorithms, automata theory and computational complexity as well as on advanced topics in model checking and verification; he has also developed a software tool for tutoring the automata theory. He has also been responsible for a number of research seminars at the Technical University of Munich (amounting in total to 10 semesters). The good level of the teaching abilities of Jan Křetínský has also been demonstrated during the public lecture delivered as a part of the professor appointment procedure.

Jan Křetínský has been supervising a large number of bachelor, master and PhD theses. In particular, 15 bachelor students, 9 master students and 2 PhD students defended their theses under his supervision, and additional 1 master student and 7 PhD students are working under his supervision (two of the PhD students should submit their theses in April 2022). It should be noted that several of the bachelor and master theses were based on results accepted for presentation at respected computer science conferences such as CAV, CONCUR, TACAS and UAI. The two PhD students that finished their PhDs under his supervision continued their careers at highly respected institutions: one became a postdoc at IST Austria and the other a researcher at Fraunhofer IKS.

The teaching record of Jan Křetínský demonstrates his ability to lecture a broad range of topics of theoretical computer science and supervise bachelor, master and PhD students in a way leading to results of a very high quality. In particular, the length of his teaching experience at the university level (11 years) well exceeds the minimum of 5 years required by the guidelines approved for computer science professorship appointment procedures and the number of finished PhD students meets the required minimum; however, it should be noted that he has a very strong record of supervising high quality bachelor and master theses and two additional PhD students should finish their PhDs in the near future.

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

Evaluation of the applicant as a respected and recognized scholarly or artistic figure in a given field

Jan Křetínský currently holds a permanent associate professor position (at W3 level) at the Technical University of Munich, one of the top institutions in computer science worldwide. He is a highly visible young researcher in the domain of logic and verification. His position in the community is documented by his extensive service in organizing and program committees of top venues in the areas of his research: he serves as the General Chair of ETAPS this year and has served in 41 program committees and 11 organizing committees (counting serving in the same conference committee in several years multiple times); these numbers are quite extra-ordinary given that he obtained his PhD less than 10 years ago. The overall quality of his research is documented by the award of two DFG grants in the role of the PI (he participated in additional two DFG projects as a co-PI) and receiving the A score (the highest possible score) for his ERC Staring grant applications, which was however not funded due to ERC budget constraints. The impact of his research work is further evidenced by a large number of citations of his research work (particular details have been discussed earlier), which is underscored by a long list of invitations to deliver talks on his research. The very high standing in the international research community is further documented by the highly positive letters by Professors Joost-Pieter Katoen, Orna Kupferman and Kim G Larsen, all world leaders in the area of his research, who supported his application for the professorship.

Conclusion: The applicant **is** a respected and recognized scholarly figure in his/her field. The applicant **has** made a significant contribution to the development of his/her field. The applicant **constitutes** a leading figure in his/her field of scholarship or research.

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Evaluation Board Decision on the Nomination for Appointment to Professor

Secret vote results

Voting took place: electronically

Number of board members		5
Number of votes cast		5
of which	in favour	5
	against	0

Board decision

Based on the outcome of the secret vote and following an evaluation of the applicant's scholarly or artistic qualifications, pedagogical experience and role as a respected and recognized scholarly or artistic figure, the board hereby submits a proposal to the Scientific Board of the Faculty of Informatics of Masaryk University to **appoint the applicant professor** of Informatics.

In Brno on 29.03.2022

prof. RNDr. Daniel Kráľ, Ph.D., DSc. ....