



MATEMATICKO-FYZIKÁLNÍ
FAKULTA
Univerzita Karlova

Zápis o obhajobě disertační práce

Akademický rok: 2021/2022

Jméno a příjmení studenta: Ing. Pavel Koupil
Identifikační číslo studenta: 48771160

Typ studijního programu: doktorský
Studijní program: Informatika - Softwarové systémy
ID studia: 628606

Název práce: Modelling and Management of Multi-Model Data
Pracoviště práce: Katedra softwarového inženýrství (204. • 32-KSI)
Jazyk práce: angličtina
Jazyk obhajoby: čeština
Školitel: doc. RNDr. Irena Holubová, Ph.D.
Oponent(i): Dr.-Ing. habil. Meike Klettke

prof. Ing. Michal Krátký, Ph.D.
Datum obhajoby: 30.09.2022 **Místo obhajoby:** Praha
Termín: řádný

Průběh obhajoby: The defense was organized in a hybrid manner (a part of the committee attended online using the platform Zoom). The defense started by introduction of the candidate and his work. The committee chair stated that all mandatory requirements have been satisfied. Then the supervisor of the candidate summarized her review and the overall work of the candidate during his studies. Then the candidate presented his work and results of his research. The presentation was started with motivations and goals of the work. Then the overall proposed approach was described (i.e., application of the category theory for multi-model database modeling). The presented work has been published in 14 publications (two of them in international journals with impact-factor). Individual achieved (sub-)results were also presented (schema description, inference, transformation, designed tools, etc). The presentation concluded with plans for future work.
The defense continued with the reviews.
First, prof. Klettke presented her review (in general a positive one). She raised several questions in the review, specifically the following: (1) Whether there are different ways of representing a schema. (2) Which heuristics are used in the approach. (3) How the resulting schema is generated. (4) What are the proposed AI methods towards the self-adaptive framework. (5) Is there a particular advantage of using the category theory. The candidate satisfactorily answered all the questions.
Then, prof. Krátký presented his review (also in general a positive one). He raised the following questions: (1) How are the particular publications related to the thesis. (2) Are the presented tools publicly available. (3) Explanation of differences between two different

category-theory-related approaches. (4) Why the particular schema inference approaches have been selected. (5) Is it possible to quantify the big data size. The candidate satisfactorily answered all the questions.

After the reviews, the open discussion started, in which the following questions were raised: (1) Have your tools been used in practice. (2) Is it possible to use the proposed schemas with a modified version of UML. (3) Isn't the proposed model too simple for future usage. (4) Are not the schema simplifications too limiting for machine processing of models. (5) How the selected examples are used for evaluation of the approach. (6) Why there is an exponential curve in the performance evaluation graphs. The candidate answered all the questions.

Then the public part of the defense finished, and a closed private meeting of the committee started. The committee decided on voting by "rising a hand". All the votes were positive ones. The candidate successfully defended his thesis and was awarded the Ph.D. title.

Výsledek obhajoby:	prospěl/a (P)	
Předseda komise:	doc. RNDr. Pavel Parízek, Ph.D.
Členové komise:	prof. RNDr. Tomáš Skopal, Ph.D.
	doc. RNDr. Vlastislav Dohnal, Ph.D.
	doc. RNDr. Petr Hnětynka, Ph.D.
	doc. RNDr. Irena Holubová, Ph.D.
	prof. Ing. Michal Krátký, Ph.D.
	doc. Mgr. Martin Nečaský, Ph.D.