

Review of Doctoral Thesis

Author of the Thesis: Ing. Pavel Koupil

Title: Modelling and Management of Multi-Model Data

Author of the Review: Doc. RNDr. Irena Holubová, Ph.D. (thesis supervisor)

The thesis focuses on the problem of management of multi-model data, namely its conceptual design, cross-model transformation, multi-model schema inference, and evolution management. The core idea is based on the exploitation of category theory which enables a unified representation of multi-model data and efficient processing.

The novelty and research contributions of the proposals are proven by several high-quality publications, including 2 impacted journal papers and several papers published at international conferences of CORE A rank. The proposed solutions were described formally, implemented, and experimentally tested, resulting in several academic publicly available software prototypes (*MM-cat*, *MM-infer*, and *MM-evocat*).

The text of the thesis consists of 5 selected papers described in the introductory commentary and summarised in the conclusion. The author has studied and used an appropriate number of bibliography sources quoted in the thesis. The selected related works are in detail compared with the author's proposals in the introductory commentary as well.

In general, the structure of the text conforms to the principles and requirements of the structure of a scientific thesis. The author proved the ability to prepare a sound and explanatory research text describing the solutions of the selected problem with all appropriate parts. The publication results are more than sufficient concerning the respective research level. Hence, in my opinion, the thesis of Pavel Koupil undoubtedly fulfils all the conditions for gaining a Ph.D. degree in Computer Science; therefore, it is recommended.

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