

Review Report for the Doctoral Thesis

„From textual specification to formal verification“

by Viliam Šimko

TOPIC

The subject of the thesis "From textual specification to formal verification" by Viliam Šimko, falls in the field of software engineering. Within the field of software engineering it is strongly related to requirements engineering and specification. The subject addresses a real world problem, namely how to start from informal representations of requirements (in the form of use cases) and how to check, whether or not certain temporal constraints are fulfilled by such a representation and how to derive domain models from informal representations. This problem is relevant (conflicting and changing requirements are still one of the main reasons for failing software development) and difficult (as nicely discussed by the author, there are a number of related approaches which do address, but only partially solve, the problem).

SCIENTIFIC CONTRIBUTION

Despite I do not believe that the discussed problem is completely solved (which would be, by far, asked too much from a single doctoral thesis), the author clearly contributes to the state of research. The formulation of temporal constraints, their usage by model checkers and the generation of domain models are new and useful. A more thorough validation of the developed methods and tools could be fruitful and would even more convincingly show the applicability of the work, but the examples shown absolutely suffice to demonstrate that the results obtained by Viliam Simko are useful.

APPLICATION AREAS

I believe that the work can be used in the context of specifying information systems as well as other types of software. Looking at the increasing size and relevance of mobile software systems, I can easily imagine that mobile software is an arena where FOAM can be used, too.

SUMMARY

The thesis shows a clear contribution to the state of the art in software engineering in general and to requirements engineering / specification in particular. The author clearly shows what his personal achievements are and properly contrasts these achievements with related work and work of team members. Summing this up, there remains no doubt that the author has strong talents in doing creative scientific work which, in addition, matches with real world problems.

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Prof. Dr. Volker Gruhn