Posudek diplomové práce

Matematicko-fyzikální fakulta Univerzity Karlovy

Autor práce	Harun Ćerim
Název práce	Extending C# with a Library of Functional Programming Concepts
Rok odevzdání	2020
Studijní program	Informatika **Studijní obor** Softwarové a datové inženýrství

Autor posudku	Doc. RNDr. Pavel Parízek, Ph.D.	**Role**	Vedoucí
Pracoviště	Katedra distribuovaných a spolehlivých systémů		

Text posudku:

The topic of this master thesis, which was to extend C# with better support for functional programming concepts, was proposed by the student himself. My understanding is that he picked the topic based on his experience as a developer in a software company and his limited satisfaction with some aspects of writing code in languages such as C#.

Author shows that he has a sufficient knowledge of both theoretical foundations of functional programming (e.g., monads) and useful features of popular languages such as Haskell. In this project, he designed and implemented the Funk library that extends C# with new types (e.g., Record and Maybe), functional prelude and many useful extension methods that enable writing of concise and readable code. The quality of the implementation part is very high - the source of the Funk library is readable, well organized, and it is accompanied with a large test suite. In his case study, author shows on a reasonably large software project that usage of the Funk library helps to reduce code size and complexity.

Text of the master thesis is nicely written as well. Structure of the text may seem a little bit unusual for a master thesis, but it provides all the important and necessary information. It contains many code examples and figures that illustrate main concepts provided by Funk.

I also want to emphasize that the nature of the whole project has been exploratory to a large degree. The student author had to find the "sweet spot" with respect to design of the library (especially the APIs towards client programs), which required multiple iterations of changes to the APIs, based on the experience gained when testing specific features and when porting the software projects used as case studies to the Funk library.

Overall, I do not have any significant objections and consider the work as worthy of the Master's degree.

Práci doporučuji k obhajobě.

Práci nenavrhuji na zvláštní ocenění.

Pokud práci navrhujete na zvláštní ocenění (cena děkana apod.), prosím uveďte zde stručné zdůvodnění (vzniklé publikace, významnost tématu, inovativnost práce apod.).

Datum 4.9.2020 **Podpis**