THESIS REVIEWER'S REPORT

I. IDENTIFICATION DATA

Thesis title:	System for Evaluation of Model-based UserInterface Testing Techniques Effectiveness
Author's name:	Bc. Zdeněk David
Type of thesis :	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Computer Graphics and Interaction
Thesis reviewer:	Ing. Ondřej Lukáš
Reviewer's department:	Department of Computer Science

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment **ordinarily challenging**

How demanding was the assigned project?

The thesis focuses on the design of a system for the evaluation of model-based testing solutions, and as such, it requires a detailed understanding of a wide range of testing methods, the automation of the testing process, its evaluation, and design. It primarily focuses on the effectiveness evaluation of the Combinatorial Interaction testing within UI testing.

Fulfilment of assignment **fulfilled**

How well does the thesis fulfil the assigned task? Have the primary goals been achieved? Which assigned tasks have been incompletely covered, and which parts of the thesis are overextended? Justify your answer.

The presented thesis covers the guidelines specified in the assignment well. It covers the theoretical background of automated testing, design of the experiment for comparison of the efficiency of mode-based testing approach and the evaluation of the results.

Methodology **correct**

Comment on the correctness of the approach and/or the solution methods.

The presented work shows a correct methodology with an adequate evaluation of state-of-the-art Model-based Testing techniques, the design of multiple case studies, data collection, and assessment of the results. Some of the theoretical concepts, such as Adequacy models and Test evaluation, could be explained in more in-depth. The result analysis focuses only on a subset of metrics without a proper explanation for their selection. However, some of the questions are addressed in the Limitations of the Study.

Technical level **C - good.**

Is the thesis technically sound? How well did the student employ expertise in the field of his/her field of study? Does the student explain clearly what he/she has done?

The presented thesis shows the student's expertise in the area of SW testing methods, automated testing, and their evaluation. Furthermore, the work of the student is well explained and differentiated from the previous work in his area. The main limitation of the thesis is the low number of participants in the case studies. While this issue is acknowledged in the Threats to Validity, its impact on the significance of the presented results of the research remains unclear. Furthermore, a deeper analysis of the collected data could provide better insights into the impact of MBT testing solutions.

Formal and language level, scope of thesis **C - good.**

Are formalisms and notations used properly? Is the thesis organized in a logical way? Is the thesis sufficiently extensive? Is the thesis well-presented? Is the language clear and understandable? Is the English satisfactory?

The presented thesis is well-written, understandable, and has a good structure. However, some parts (sections 2.3 2.7, 3.3.) would benefit from better and more formal explanations. In particular, I would suggest adding the formulas when explaining the evaluation criteria. Statements such as "*This metric, which can be derived from other metrics***"** are not sufficiently explained or referenced. Similarly, clearly stating the objective and metric used in the description of the

experiment design would help the reader and increase the understandability of the thesis. The quality of Figure 4.1. is low in the printed version of the text.

Selection of sources, citation correctness	**B - very good.**
Does the thesis make adequate reference to earlier work on the topic? Was the selection of sources adequate? Is the student's original work clearly distinguished from earlier work in the field? Do the bibliographic citations meet the standards?	
The student's work is clearly separated from the previous work. The bibliography meets the academic requirements. While there are few parts, for which better and more comprehensive support from previous work would be beneficial (e.g. The average ROI of automated testing, section 2.7.), overall the thesis is well referenced using adequate sources.	

Additional commentary and evaluation (optional)
Comment on the overall quality of the thesis, its novelty and its impact on the field, its strengths and weaknesses, the utility of the solution that is presented, the theoretical/formal level, the student's skillfulness, etc.
Please insert your comments here.

III. OVERALL EVALUATION, QUESTIONS FOR THE PRESENTATION AND DEFENSE OF THE THESIS, SUGGESTED GRADE

Summarize your opinion on the thesis and explain your final grading. Pose questions that should be answered during the presentation and defense of the student's work.

The presented thesis shows the student's ability to conduct original research. It is well-written and structured logically. The theoretical part of the thesis covers the most important topics related to the evaluation of the testing techniques but lacks details in several parts. The experiments conducted and described in the thesis are sound and well-designed. However, some questions arise due to the limited number of participants in the case studies. The results of the experiments are presented understandably, but their analysis could be improved both in scope and detail.

For the defense, I proposed the following questions for the student:

1) Have you considered the severity of the defect detected by the traditional methods and when using the CIT? If yes, what were your findings of the impact of CIT? If not, why?

2) Can you comment on the participant selection process in the case studies? What was the criteria? How were the participants split in the groups for the Combinatorial Interaction Testing in Usability Studies? How can this affect the results of the study?

The grade that I award for the thesis is **C - good.**

Date: **4.6.2024** Signature: