



# Review report of a final thesis

**Reviewer:** doc. Ing. Ivan Šimeček, Ph.D.  
**Student:** Naoki Yoshida  
**Thesis title:** Enhancing Manually Guided Fuzz Testing with Fuzz Shrinking for EVM Smart Contracts  
**Branch / specialization:** Information Security 2021  
**Created on:** –

## Evaluation criteria

### 1. Fulfillment of the assignment

- ▶ [1] assignment fulfilled
- [2] assignment fulfilled with minor objections
- [3] assignment fulfilled with major objections
- [4] assignment not fulfilled

The assignment was fulfilled.

### 2. Main written part 72/100 (C)

The text is concise, and I find its structure confusing.  
In the first three chapters, I miss pictures or illustrative examples for a better understanding of the problem.  
In algorithms "when" block ends with "end catch".  
Some shortcuts (e.g., UTXO) are missing in "List of abbreviations."  
There is no basic list of tools that support fuzzy shrinking.  
The evaluation does not include any comparison with competing tools/approaches.

### 3. Non-written part, attachments 90/100 (A)

Unique SW product for a non-trivial problem, the overall quality of implementation is high.

### 4. Evaluation of results, publication outputs and awards 70/100 (C)

The work can be very useful, but since no comparison with competing tools/approaches is provided, it is difficult to assess the overall benefit.

## The overall evaluation

75 /100 (C)

The unique topic, interesting work, but with an average quality of the written part. I grade this work with a C.

## Questions for the defense

- 1) In Section 3.5, it is stated, "Fuzz Shrinking is a technique that reduces the test case to the minimal form that can trigger the issue.". Did you somehow evaluate the minimality of your output?
- 2) I don't understand the practical aspect of this thesis. The time for processing the original output is significantly reduced after Fuzz Shrinking. On the other hand, the time required for Fuzz Shrinking (Shrinking Time) is much larger than the processing time.

## **Instructions**

### **Fulfillment of the assignment**

Assess whether the submitted FT defines the objectives sufficiently and in line with the assignment; whether the objectives are formulated correctly and fulfilled sufficiently. In the comment, specify the points of the assignment that have not been met, assess the severity, impact, and, if appropriate, also the cause of the deficiencies. If the assignment differs substantially from the standards for the FT or if the student has developed the FT beyond the assignment, describe the way it got reflected on the quality of the assignment's fulfilment and the way it affected your final evaluation.

### **Main written part**

Evaluate whether the extent of the FT is adequate to its content and scope: are all the parts of the FT contentful and necessary? Next, consider whether the submitted FT is actually correct – are there factual errors or inaccuracies?

Evaluate the logical structure of the FT, the thematic flow between chapters and whether the text is comprehensible to the reader. Assess whether the formal notations in the FT are used correctly. Assess the typographic and language aspects of the FT, follow the Dean's Directive No. 52/2021, Art. 3.

Evaluate whether the relevant sources are properly used, quoted and cited. Verify that all quotes are properly distinguished from the results achieved in the FT, thus, that the citation ethics has not been violated and that the citations are complete and in accordance with citation practices and standards. Finally, evaluate whether the software and other copyrighted works have been used in accordance with their license terms.

### **Non-written part, attachments**

Depending on the nature of the FT, comment on the non-written part of the thesis. For example: SW work – the overall quality of the program. Is the technology used (from the development to deployment) suitable and adequate? HW – functional sample. Evaluate the technology and tools used. Research and experimental work – repeatability of the experiment.

### **Evaluation of results, publication outputs and awards**

Depending on the nature of the thesis, estimate whether the thesis results could be deployed in practice; alternatively, evaluate whether the results of the FT extend the already published/known results or whether they bring in completely new findings.

### **The overall evaluation**

Summarize which of the aspects of the FT affected your grading process the most. The overall grade does not need to be an arithmetic mean (or other value) calculated from the evaluation in the previous criteria. Generally, a well-fulfilled assignment is assessed by grade A.