

Review of Master's Thesis

Student: Pacura Dávid, Bc.

Title: Hardware Accelerated Digital Image Stabilization in a Video Stream (id 18562)

Reviewer: Orság Filip, Ing., Ph.D., UITS FIT VUT

1. **Assignment complexity** **average assignment**
2. **Completeness of assignment requirements** **assignment fulfilled with enhancements**
The assignment has been extended by implementation and testing of more than one GP-GPU versions of the chosen image stabilization algorithm.
3. **Length of technical report** **in usual extent**
4. **Presentation level of technical report** **90 p. (A)**
The technical report is well written and the presentation level is high. Individual chapters are logically arranged and the scope of the chapters has been chosen properly, too. The text is easily understandable with the exception of some charts presenting results. The numbered system of HW configurations makes it difficult to read the meaning of the charts. The provided speedup numbers are sometimes confusing, because some implementations provide speedup less than 100 %, which means, in case of this thesis, the reference algorithm is not the slowest one (that is unusual).
5. **Formal aspects of technical report** **95 p. (A)**
The formal aspects are at a high level. The weakest point is English, since there are some minor mistakes in the report. Other than that there is not much to complain about and most of the complaints would be minor issues (figure captions are usually centred, its size is too small, etc.).
6. **Literature usage** **100 p. (A)**
The reference list is rich enough and relevant to the topic. The references are cited properly.
7. **Implementation results** **80 p. (B)**
The source code is almost without comments and information about author is missing, which is the main drawback of the implementation. The application could be more verbose to provide some feedback to the user and more specific in what does it need to run (without processing option the application simple does not run with no message). These issues are only minor ones, though.
8. **Utilizability of results**
Results of this project could be usable as a good reference information for decision making at the beginning of a project using digital image stabilization.
9. **Questions for defence**
 - Do you know some other sort of blur, which could not be compensated by the digital image stabilization?
 - How would you compare quality various image stabilization algorithms?
 - Are there any marginal situations (content of the video) that would cause failure of your algorithm?
10. **Total assessment** **90 p. excellent (A)**
Overall, this thesis is very good, but not perfect. The assignment is average, the presentation level is very good with some minor flaws, formally there is no issue at all. The weakest part is the implementation, because the source code is almost not commented and the application is not exactly user friendly. However, the student extended the assignment by adding more parallel versions of the algorithm, which added value to the work and, overall, improved quality of the thesis. Taking all the facts into consideration the final result is "A - excellent".

In Brno 7. June 2016

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