

May 28th, 2018

Re: Chair's review of bachelor's thesis of David Hruša

To whom it may concern,

I'm pleased to provide my evaluation of bachelor's thesis *Interactive Erosion* of David Hruša.

My name is Prof. Ing. Bedrich Benes, Ph.D., and I am a Professor in the Department of Computer Graphics Technology and Computer Science (by courtesy) at Purdue University West Lafayette, Indiana. I have supervised the thesis of David. The advisee has communicated with me regularly, he has provided updates, but also worked more-or-less independently.

The provided thesis is well-structured and it has three main parts: after a brief introduction and problem definition, the author provides description of the related work. The next chapter describes algorithmic and implementation details, and the last part deals with the user testing and validation. The thesis is well-written. I did not find any major problems with English nor structure. It was easy to follow and to understand. All relevant work is cited and documented. Figures are appropriate, legible, and they document the text.

The main focus of the work is in a fast GPU-oriented implementation of various algorithms for terrain erosion and making them available via user interface. The implementation is well-written and combines modern C++ with OpenGL, glm, and CUDA into a consistent and easily understandable framework. Most of the heavy lifting is done in CUDA in sync with OpenGL that speed up the user interaction significantly.

The executable provided with thesis runs without any problems and is very intuitive. The GPU implementation is fast and allows for instantaneous response.

The user study is reasonable and the questions asked validate the interface.

I did not find any issues with the thesis. However, if there is any discussion, I would recommend to focus on the evaluation and the user study. In particular: was there any comparison to similar

systems done? What are the similar systems and how do they implement erosion into terrain editing?

I enjoyed the work of David Hruša and I grade it with 100 points as *excellent*.

Please feel free to contact me if you have any questions.

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