

# Bachelor Thesis Review

Faculty of Mathematics and Physics, Charles University in Prague

**Thesis author** Jaroslav Knotek  
**Thesis title** Procedural terrain modeling using polygonal sketching  
**Year submitted** 2017  
**Study program** Computer Science  
**Study branch** Programming and Software Systems

**Review author** Mgr. Martin Kahoun Advisor  
**Department** Department of Software and Computer Science  
Education

**Overall** good    OK    poor    insufficient

Assignment difficulty		X		
Assignment fulfilled	X			
Total size <span style="float: right;"><i>... text and code, overall workload</i></span>		X		
<p>The goal of the thesis was to implement a software for procedural terrain generation and to explore advanced techniques such as terrain erosion and implement at least one such technique. The author explored the topics of terrain erosion and riverbed generation and chose to implement both approaches. The text is a bit terse but to the point and overall the author did a good job.</p>				

**Thesis Text** good    OK    poor    insufficient

Form <span style="float: right;"><i>... language, typography, references</i></span>	X			
Structure <span style="float: right;"><i>... context, goals, analysis, design, evaluation, level of detail</i></span>		X		
Problem analysis		X		
Developer documentation	X			
User documentation	X			
<p>The work is written in good English, well typed with attention to details such as figure placement etc. I have to commend the author for providing lots of diagrams and figures explaining and showing various parts of the work. For a Bachelor thesis, the author shows adept use of references, although the chosen citation form can be hard to navigate at times. The area explored in the thesis is very actual today with the recent surge of computer games using some form of procedural content. While the procedural generation has been around for three decades, just lately people became interested in presenting user-friendly software utilizing these methods, yet not many such software packages exist.</p> <p>The problem analysis could have been more in-depth and at least one more available software package could have been explored. On the other hand, the author goes into considerable amount of details in the implementation chapter describing the genesis of the final solution often analysing problems that arose while trying out different approaches - namely the riverbed generation. After reading the implementation chapter, the reader gets sufficient high-level overview of the inner workings of the software with some C# code implementation details deferred to the appendix.</p>				

**Thesis Code**

good    OK    poor    insufficient

Design	<i>... architecture, algorithms, data structures, used technologies</i>		X		
Implementation	<i>... naming conventions, formatting, comments, testing</i>		X		
Stability			X		

The software is well designed with further development and expansion in mind. At places, the author chose unorthodox solutions to problems (e.g., convolutional brushes implementation), but this should be attributed to the fact that this is his first larger piece of software designed and developed, he certainly gained a lot of experience. The code could have been more thoroughly commented.

In the implementation the author focused on the important tasks and let the 3D rendering, for example, for a 3rd party solution. While sufficiently credited in the source code itself, I would have expected a remark in the code guide contained in appendix A. Regarding the ease of use there's much space left for the improvement and the goals set by the author are ambitious, however, the author is well aware of those facts as noted in the conclusion chapter.

**Overall grade**    Výborně  
**Award level thesis**    Ne

Date            June 11, 2017

Signature