

# Posudek diplomové práce

Matematicko-fyzikální fakulta Univerzity Karlovy

**Autor práce** Erdi Izgi

**Název práce** Framework for Roguelike Video Games  
Development

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**Studijní program** Informatika

**Studijní obor** Počítačová grafika a vývoj počítačových her

**Autor posudku** Mgr. Jakub Gemrot, Ph.D.

**Role** Vedoucí

**Pracoviště** KSVI

## Text posudku:

The aim of the thesis was to create a framework for the development of Rogue-like video games.

As the thesis topic is rather broad, the student provides its grounding in the first two chapters within the text.

The student chooses an engine, Unity3D, for the implementation; introduces a reader to visual scripting; analyzes what counts as a Rogue-like game thoroughly producing a list of key Rogue-like game features. At this point, the text should touch existing Unity assets, which aim at supporting Rogue-like game development. However as there are almost none, it does not pose a problem.

The third chapter contains crucial information about the development using Unity3D. The most important are the use of the component-based design and peculiarities of Unity serialization mechanism, which is one of the core Unity3D mechanisms that de/serializes user-input data. As such, the resulting Roguelike framework implementation is highly affected by its intricacies.

The largest chapter is devoted to the design and implementation of the Rogue-like framework (RLF). The solution itself is built around the custom node-based editor that is extensible and adaptable; in fact, it could be used alone for the creation of any visual scripting tools.

The student presents architectural decisions by critically assessing other options and discussing both benefits and drawbacks of the chosen solution. It is very well written and grounded from the software engineering point of view in the sense that the student is discussing adopted design patterns.

The RLF is then filled with nodes that allow a developer to describe a high-level structure of a Rogue-like game. However, the RLF does not mean to replace the low-level Unity scripting. Rather it is designed as a tool that supports the division of game development roles between programmers and game designers thus fitting the standard game development process.

The intended workflow with the RLF is that 1) programmers create reusable pieces that can make a rogue-like game (e.g., a procedural content generator, a player or an enemy prefabs, a controller, etc.), 2) programmer then implement their RLF wrappers, 3) thus allowing game

designers to compose them using the visual scripting tool.

The drawback of this approach is the inevitable "compile & build" functionality of the RLF that translates the description done within the RLF into Unity game objects within the game scene. If a developer tinkers such a build, all custom changes to generated objects will be lost after another RLF compilation.

Capabilities of the RLF are then demonstrated with the development of a simple Rogue-like game, that is having all previously identified features except the inventory. One might object that the framework is not feature-rich. However, as a supervisor I deem this to be a result of great care that went into the design of the node-based editor and compiler architecture, which are both highly extensible.

Additionally, the text is very well written. The structuring, the text flow or an analysis of architectural decisions are all done with attention to the right amount of details.

Formally, the thesis lacks user documentation (even though a student submitted a video that shows how to use the RLF as a Unity3D plugin) and formal programmer's documentation; however, the fourth chapter contains a lot of references to the source code, even though it is seldom documented.

I recommend the thesis for the defense.

**Práci doporučuji k obhajobě.**

**Práci nenavrhuji na zvláštní ocenění.**

*Pokud práci navrhuje na zvláštní ocenění (cena děkana apod.), prosím uveďte zde stručné zdůvodnění (vzniklé publikace, významnost tématu, inovativnost práce apod.).*

**Datum** 22. ledna 2018

**Podpis**