MUNI FI

Faculty of Informatics

Reader's Master Thesis Assessment Report

Title:	Portals in Godot Engine
Author:	Bc. Vojtěch Struhár
Description:	Study and describe the area of portals in games. Focus on rendering (issues with latency, recursive portals) and interactions with the scene (dynamic creation of portals, physics subsystem). Design and implement an add-on for the Godot game engine, allowing setup and rendering of portals in games. The add-on will support the following: • Interactive configuration of portals integrated into the engine editor. • Seamless, real-time rendering of portals at runtime. • Teleportation of the player and objects, including physics properties (e.g., inertia).
Supervisor:	Mgr. Jiří Chmelík, Ph.D.
Reader:	Mgr. Adam Štěpánek

This thesis deals with the topic of "portals", a game mechanic using which a player can be instantly transported through the game world, creating the illusion that space bends in impossible ways. The thesis presents existing implementation techniques and discusses their technical issues and limitations. It also goes into detail on how the implementation part of the thesis, a portal plugin for the Godot engine, was designed and implemented.

I found the thesis well-written and structured, with only minor language and typographical issues such as occasional use of informal English and incorrect quotation marks.

The implemented plugin is functional and easy to use. I appreciate that the student took care to implement it in not only the most effective and elegant way currently available to the engine, but also in a way that fits very nicely with the rest of the engine's ecosystem. This is apparent throughout the plugin's development. The early design decision to use GDScript instead of C# ensures the plugin's broad availability. It also includes a number of quality-of-life features such as editor integration and built-in documentation. I am especially pleased that the student went to the extent of publishing his plugin in Godot's Asset Library, making it readily available to all Godot users.

I also appreciate that the limitations of the plugin are discussed in the text of the thesis. Although some of them are rather significant, such as the lack of recursive portal rendering, the student linked them to specific issues in Godot's GitHub repositories, so that a potential future reader can easily check if the limitation has been lifted.

Finally, the samples and demos provided with the plugin's source code are a great addition, as they highlight many features of the portals that are difficult to assess through images alone.

I have one further question for the defense: Would it be possible to automate the changes necessary to enable smooth teleportation (e.g., precompute a list of meshes to duplicate, generate the modified shader code, etc.)?

Considering the overall achieved outcome, I propose evaluating the work with a grade of passed with excellent results.

In Brno 5. 6. 2025

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Mgr. Adam Štěpánek