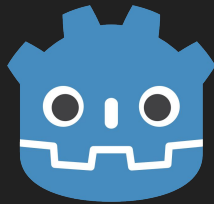


Game development with



GODOT

Christian Winter

About me

- FH Hagenberg
 - Medientechnik und -design (BSc)
 - Interactive Media (MSc)
- Software developer
 - Qnipp
 - ETM

Games







Godot - Overview

- <https://godotengine.org/>
- Open sourced in February 2014
 - <https://github.com/godotengine/godot>
- MIT license
- Biggest FOSS game engine

👁 Watch ▼

1,223

★ Unstar

21,784

🍴 Fork

4,254

Features

- Dedicated 2D / 3D workspace
- Integrated code editor
- 2D / 3D animation support
- Physics engine
- Signals / Events
- Audio
- Singletons

Core Principles

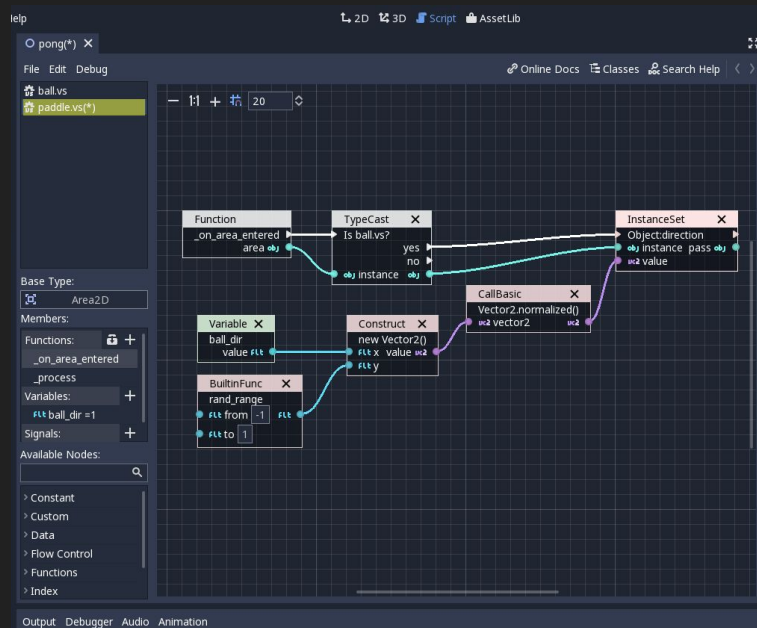
- Editor should run on every platform
- Low resource usage
- Easy to compile
 - Strip unwanted features
- Teamwork
 - Scene instancing
 - Version control friendly
- Node structure
- Readability of GDScript

Example: Editor workflow

- Basic nodes
 - Node instancing
 - Multiple player nodes
- Inspector
 - Change properties of instances

Programming languages

- GDScript
- Visual scripting
- Shader language (based on GLSL)
- C/C++
- Other bindings
 - GDNative
 - C# (official)
 - Python (unofficial)



GDScript

- Script editor inside Godot
- Python-like syntax
- Integrated documentation
- Built-in profiler and debugger
- Signals / Events
- Coroutines
- Extend the editor

Example: Scripting

- Input processing
- Scene instancing
 - Bullets

Physics engine

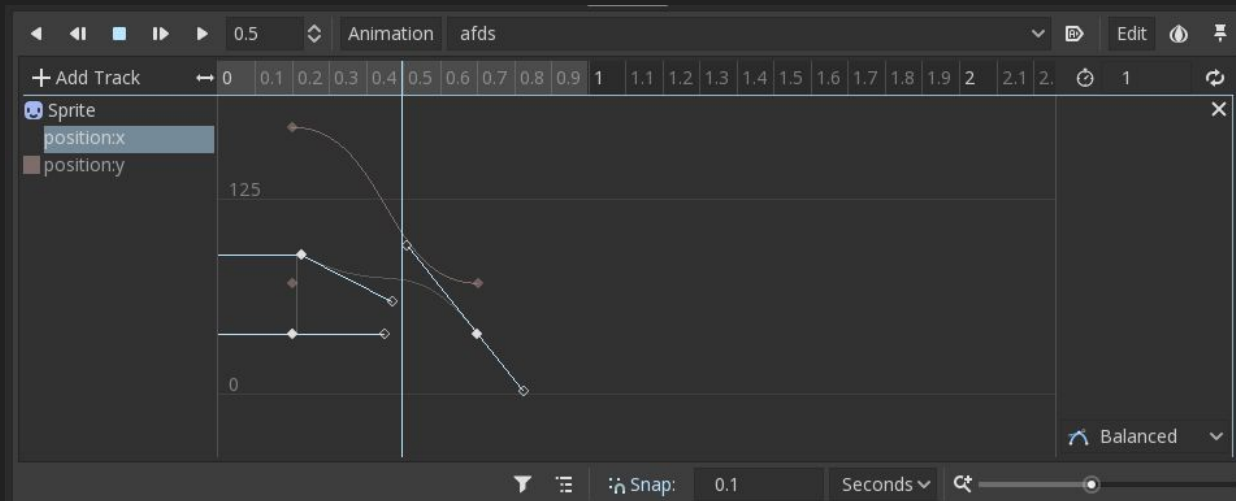
- 2D → custom made
- 3D → Bullet engine
- Physics loop independent of game loop
- Callbacks

Example: Physics engine

- Movement
- Collision detection → Signals
- Damage for the player

Animation

- Every property can be animated
- Keys
 - Interpolation

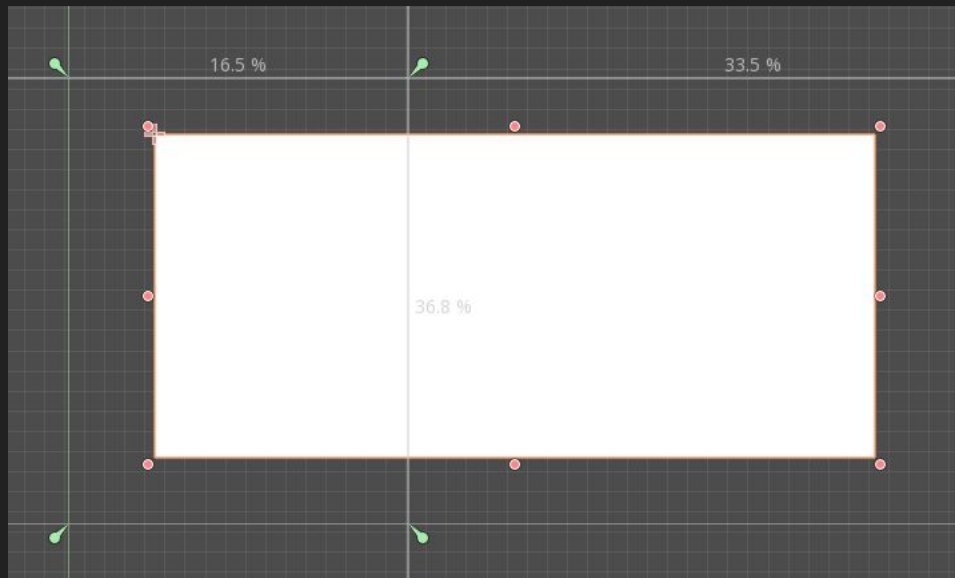


Example: Animation

- Player damage

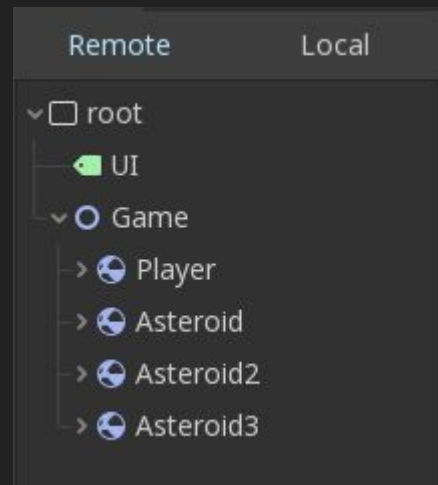
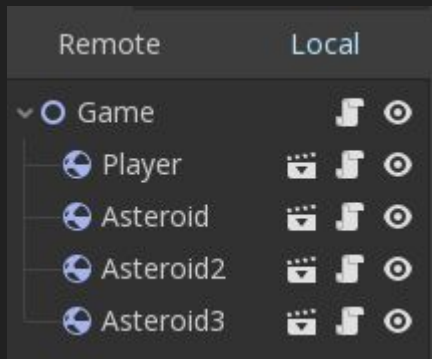
User interface

- Editor is made using Godot
- Event-based updates possible
- Anchor System



AutoLoads

- Singleton
- Access globally from GDScript



Example: Scoreboard

- UI
- AutoLoads

Deploy

- Supported platforms - Deploy
 - Linux
 - Mac
 - Windows
 - iOS
 - Android
 - Web

Advanced topics

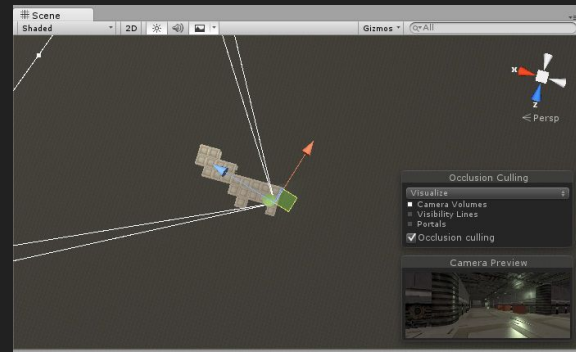
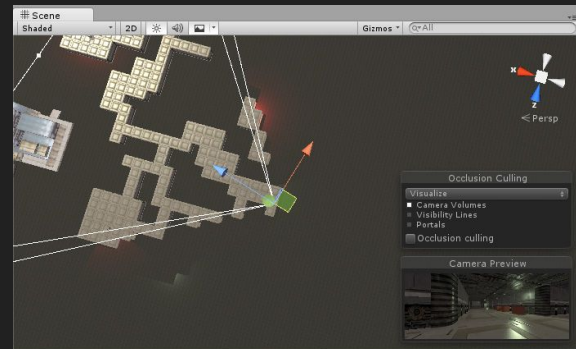
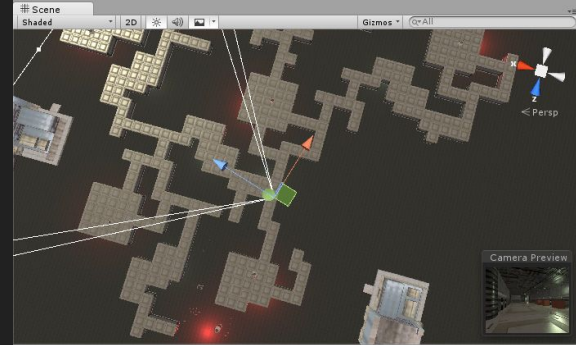
- 3D
 - Animation trees
 - Lighting
 - Textures / Shaders
- Build editor from source
 - Strip unnecessary features
- Debugger / Profiler
- Servers
 - VisualServer
 - PhysicsServer
 - SceneTree / Mainloop
- Run scripts from the command line
- Network

Network

- HTTP
- WebSockets
- HL-API

Drawbacks

- 3D
 - Occlusion culling
- Console support



Future

- State of the art 3D rendering engine
 - Vulkan
- GDScript language updates
- Cooperation with Blender

Contact

- christian.winter1990@gmail.com
- GameDev Meetup @ PanLab
 - Monthly
 - Next meetup: May 15th
 - Feiersteigweg 1, Eisenstadt
 - panlab.at

