




Plattformübergreifende  
2D Spieleprogrammierung mit

**libGDX**

# Agenda

1. Was ist libGDX?
2. 2D Spieleprogrammierung
3. Projektsetup
4. Erste Schritte
5. Texturen
6. Physik (Box2D)
7. Tweens (Universal Tween Engine)
8. BeiSpiel
9. Ausblick
10. In eigener Sache
11. Quellen

# Was ist libGDX?

- Java-basiertes Framework
    - Garbage Collection Avoidance
  - Plattformübergreifend
    - Windows, Mac, Linux
    - Android
    - iOS
    - HTML5
  - Open Source (Apache 2.0)
- Eine Codebasis
- 

# 2D Spieleprogrammierung

- Warum „nur“ 2D?
  - Vorteile
    - Grafiken/einfache Animationen leicht zu erstellen
  - Nachteile
    - Eingeschränkte Perspektive
- Besonderheiten
  - 2D Grafiken in 3D Umgebung
  - Animation (Transformationen und/oder „feste“ Grafiken)

# Projektsetup

- Demo

The screenshot displays the MyGDX project setup application interface, which is divided into four main sections: CONFIGURATION, LIBRARY SELECTION, OVERVIEW, and GENERATION.

- CONFIGURATION:** This section is titled "1 Main parameters defining your project. See the overview panel to know if it suits your needs." It contains several input fields: "Name" (my-gdx-game), "Package" (com.me.mygdxgame), "Game class" (MyGdxGame), and "Destination" (D:\libgdx-nightly). Below these fields are five checkboxes for generating different project types: "Generate the core project (required)", "Generate the android project (required)", "Generate the desktop project", "Generate the html project", and "Generate the ios project". A "Show advanced settings >" link is located at the bottom right of this section.
- LIBRARY SELECTION:** This section is titled "2 Select the libraries you want to include or update. Direct downloads are available to stable and nightly releases." It is divided into two categories: "Required" and "Third-party". Under "Required", there is one library: "LibGDX". Under "Third-party", there are two libraries: "Physics Body Editor loader" and "Universal Tween Engine". Each library has a checkbox and a small icon representing the library's source.
- OVERVIEW:** This section is titled "3 Virtual view of the file tree that will be generated." It shows a tree structure of files and folders that will be created, including "my-gdx-game", "my-gdx-game-desktop", "my-gdx-game-android", "my-gdx-game-html", "prj-ios", and "my-gdx-game-robovm".
- GENERATION:** This section is titled "4 Ready to go?" and contains a button labeled "Open the generation screen". Below the button, a message states: "At least one selected library has a missing or invalid archive."

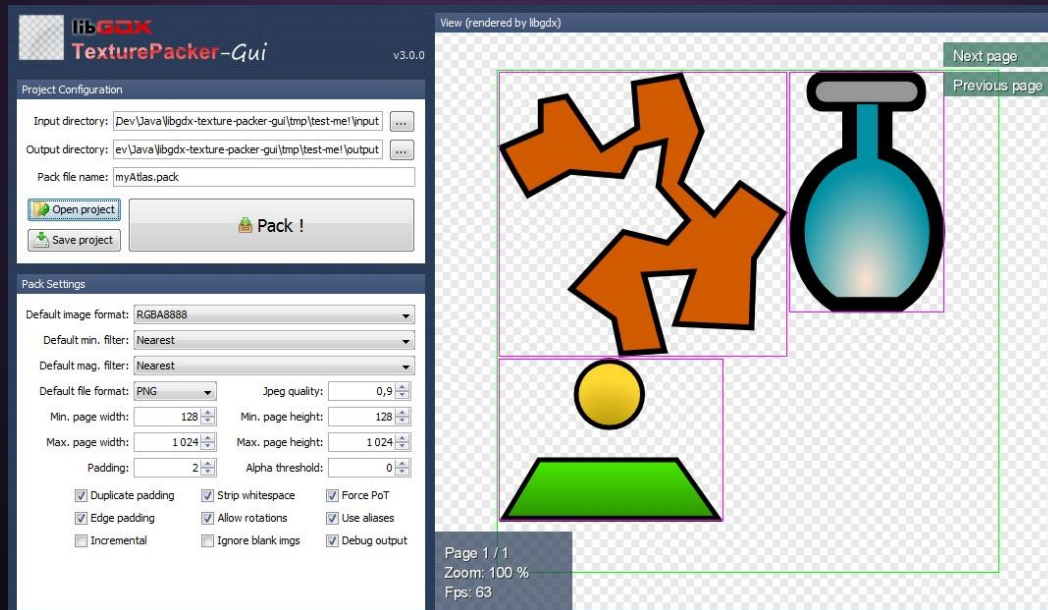
At the bottom of the application, there is a "Change mode" button and a status bar showing "v3.0.0 (latest version)" and "About this app >".

# Erste Schritte

- Demo (Eclipse)
  - Ordnerstruktur
  - create() und render()
  - input

# Texturen

- Bessere Performance durch Spritesheets
- Demo (TexturePacker GUI)



# Physik

- Kräfte, Kollisionen
- Box2D
  - Bereits in libGDX integriert
  - `box2dlights`



# Tweens

- Einfache Animation von Attributen
  - Easing-Funktionen (linear, quadratisch, usw.)
  - Auch von nicht-grafikbezogenen Attributen!
    - z.B. Bauaufträge in Strategiespiel
- Universal Tween Engine
  - Open Source
  - Direkt im Projektsetup auswählbar
  - Accessor
  - Demo

# BeiSpiel

- Demo

# Ausblick

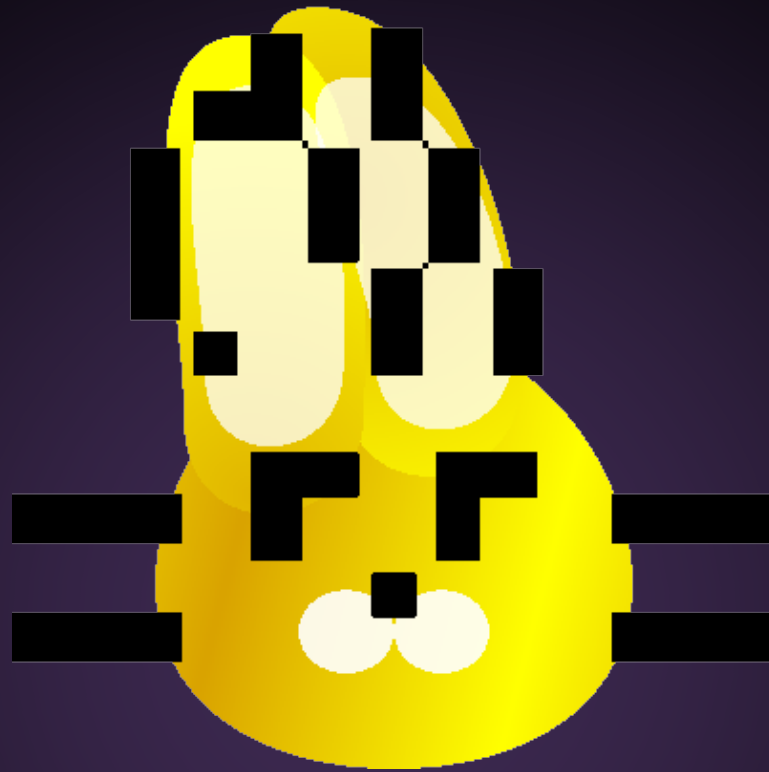
- Sounds
- Leveleditoren
  - TileMap über verschiedene Editoren
- AssetManager
  - Asynchrones Laden von Inhalten
- Herausforderungen
  - GUI
  - Persistente Speicherung
  - Native API
  - Verschiedene Auflösungen
  - Performance auf mobilen Geräten



- <http://www.startnext.de/dasletzteland>

# Quellen / Links

- libGDX:
  - › [libgdx.badlogicgames.com](http://libgdx.badlogicgames.com)
- Universal Tween Engine / Physics Body Editor:
  - › [www.aurelienribon.com](http://www.aurelienribon.com)
- Eclipse Projekt:
  - [www.johannesbade.de/flappyhasi.zip](http://www.johannesbade.de/flappyhasi.zip)
- Diese Präsentation:
  - › [www.johannesbade.de/libgdxvortrag.pdf](http://www.johannesbade.de/libgdxvortrag.pdf)



**DANKE**