

libGDX

Cross-platform Game Development

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- Brief introduction
- Ask for programmer/artist ratio
- Interrupt and ask questions

A bit about myself





AI programmer at Crytek

- February 2012 - February 2012
- AI (scripting systems, emergent behaviours) and animation for Homefront: The Revolution
- ~60 people team
- C++, Lua, XML...



- February 2014 - July 2014
- PS4 multimedia application
- 7 team members
- C++ and Java

Senior Software Developer in the City

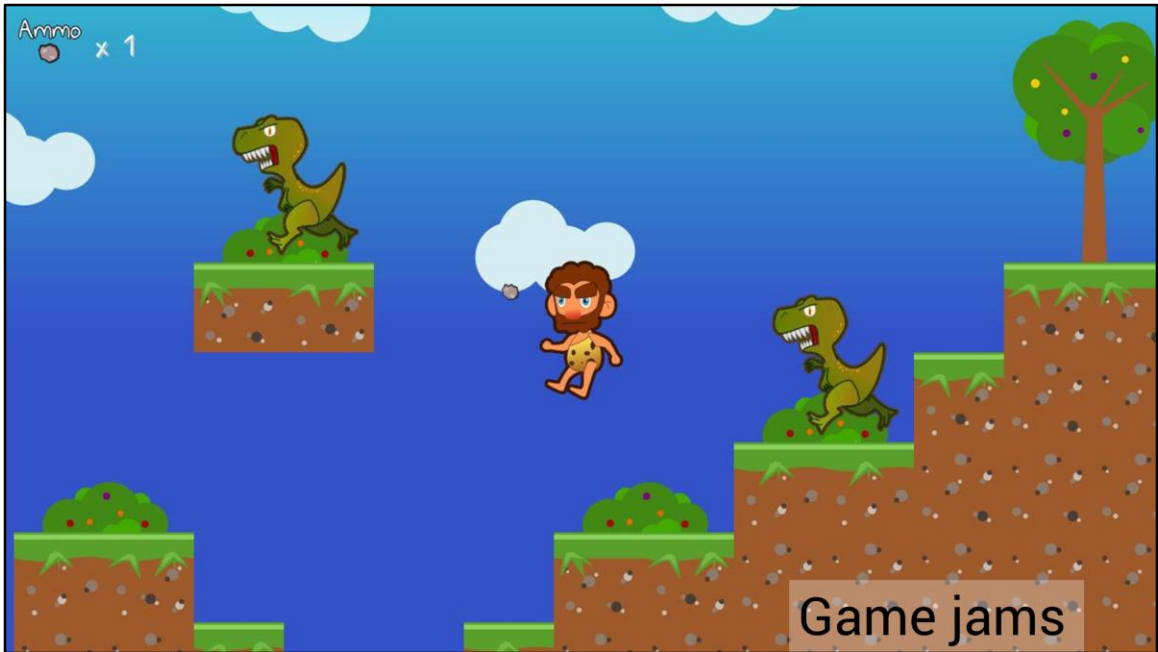


- July 2014 - Present
- Always online, real-time application
- ~12 team members
- C++ and JavaScript

Android games

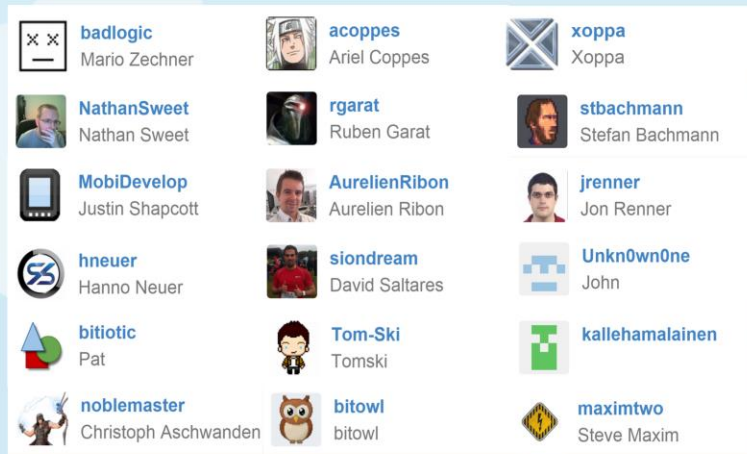


- Educational game available on Google Play
play.google.com/store/apps/details?id=com.siondream.math
- Made with Libgdx
- ~5 month long side project
- Free, no ads
- Experimented with PR and trailer making
- ~10K downloads



- One Game A Month and 3 Ludum Dare editions
- Small games made with Libgdx
- Great practice, good fun with friends, horrible code!
- Recommended read: The Game Jam Survival Guide

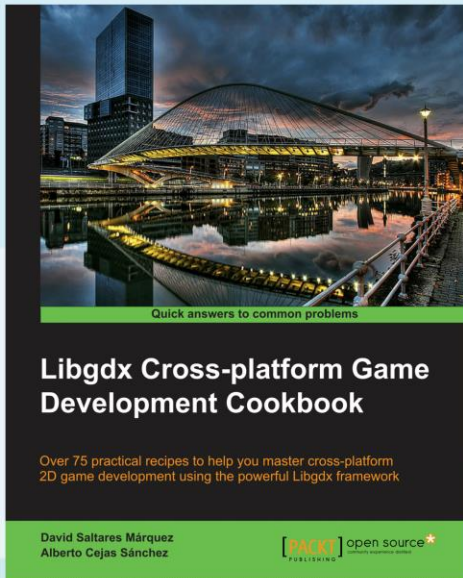
Libgdx core team



- Joined the Libgdx core team in 2013
- 17 other awesome developers
- 2D maps API
- Code review
- Learned a lot about development, big systems and open source



- Inheritance based Entity Systems vs Component based Entity Systems
- Initially developed by Stefan Batchmann
- Took over the project in 2014
- 14 contributors, 55 PRs
- Learned a lot about unit testing



Just published!

- Co-authored with Alberto Cejas
- ~80 articles on how to use Libgdx
- >1 year of sweat, blood & tears
- DRM free eBook and paperback
- Packt, Amazon, Barnes & Noble...
- Pretty awesome stuff

github.com/siondream/libgdx-cookbook

Will be giving away 2 copies at the end

Let's talk about

libGDX

Here's the part where I try to sell it to you

libgdx.badlogicgames.com
github.com/libgdx/libgdx
[@badlogicgames](https://twitter.com/badlogicgames)

Overview

- Cross-platform game development framework
- Java and C/C++ for performance critical code
- Compatible with Java, Scala, Kotlin...
- Nightly and monthly stable releases
- Not a game engine!

Write once, deploy everywhere



- Desktop: based on LWGL
- Android: SDK and OpenGL ES
- iOS: RoboVM and OpenGL ES
- HTML 5: GWT (dark magic) and WebGL

Use the tools of your choice

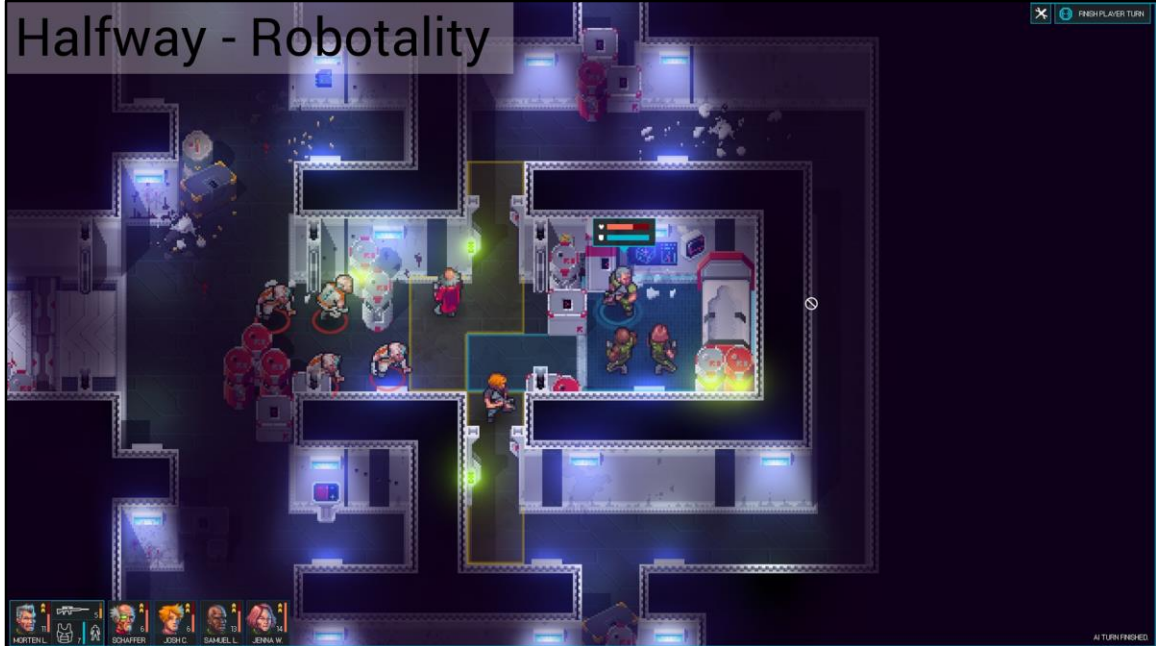


- Gradle: open source build system, similar to Ant and Maven
- Extremely easy to manage dependencies



Do people really use Libgdx?

~1700 games on <http://libgdx.badlogicgames.com/gallery.html>



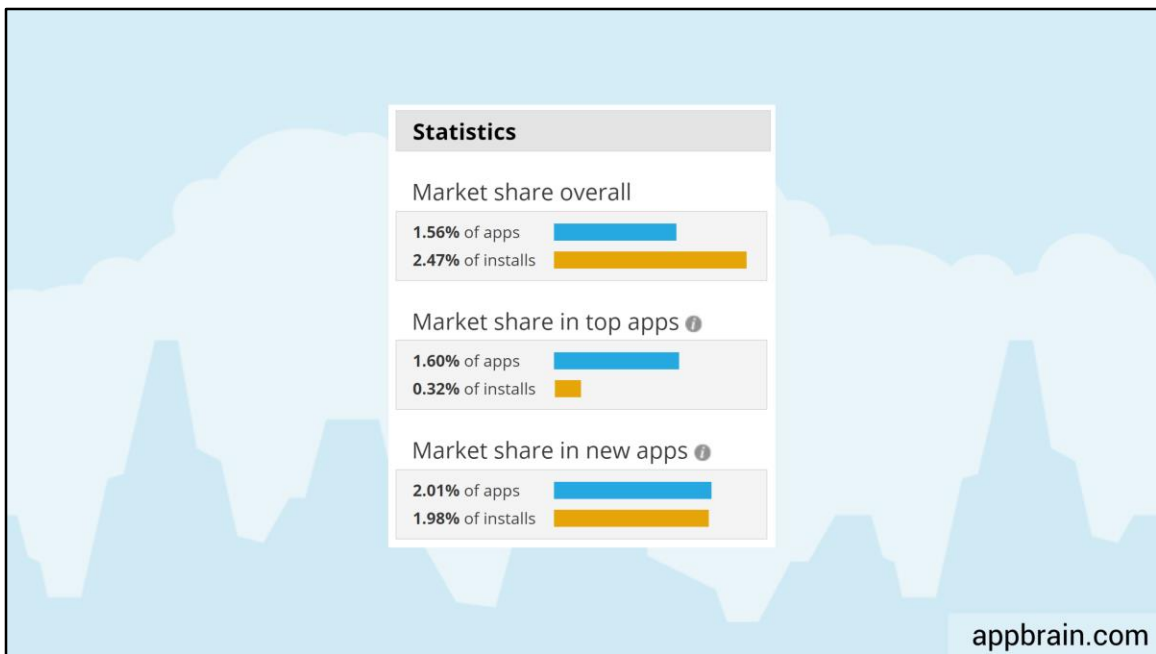
- Turn based sci-fi strategy RPG, a 2D X-Com
- 2 programmers, 1 artist
- Available on Steam, GOG and their website
- \$12 game
- They've released their editor



- First person rogue-like
- Available on Steam early access for \$8



- Full fledged 2D skeletal animation tool
- 1 programmer (core Libgdx developer) and 1 artist
- Features: dopesheet, graph editor, meshes, IK, skins, JSON
- Runtimes for all languages
- Kickstarted
- Essential (\$70) and Professional (\$289)



Stats come from AppBrain, don't know how accurate they are.

- Unity 3D: 4.17%
- Cocos2D-X: 1.49%
- AndEngine: 1.08%
- Cocos2D: 0.25%

Apache License 2.0



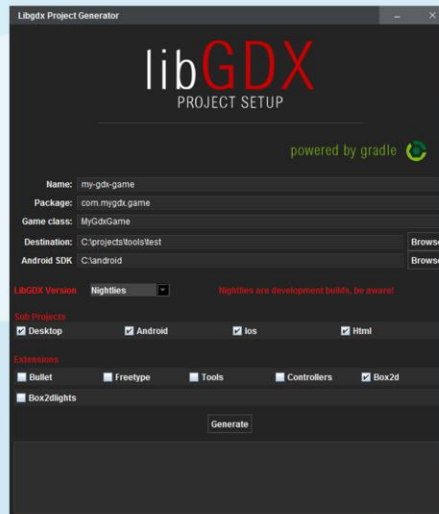
Libgdx developers



You

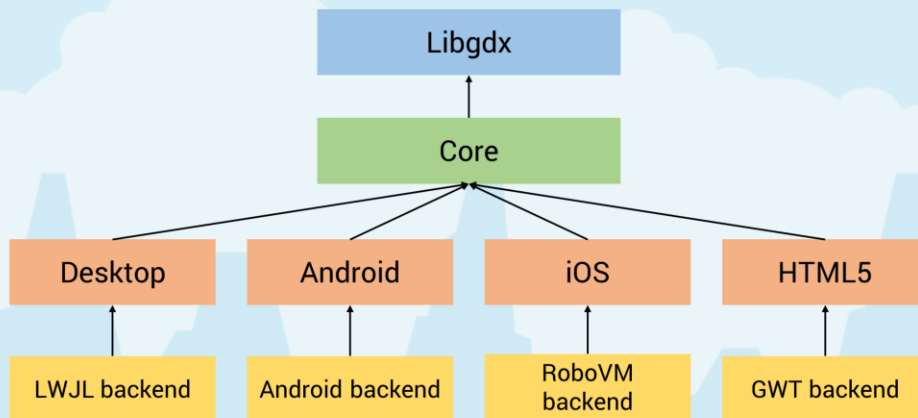
- No strings attached: use it, sell it, distribute it
- Don't be a slave of the technology (licenses change)
- Don't like something? Change it
- Learn from the code

Project creation



- Easy to use tool
- Ready to import into Gradle compatible IDEs
- Choose platforms
- Choose the libraries you need
- Profit

Architecture



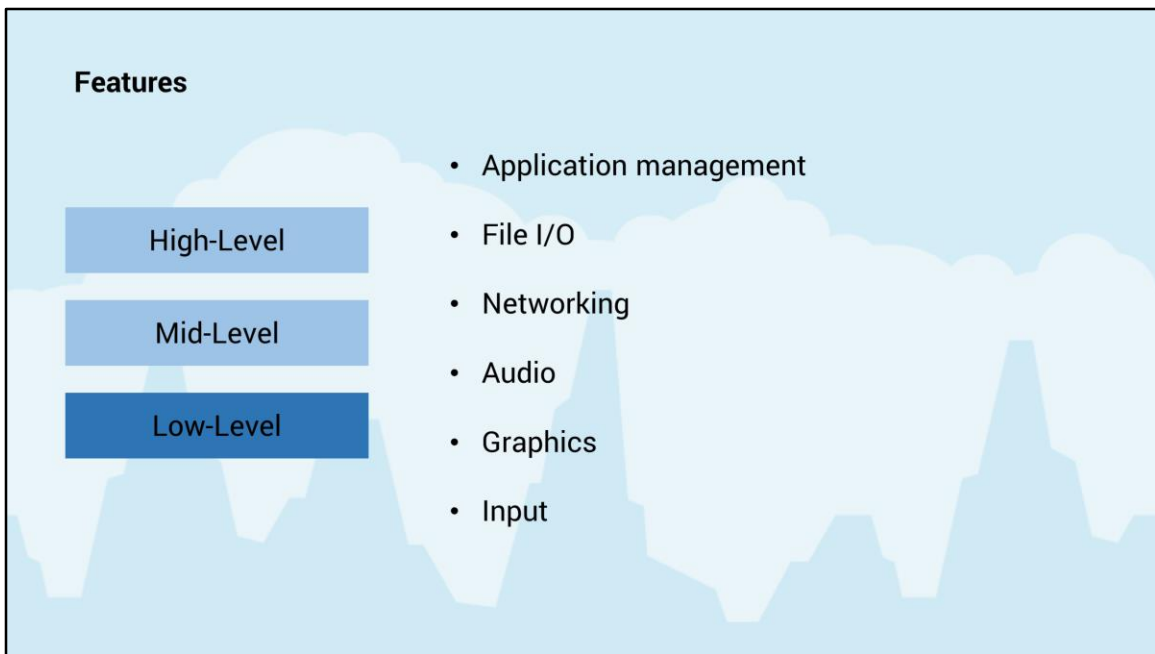
- Core project contains all application logic
- Platform specific projects contain their launcher

Features

High-Level

Mid-Level

Low-Level



Application management

- Lifecycle events
- Window management
- Rendering loop
- Threading

File I/O

- Unified across platforms
- Preferences

Networking

- HTTP
- Sockets

Audio

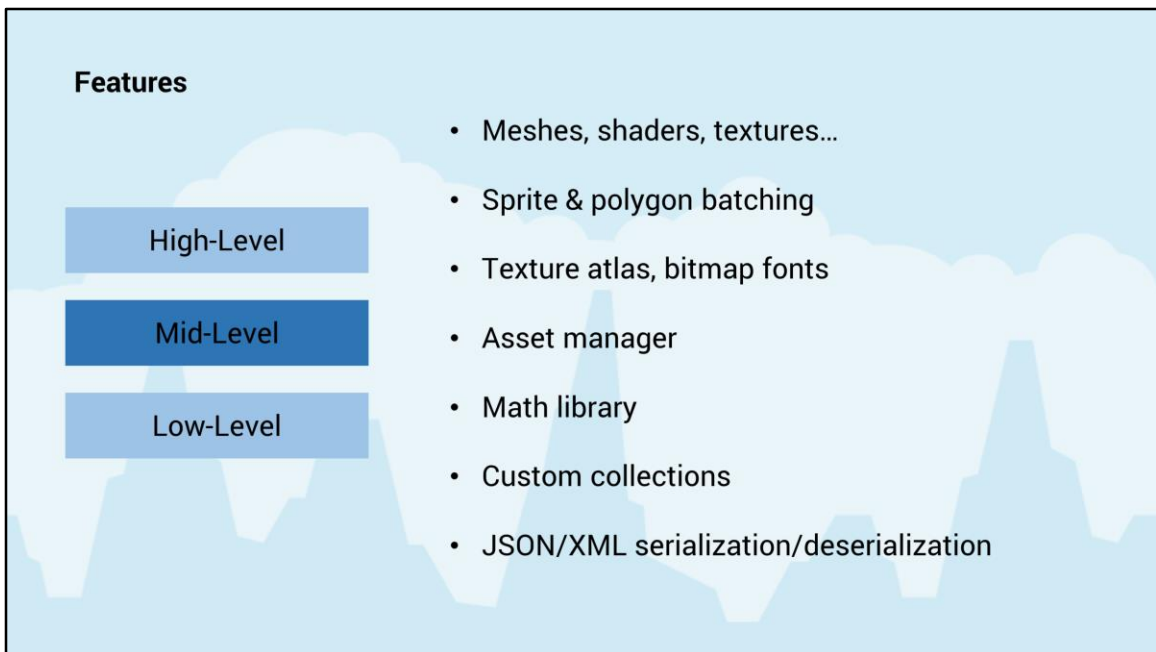
- Music streaming
- In-memory sound effects
- Microphone
- Panning, volume, pitch

Graphics

- OpenGL ES 2.0 and 3.0
- Continuous & non-continuous rendering
- Low level access
- Bitmap manipulation

Input

- Keyboard, mouse, touch
- Accelerometer, compass, force feedback
- On-screen keyboard



Graphics:

- Shaders, textures, meshes, framebuffers (Unity Free doesn't support them)
- 2D and 3D particle systems
- Shape renderer

Input:

- Multiplexing
- Gesture dection

Math:

- Primitives
- Cameras
- Bounding shapes
- Intersection testing
- Splines
- Triangulation

Asset manager

- Threaded

- Asynchronous loading
- Reference counting
- Extensible

Features

High-Level

- Box2D & Bullet physics

Mid-Level

- Map loading
- 2D Scene graph & UI toolkit

Low-Level

- 3D API

2D scene graph

- Tweening
- Skinnable UI toolkit
- Viewport management
- Table based

3D:

- FBX, DAE, OBJ support
- GPU skinning
- Material system
- Shadow mapping, cube mapping
- Batching API

Extensions

- Box2D
- Bullet
- RealSense SDK
- In-app purchases
- Ashley Entity Framework
- Box2D lights
- Artificial Intelligence
- Game controllers
- Free Type Fonts
- Write your own!

- Box2D by Erin Catto
- RealSense: gesture detection system

I bet it's not documented...

- Up to date wiki with 169 articles
- Comprehensive Javadocs
- Dozens of online tutorials
- **Libgdx Cross-platform Game Development Cookbook!**

github.com/libgdx/libgdx/wiki
libgdx.badlogicgames.com/nightlies/docs/api

Best online community I've ever seen

- Forums
- IRC
- Open an issue
- Send a pull request!



People you'd get a beer with

github.com/libgdx/libgdx/pulse/monthly

- Open and willing to help
- 253 contributors
- Most forked Java project on GitHub (3418)
- 5.017 stars
- 28 merged PRs and 68 closed issues in the last month
- 44 people have committed in the last month

Don't be shy and contribute back, looks awesome on your CV

Contact details



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@siondream



siondream.com



github.com/siondream



Thanks!
Questions?