

Breaking into the **Games Industry** with **Open Source** Software

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Castilla – La Mancha University

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Summary:

- Background
- Making AAA games
- What games companies ask for
- How to get those skills
- Questions

BACKGROUND



Cádiz University - BSc Computer Science

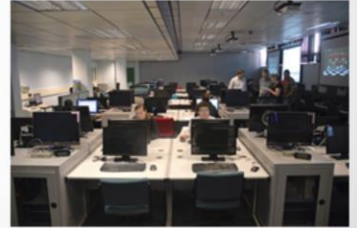
- Facilities weren't awesome
- Parts of the roof fell off every now and then
- Very demanding
- Started with C and continued with C++



- Open source 2D zombie killing platform game
- Technologies: C++ and SDL
- Platforms: Windows, Linux and PSP
- Time: 3 months
- VERY simple



- Open source 3D action game
- Technologies: C++, Ogre3D and SDL
- Platforms: Windows and Linux
- Time: 6 months
- Final degree project
- Worked with several people
- Won a prize in the V Open Source University Contest



Kingston University - MSc Games Technology

- Much better facilities
- Practice focused
- Brilliant networking opportunity
- Amazing games lab: about 30 Xbox 360 and PSP dev kits



Worked on several demos and prototypes

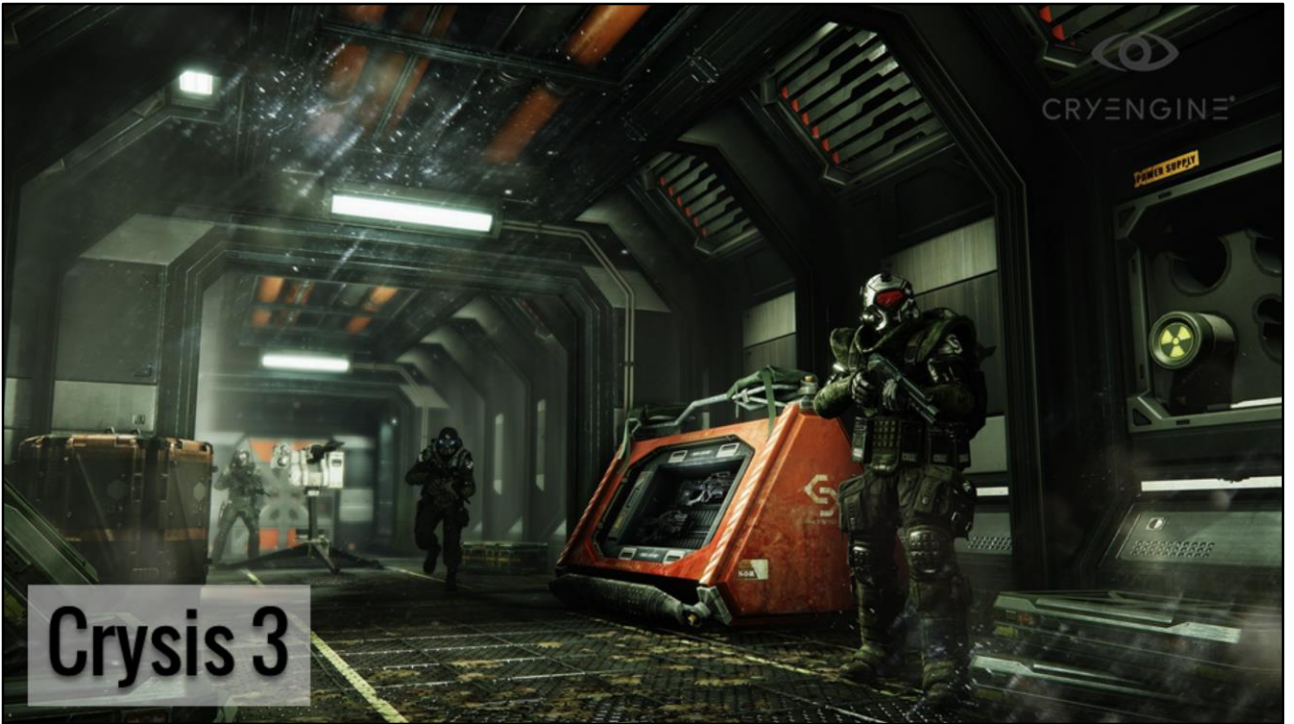
Urban Race:

- Open source time attack racing game
- Technologies: C# and XNA
- Platform: Windows
- Time: 1 month
- VERY simple



Crytek UK - Nottingham

- Worked at Crytek UK for 2 years
- ~150 people studio
- Formerly Free Radical, known for Time Splitters
- Did AI and animation on Homefront 2



Crysis 3

Ryse: Son of Rome





Sony Computer Entertainment Europe

- Sony Computer Entertainment Europe
- 3 buildings with ~500 people
- R&D networking ~20 people
- Client/server multimedia application for PlayStation 4

MAKING AAA GAMES

The need to be agile

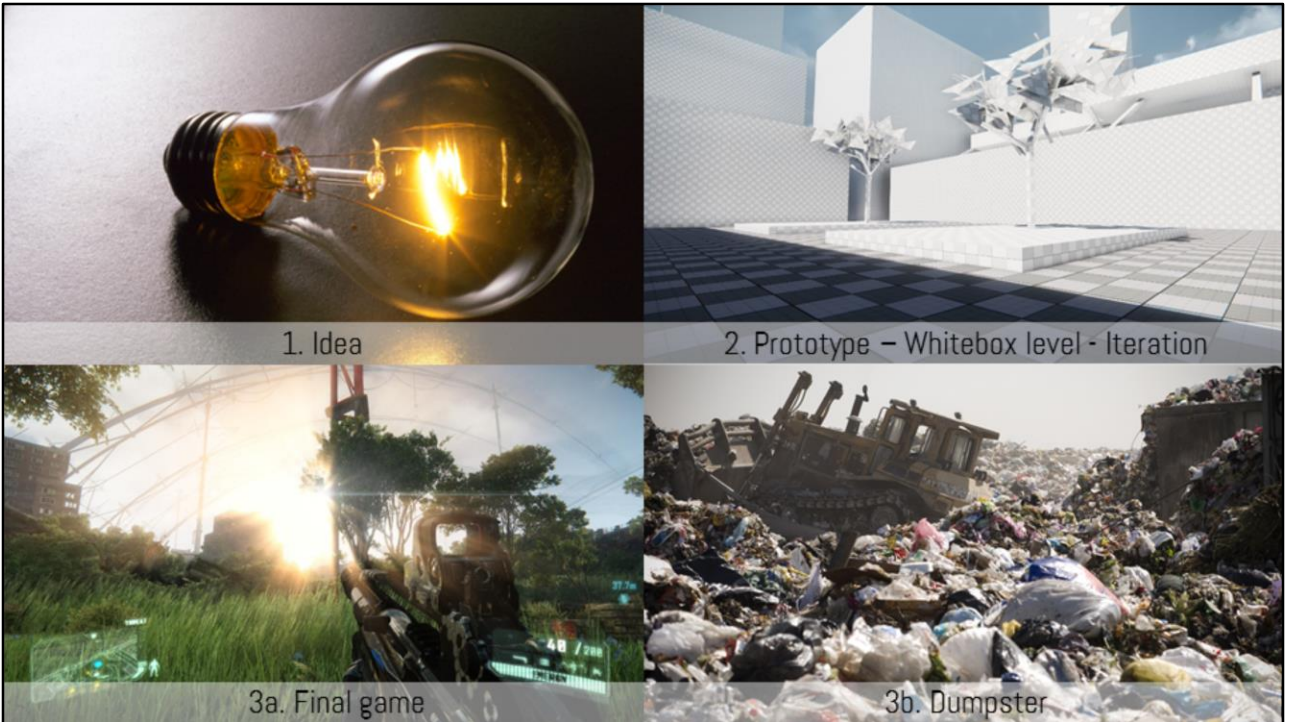


Getting a big team to work on a complex system towards a goal is HARD.
Need a way to deal with the unexpected and changing requirements

Cannot apply classic waterfall model: full analysis -> design -> implementation -> testing -> deployment

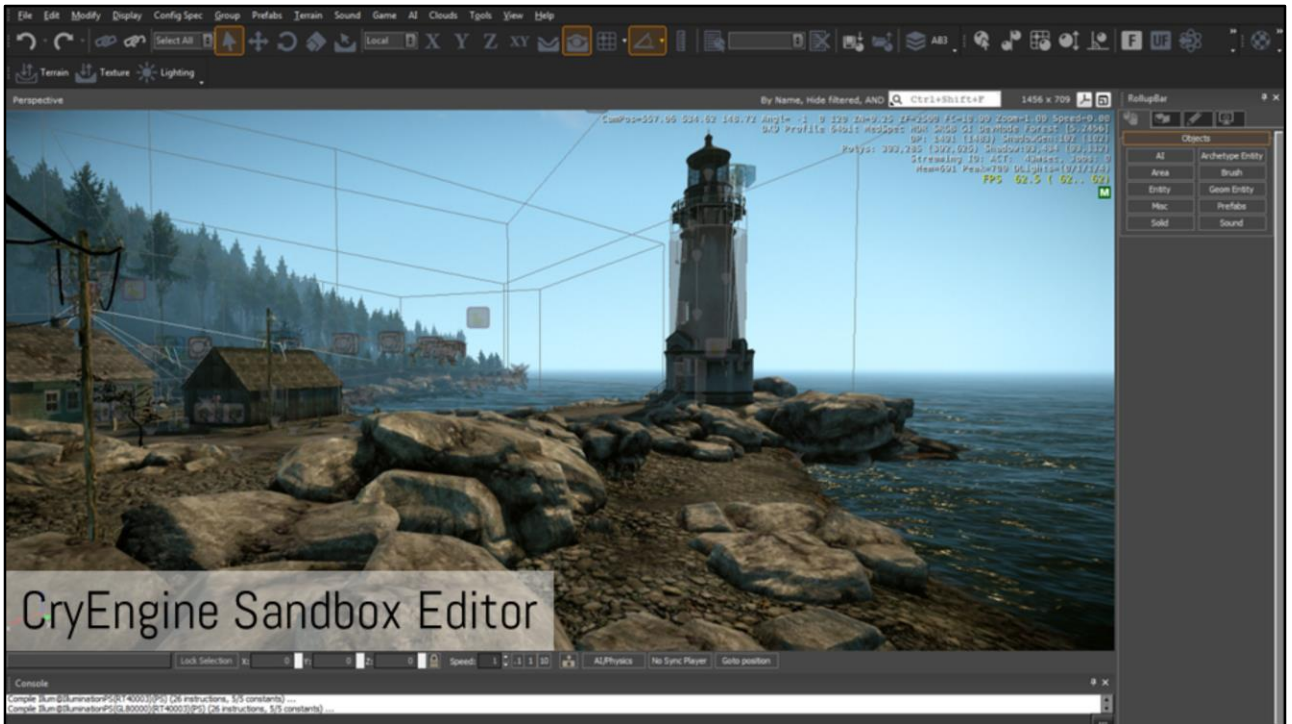
Agile methodologies like Scrum.

- Monthly releases combined with 2 week sprints
- Small teams focusing on different areas of the game
- Divide and conquer
- Less overhead for management
- Teams own their features



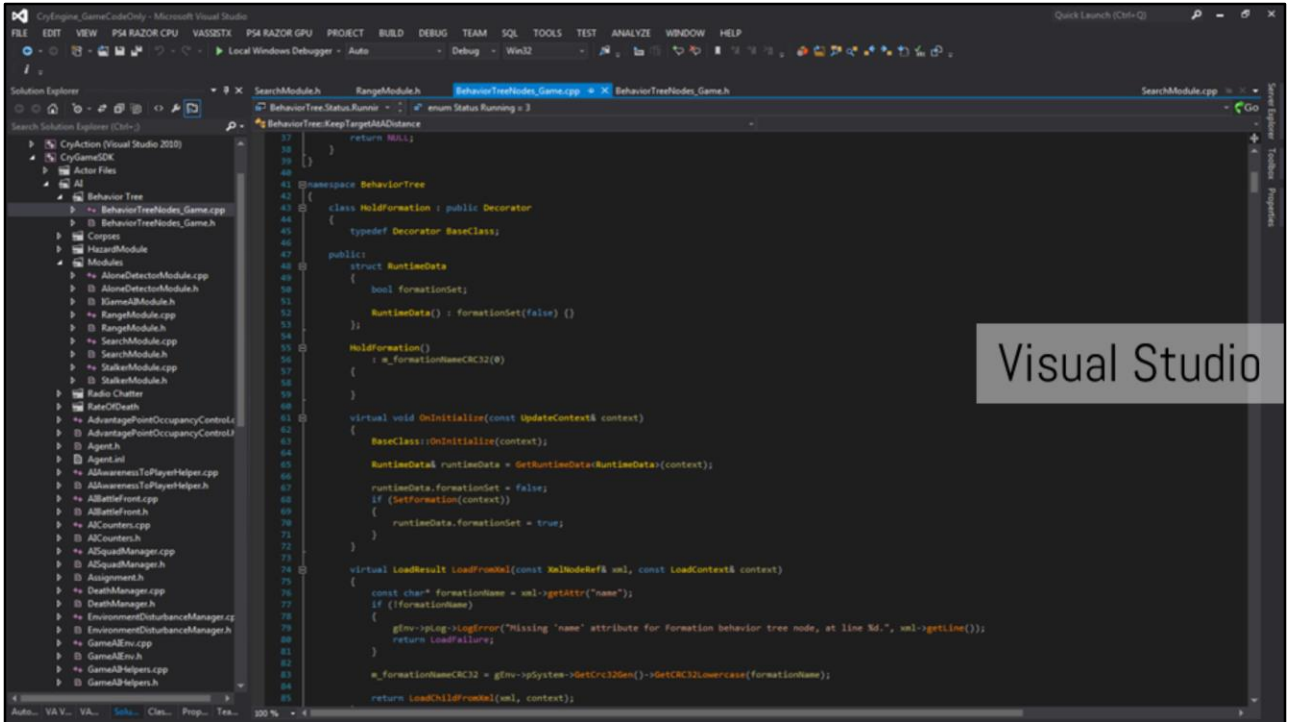
Ideas are worth practically nothing, they need to work in practise

1. Idea: come up with a set of mechanics
2. Prototype: implement the basic functionality. Quick and dirty. Make a whitebox level, basic layout without textures nor final geometry
3. Iterate over the prototype
4. Either it makes it to the final game or it's discarded



CryEngine Sandbox Editor

- Level design and scripting
- Testing
- Jump into game
- Animation editor
- ...



- Visual Studio is widely used in the games industry
- It's important to know how to effectively use an IDE



Testing is done throughout development

- QA tests the build continuously
- Some studio wide playtests
- Focus groups

It's very easy to break stuff



P4 version control

Large codebase: several M lines of code

Some numbers from Crysis 2:

- Up to 150 coders
- 140 commits per day
- PC, Xbox 360 and PlayStation 3
- 2 compilers (MSVC and GCC)
- 3 configurations

Code review - Code Collaborator

- Mandatory before every commit
- A fellow programmer needs to approve your code
- Prevents bugs
- People learn from their mistakes
- Lets devs know about changes

Static code analysis - cppcheck

- Scan your C++ looking for silly mistakes
- Automated reports sent via email
- cppcheck is open source!

Continuous integration – buildbot/jenkins

- Builds the game 24/7
- Every platform, all configurations
- Makes sure it compiles
- Runs automatic tests
- Cannot commit without a successful build

It's **done**! Where is my fame and success?



Things to take into account

- TRC validation
- DLC
- Telemetry -> data balancing patches
- Bugs -> code/data patches

How?



The talk can be summarised with this slide.

1. Use open source software to build stuff
2. Contribute back to it
3. Get exposure and build a portfolio
4. Get a job! (hence profit)

WHAT GAMES COMPANIES LOOK FOR

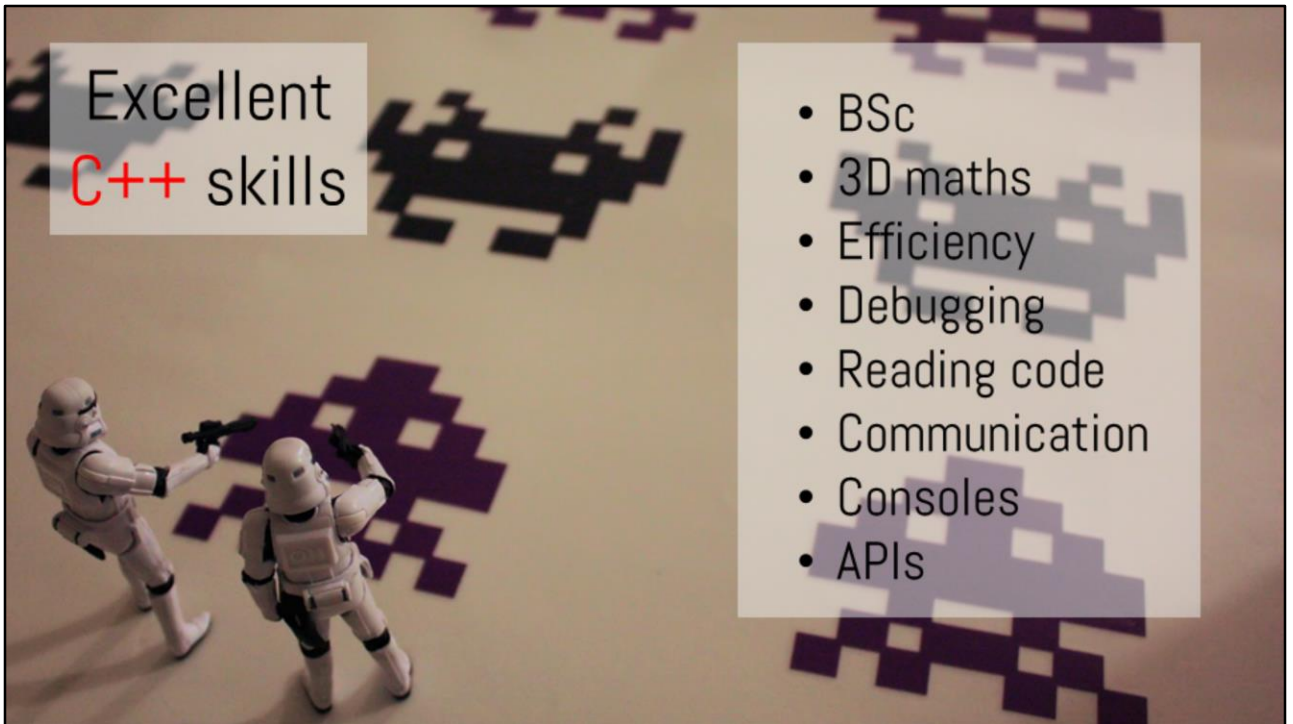
Let's check online



First of all, let's do some research about what is it that companies want

Graduate position

- Check LinkedIn
- Companies you want to work for
- Mobile/Middleware/Hardware/AAA



Taken from real job offers for AAA and mobile studios

BSc in Computer Science

- C++: bit shifting, OO, data structures
- Math: algebra, vectors and matrices, basic motion physics
- Debugging: IDE experience, step through, find bugs
- Reading code: being comfortable with large codebases
- Communication: fluency in English (even in non English companies), know how to explain problems, diplomacy
- Consoles: be wary of their limitations, mobile is also valid
- Efficiency: memory and time implication of algorithms, cache...
- Cross discipline: being able to talk to and work with designers, artists, stakeholders...
- Others: databases, social APIs, AS3



Most important of all: have a set of FINISHED games

- They don't need to be amazing
- Some level of polish
- Menus
- A few levels
- Music, SFX

HOW TO GET THE SKILLS

Don't limit yourself to this while at University



- Most people limit themselves to pass exams
- When they graduate, they're all the same

It's a very competitive industry, you need a differentiating factor.

Get **involved** instead!



Cádiz University SDL workshop 2011

Game Jams

ONE GAME A MONTH
MAKE SOMETHING. DON'T EXCUSE.

global game jam™

Ludum Dare

GAMES 4... JAM

ORCAJAM 4
September 6th-8th
All About Game Jam

Extreme game development

Calendar:
Compohub.net

- #1GAM: Cross the finish line more often
- Extreme time management skills
- Strong community
- See what you can achieve
- Learn how to scope

Loads of fun

Check compohub, game jam calendar



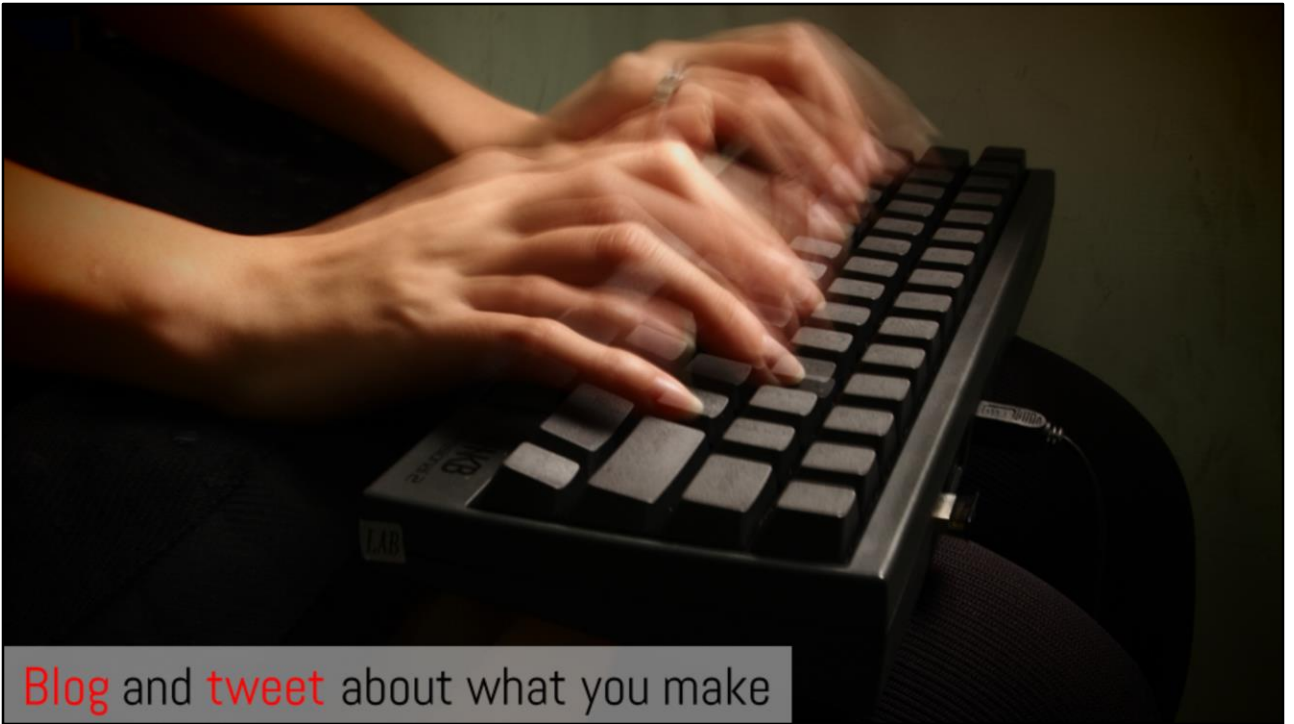
Was part of the jury

- 24h **NON STOP** game jam in Lincoln University
- Theme: uranium madness
- About 50 students
- Games were simple but amazing considering the timeframe
- Other universities should follow the example
- UCLM game jam?




Ludum Dare #24 game
48h compo

- Open source 2D platformer
- Technologies: Java and Libgdx
- Platforms: Windows, Mac and Linux



Blog and tweet about what you make

- Portfolio: somewhere to showcase your projects
- Companies WILL check it out
- No need for super fancy stuff, a regular Wordpress would do it
- Make Google show good stuff about you, no drunk pics
- Use social media wisely, **do not** stalk people on Facebook
- Read technical articles, comment and connect with people




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31 followers **6** starred **12** following

Organizations



 **libgdx**

Contributions Repositories Public Activity [Edit Your Profile](#)

Popular repositories


| | |
|--|------|
|  freemias-gdx Freemias libGDX is an Android and Jav... | 65 ★ |
|  glapse Take desktop screenshots and glue them ... | 8 ★ |
|  sioncore Small game engine built on top of Libgdx ... | 6 ★ |
|  ashley A Java entity system inspired by Ash & Art... | 2 ★ |
|  urbanrace Time attack racing game written in C# usi... | 1 ★ |

Repositories contributed to

| | |
|---|---------|
|  libgdx/libgdx Desktop/Android/HTML5/iOS Java game ... | 3,167 ★ |
|  stbachmann/ashley A Java entity system inspired by Ash & Art... | 34 ★ |

Put your code somewhere visible

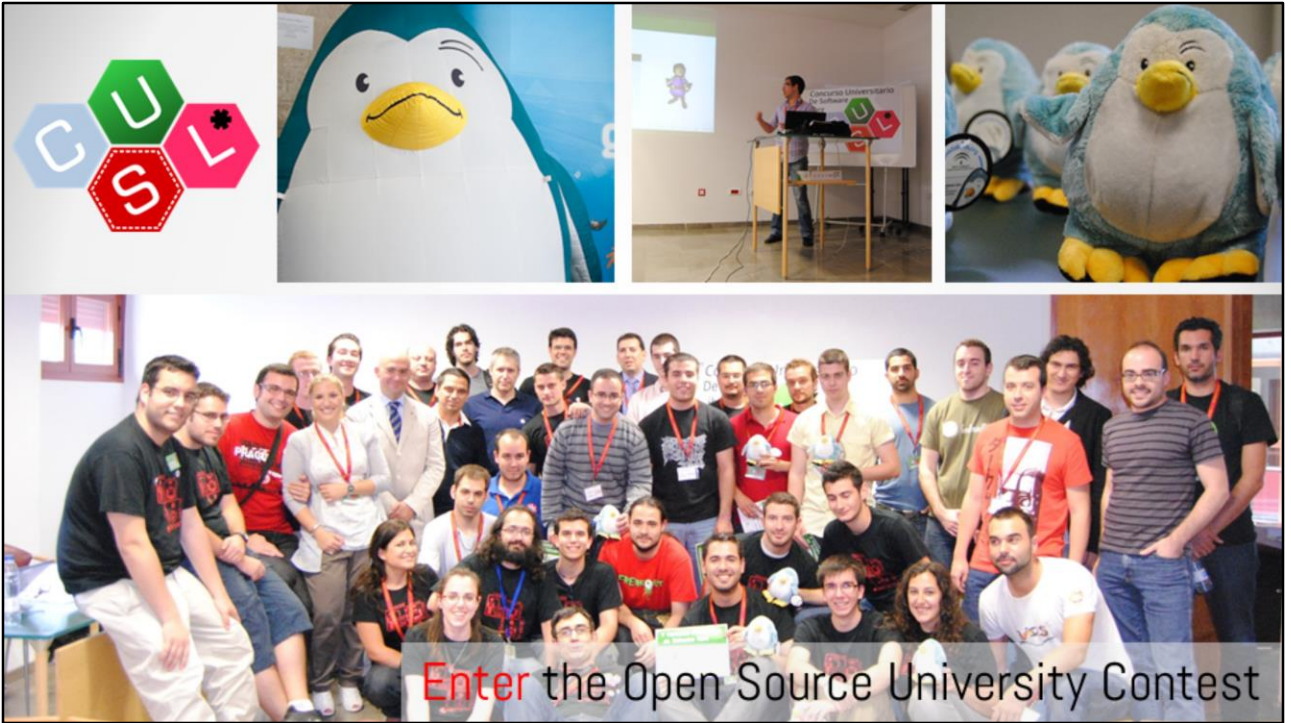
Your Contributions



Summary of Pull Requests, issues opened and commits. [Learn more.](#)

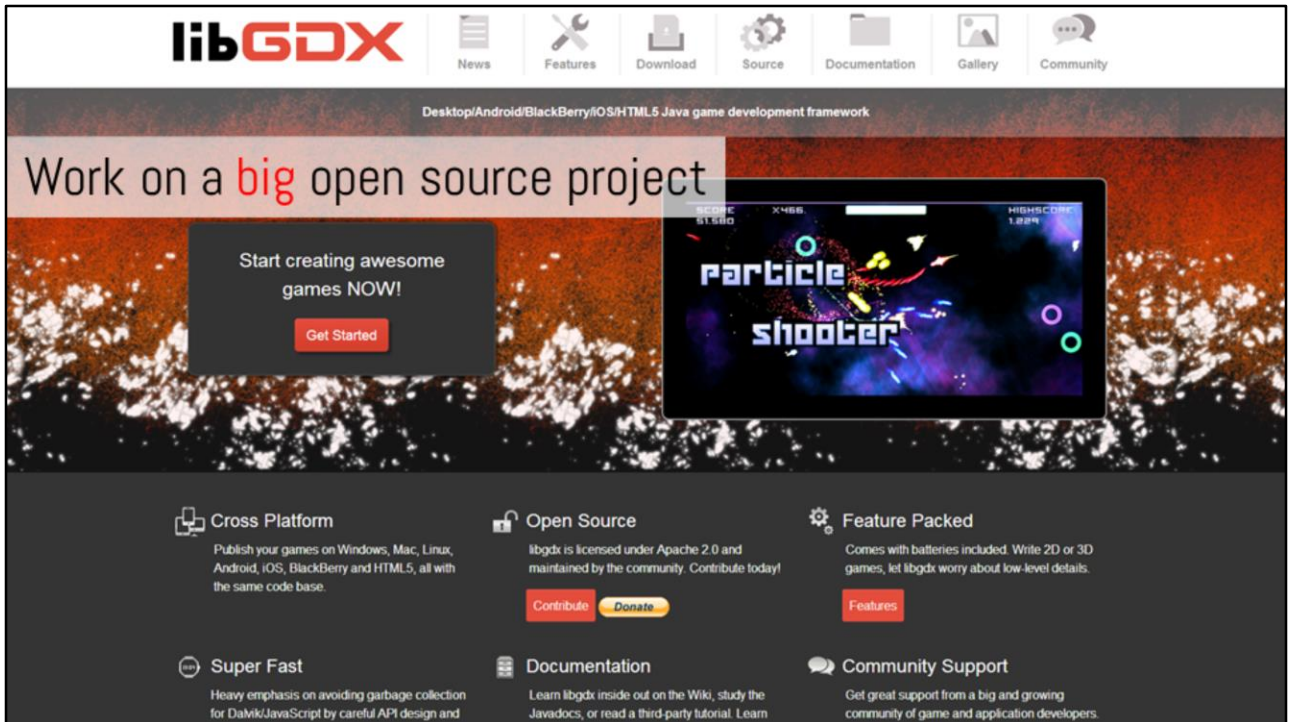
| | | |
|---|--|--|
| 74 Total Mar 31 2013 - Mar 31 2014 Year of Contributions | 7 days March 18 - March 24 Longest Streak | 0 days Rock - Hard Place Current Streak |
|---|--|--|

- Companies will want samples of your code
- Share early, don't be ashamed
- Sharing forces you to improve
- Shows passion and commitment
- Way to engage with other developers
- Learn how to use Git/SVN/Mercurial...



Open source University Contest

- Exposure
- Meet talented students
- CV



The cherry on top

Libgdx game framework

- Cross platform Windows, Mac, Linux, Android, iOS, HTML5
- 2D/3D handles all the low level stuff
- Ridiculously fast, even with Java
- Used by 1.40% of ALL Google Play apps (not only games)
- Good documentation and helpful community

Benefits

- Low barrier of entry: documentation < bugs < features
- Learn from experienced devs
- Looks **amazing** on your CV
- Opens up doors, now I'm writing a book on it

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Questions?