

**Mobile Game Engines**  
**Interviews with Mobile Game Developers**

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## Introduction

Making games for mobile platforms is a massive opportunity. Smart phones that are more powerful than desktop workstations 8-10 years ago are the norm. There are concerns around consistency across handsets, such as the small screens of phones and the larger screens of tablets, but if they can be overcome, the market for mobile gaming is a juggernaut.

Making games is hard work, and I suspect that the success rate for games is even worse than the rate for classical software projects. So what are those special elements that separate a completed game from an unfinished side project?

I believe that knowing about and making effective use of the right tools is a differentiating factor in software projects. Using a game engine may be one of those elements that gets a game project across the line.

In this book you'll hear how hired guns and indie game developers alike build games and get them to market using off-the-shelf mobile game engines. There's no abstracting or watering down of their experiences - you'll hear about what they did in their own words. I think this is important because more than isolated anecdotes you'll have the context for the decisions that needed to be made and insight into the personalities that made them.

What surprised me was how normal all the mobile game developers were. I was expecting nonchalant game developer rock stars or zombie programmers churning out games for soulless publishers. What I found was a warm community of thoughtful and intelligent indie game developers, passionate about their craft.

I was also surprised about how introspective so many of the interviewed developers seemed to be about their processes. I expected simple reflections of experiences, but what I instead found was a deep understanding of the process of building-out a mobile game using an engine as the core for the gaming experience to hang from.

The objective of the interviews was to collect wisdom from game developers around the problems of choosing, and working with off-the-shelf mobile game engines, and I hope that you'll agree that this objective was far exceeded. You will get snapshots into the thoughts and processes of a diverse collection of game developers from around the world - game developers that each have successfully envisaged a game and taken it to market.

I hope that like me you feel recharged and are reinvigorated in your own efforts. I hope that the sage advice in these interviews is useful in navigating, selecting and working with the tidal wave of promising mobile game engines available. I hope that you can find the perfect engine for your mobile game and get it into the hands of an audience that loves it just as much as you.

## **C. J. Hanson: Tap 2 Dance Lil' Urban Dancer using Cocos2d for iPhone**

### **Background**

**Brownlee:** What is your current job title or position?

**Hanson:** Owner, Designer, and Developer at Hanson Interactive.

**Brownlee:** Where are you located?

**Hanson:** I'm either in California or Bangkok, Thailand.

**Brownlee:** Could you please introduce yourself?

**Hanson:** I got my BA in graphic design at California State University Long Beach but went on to get my first job as a flash (as2) and php programmer. Before going solo I was Director of Technology at The Buddy Group, a digital creative agency. Since the explosion of the Apple App Store, I have been an independent developer making fun and creative games and applications.

**Brownlee:** What are some mobile games that you have released?

**Hanson:** Tap 2 Dance Lil' Urban Dancer<sup>1</sup> is a multi-touch gesture match music game for iOS that you can play with the music you already own from your iPod library. There are over 100,000 players worldwide. This was the first game I developed for iOS.

Moop Sounds Funny<sup>2</sup> is a sound effects board with 48 top quality sounds. Each sound is represented by a carefully designed icon for easy recognition and fast reaction so that you can always chime in with comic timing.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Hanson:** Tap 2 Dance Lil' Urban Dancer.

**Brownlee:** What platforms was your game designed to support?

**Hanson:** iOS / iPhone.

**Brownlee:** Please describe your game?

**Hanson:** Tap 2 Dance is a multi-touch gesture match music game for iOS that you can play with the music you already own from your iPod library. Choose your dancer, outfit, and face (you can even use your own photos). Unlock achievements to gain Cred points which can be used to unlock even more content.

Tap the circles and slide through arrows using as many fingers as you can! See if you can get a x128 multiplier!!! Get in the groove to your own iPod music as your fingers dance their way across the screen. Will your fingers tangle or tango?

**Brownlee:** What genre is your game?

**Hanson:** Music / Arcade.

**Brownlee:** What date was it published?

**Hanson:** First release December 2010. The most recent update with iPad support and new graphics was November 2011.

**Brownlee:** Who published the game?

**Hanson:** Self-published.

**Brownlee:** What is its price?

**Hanson:** \$0.99. I launched at \$2.99 and it didn't sell at all, then I did a "free game of the day" promotion and afterwards sales were basically non-existent, so since then I have kept the price at \$0.99 as it is the only price, other than free, that seems reasonable to iOS gamers.

**Brownlee:** How many downloads?

**Hanson:** Over 100,000 total downloads, but unfortunately a much much lower number of paid downloads.

**Brownlee:** How much revenue?

**Hanson:** On a scale of 0 to 10, only about 1.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Hanson:** I got into iOS development just before the release of the iPhone 3G and the App Store so there were not many options for frameworks with iOS support. I began development of a puzzle game from scratch and started to build up my own framework based on my years of experience doing flash games. Within a few months, however, the scene grew and there were some game tools emerging that seemed like they could save me a lot of effort. Namely Torque 2D, Oolong engine, Irrlicht engine, sIO2, and cocos2d were the engines I found to be the most promising to fulfill my needs.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Hanson:**

- \* Licensing was a big point of consideration for me. Ideally I wanted something with a permissive open source license as opposed to a paid commercial license or a viral open source license.

- \* The engine had to include the source code so I could tailor it to my needs and fix bugs quickly.

- \* I only required a 2D engine, so 3D was just a bonus if it was supported.

- \* Performance and memory management had to be top notch to get the most out of the iPhone.

- \* There should be a hierarchical scene graph with support for nested scale, position, rotation, color and opacity.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Hanson:** Having the source code available and licensed under a permissive license such as modified BSD aka MIT. Initially cocos2d was released under a custom license that was permissive but I encouraged Ricardo Quesada, creator of cocos2d, to relicense everything under the MIT license so that there would be no legal question as to what was allowed; and so, with the blessing of other contributors, he did.

**Brownlee:** What systematic process did you use to choose a game engine?

**Hanson:** The general code style and organization of their framework had to make sense to me.

**Brownlee:** What research did you do into game engines?

**Hanson:** I got all of the information on each engine from its own website and documentation. It was probably too early to be judging a framework based on the size of its community so I didn't.

**Brownlee:** Which off-the-shelf game engine did you use?

**Hanson:** cocos2d

**Brownlee:** Why did you choose this particular mobile game engine?

**Hanson:** Cocos2d was one of the first of the permissive open source game engines for iOS. It had a lot of features ported over from its older sibling, cocos2d for python, such as full scene transitions, menus, sprite sheets, and menus. Basically it had so many more out of the box features than even its commercially licensed competition.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Hanson:** New developers should always take 5 minutes to search for a solution in the documentation or forums before asking for help.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Hanson:** Actually the sound engine included (CocosDenshion) caused headaches for me because I was making a music game that had to read the data from sound files while playing them back in real-time. This would not be an issue for 99.99% of games and is something easily swapped out for a different engine. I ended up licensing the FMOD audio engine<sup>3</sup>.

**Brownlee:** What is the best thing about working with this game engine?

**Hanson:** I must have good taste because when I first selected cocos2d it was just a fledgling port from an existing (and not very popular) python game engine but now it is one of the most popular game engines in the world with a very active community. So the best thing about this engine today is that it has such a vast network of developers and players. There are quite a few capable engines today, but you can't go wrong choosing cocos2d; it will even look good on a resume.

**Brownlee:** Would you ever consider writing your own game engine?

**Hanson:** I don't have any interest in starting a new engine from scratch, but I always like to dig into the framework and tweak things.

**Brownlee:** What would you do differently if you were to develop your game again?

**Hanson:** Making Tap 2 Dance now would be a bit different because the landscape has changed quite a bit. I developed a music game that started off as a rhythm game that was to ship with popular hip hop music. That idea didn't pan out since the licensing of music was too time and cost prohibitive.

It just so happened that around the same time Apple released an update for iOS that allowed programmatic access to the user's iPod library of music on the device. So I changed course and attempted to write a beat detection routine that could operate in real time while the music played back and would sync the game to any song the user chose.

It all sort of works but the beat detection isn't anywhere near as good as if you hand timed things to a known audio track like they do in Tap Tap Revenge. If I had to start the same

game today I wouldn't have wasted any time on the idea of licensing music in the first place.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Hanson:** If you are a new developer I recommend cocos2d because it has a huge forum full of answers for common n00b questions. And if you ask a question you will get a pretty quick response. There is even a 3D extension, cocos3d, so it is now an engine capable of developing any style of game.

**Brownlee:** Would you use this game engine again?

**Hanson:** I'm married to it by now. I actively develop new projects using it and contribute as many improvements as I can back to the code base.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Hanson:** I was out dancing at the club and thought that I'd like an iPhone game where I could get into the groove of tapping and swiping the screen to the beat of popular hip hop and dance music. Unlike Tap Tap Revenge style games where you just have to tap three buttons with tracks of notes flying at you, Tap 2 Dance would use the entire screen for input and encourage using as many fingers as you could manage. It would be a 2D play surface with an animated dancer in a scene that would do hip hop and break dance moves according to whether you completed each gesture.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Hanson:** There's not much better than reading an enthusiastic review of a game that I made.

**Brownlee:** Would you go through it all again?

**Hanson:** It was super hard work making a game, much more than I had planned for, but I have learned so much in making it that I am excited about making more games. I have even become a bit of an expert on cocos2d and have gotten several freelance programming gigs because of that.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Hanson:** I can't say it would be one thing because I've been so intimately involved in the community via code and the forums. I would just say thank you to all those who have contributed, especially Ricardo Quesada, who started this whole port of cocos2d to iOS.

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Hanson:** I can't choose just one favorite. I spend the most time these days in my racing rig playing GT5 on the PS3. When I'm playing games on my iPhone or iPad, I like so many games I can't even choose but a few honorable mentions should go to Tiny Wings, Beat Sneak Bandit, and Groove Coaster. And my all time favorite games are Rock Band (drums xbox360), Mortal Kombat (I, II, and III in the 'cades), The Legend of Zelda (NES), and Metroid (NES).

**Brownlee:** What are you currently working on?

**Hanson:** Right now I'm working on a game that is so big that it will change the world, but I can't talk about it.

In the meantime, I hope you will get your groove on playing Tap 2 Dance or just tickle your funny bone with Moop Sounds Funny.

**Brownlee:** Do you have any other comments on Game Development?

**Hanson:** Find a good designer if you don't have the skills yourself. Visual quality and continuity are very important for success on the App Store.

**Brownlee:** How can a reader or fan best get in contact with you?

**Hanson:** I'm happy to read messages from fans. Anyone can visit my website at <http://www.hansoninteractive.com> to contact me.

### **Footnotes**

[1]: Tap 2 Dance Lil' Urban Dancer <http://t2d.hiapps.us>

[2]: Moop Sounds Funny <http://moop.hiapps.us>

[3]: FMOD audio engine <http://www.fmod.org>



## **Daniel Vilchez Carpio: Mosquito's Insomnia using Cocos2d for iPhone**

### **Background**

**Brownlee:** What is your current job title or position?

**Dani:** Full-time indie developer

**Brownlee:** Where are you located?

**Dani:** El Palo, Malaga, Spain

**Brownlee:** Could you please introduce yourself?

**Dani:** I'm a computer engineer and, after working as a web developer and programmer for some companies, I wanted to try the indie video game development adventure with my brother Alberto, a great pixel artist. I've got a solid 2D videogame background, and have developed 2D games using different tools like RPG Maker<sup>1</sup>, Flash and AS3<sup>2</sup>, and cocos2d framework for iOS. I also have got skills for graphic design, audio editing and music composition. I always prefer to make things on my own if it's possible. That way, I will probably learn something new and, in my opinion, not depend on too many other people it is very important in the indie business.

My goal, at the moment, is to bring back the magic of those pixelart arcade games we played years ago, harnessing the power of the new mobile devices. We publish games as MeanMob.com, our domain name.

**Brownlee:** What are some mobile games that you have released?

**Dani:** "Mosquito's Insomnia" was our first iPhone game. The idea was to make a quick and easy game to learn the cocos2d game engine framework and the App Store publishing process and to make mistakes. It's a tapping game, nothing new, but with awesome pixel art graphics and very polished. Stay tuned for our upcoming new game, a pixelart aviation shooter we started years ago in Flash, that now is about to be finished and released for iPhone.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Dani:** Mosquito's Insomnia.

**Brownlee:** What platforms was your game designed to support?

**Dani:** iOS / iPhone.

**Brownlee:** Please describe your game?

**Dani:** Mosquito's Insomnia is a survival tapping game. You must defend the mosquito from flying humans that don't let him sleep by crushing them. It's our first iOS project and the objectives were to understand the Cocos2d game engine and the whole App Store publishing process. It's a pixel art mini game that look polished overall. Like we describe in the App Store:

Protect the mosquito from irritating flying creatures called "humanitos" and enjoy this old style arcade "crush'em up" where your goal is to survive as long as possible, and score more points than anyone else in the world! Be number one in the leader-boards. How? Making combos, getting all the money, avoiding the bombs and beating the sheep

up!

The main goal is to unlock all game modes and the sketches gallery, then you can focus on beating world high scores. The game features one of the best high detailed pixel art graphics you can find on the App Store, so I suppose it's an essential title for pixel game collectors! In fact, our pixelart effort has been recognized in important communities like PixelJoint or deviantArt.

**Brownlee:** What genre is your game?

**Dani:** Tapping mini-game, survival, beat high scores.

**Brownlee:** What date was it published?

**Dani:** May 26th 2011

**Brownlee:** Who published the game?

**Dani:** It was self-published.

**Brownlee:** What is its price?

**Dani:** The current price is US \$0.99, although we have been varying the price for testing purposes.

**Brownlee:** How many downloads?

**Dani:** The game is available for iPhone only. We have no accurate download numbers because we started to seriously control that too late. When the game cost \$0.99 we received very little downloads, but we made the game free for 4 days (announcing the price drop on some main forums) and we got 11,000+ downloads!

**Brownlee:** How much revenue?

**Dani:** We have no accurate numbers on revenue either, although we made some conclusions we would like to share. As an indie developer, to sell games you need to accomplish two key goals:

- \* Make a good game. A good game is polished overall. You need stunning graphics, engaging game mechanics, cool music and all that make a game be on top.
- \* Get exposure. This is, unfortunately, much more important than the previous condition. The App Store is filled with games, so being visible becomes vital. But it's difficult to compete with big companies spending money on massive marketing campaigns. So you are forced to do your best!

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Dani:** I was looking for a 2D game engine. After comparing some of them (cocos2d-iphone, Corona SDK, Torque, and others) I decided to go with cocos2d. Using a game engine lets you focus on what I think is the most important, developing games. I personally don't want to develop a game engine or framework, or waste time with low level coding. I want to develop a game. I'm more an artist than a programmer, that's the truth.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Dani:**

- \* 2D capability.
- \* Price.
- \* Complete and easy to use API.
- \* Visual editors and tools.
- \* Good documentation and community.
- \* Open source, expandable, modifiable, versatile.
- \* Multi-platform.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Dani:** As an indie developer, the price is a key factor. Also open-source will help you modify the framework to fit your needs.

**Brownlee:** What systematic process did you use to choose a game engine?

**Dani:** Best to meet requirements. I look for a framework that fits my primary needs (for example, 2D capabilities), then look at the price and finally look at games built with that game engine. In fact, games show the true potential of the game engine.

**Brownlee:** What research did you do into game engines?

**Dani:** Google, blog posts, people opinions, comparisons. Google basically.

**Brownlee:** Which off-the-shelf game engine did you use?

**Dani:** cocos2d

**Brownlee:** Why did you choose this particular mobile game engine?

**Dani:** Like they say: "Free, Fast, Easy to use and Community Supported". All is true at the moment. This game engine (cocos2d-iphone) is free and open source, it has a great community and it's continuously evolving and improving. Perfect for indie 2D game developers.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Dani:** With cocos2d you will code too much, in my opinion, to manage data, graphics, etc. It's not trivial. You must have a programming background to start using cocos2d, some Objective-C, C and OOP<sup>3</sup> knowledge. There are external visual tools to work with, though. In fact, built-in editors (visuals, actions, etc) for cocos2d would be an awesome new feature. Definitely, you need programming background to use cocos2d, so it's not a game engine for artists or non-programmer guys.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Dani:** There is no pitfall at all. Maybe the description of the framework is not correct. I think that cocos2d is not a game engine, but a graphics engine with some add-ons (like the audio engine, Box2D and Chipmunk physics engine). But I'm sure that cocos2d will become a powerful game engine in the future.

**Brownlee:** What is the best thing about working with this game engine?

**Dani:** It's Objective-C based, open source and gives very good performance. You will learn a lot of useful things and the community will help you in whatever you need.

**Brownlee:** Would you ever consider writing your own game engine?

**Dani:** NO. The time you spend creating your own game engine is time you don't spend

on creating games. I enjoy making games, not making game engines or tools. In my opinion, your game will not be much better if you use your own custom game engine, and you will waste time. I prefer to use already existing tools and focus on developing a product, a game. Isn't that the goal of a game developer?

**Brownlee:** What would you do differently if you were to develop your game again?

**Dani:** I would read a book about the game engine I'm going to use before starting the project. Knowing the whole framework will prevent you from making common mistakes and from iterating too many times over your code, and that will save you some time. Also, your first project should be a short one, but including all main features that a current mobile game should have. That way you will cover almost all important aspects and tricks about game development using that game engine.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Dani:** First question a game developer should ask himself: what type of game do you want to make? 2D or 3D? That's a key factor. The game engine will limit the type of games you can create, and the time required to learn. As an example, for a simple tic-tac-toe game you don't need Unity 3D. You don't need a flamethrower to light a cigar.

The second question: what are your programming skills? Do you need visual editors? I think that game engines are more valuable when they let different types of users develop quality games, independently of their skills. Actually, if a graphic artist can't make a game with some game engine, then we could say it's not a good game engine. For example, RPG Maker is a good game engine because even non programmers can develop a game. It's too specific (used mostly for 2D RPG games) but everybody can use it and obtain quality games. So, as a game engine, it's good.

The rest is looking at the price, open source, documentation, API, support, multi-platform and all features you need as a game developer.

**Brownlee:** Would you use this game engine again?

**Dani:** Sure thing! In fact, our second project is being developed using cocos2d. The more you use a good framework, the more you like it, mostly because you begin to master it. In this case, cocos2d keeps evolving and improving, has a great community and it's a great choice for developing 2D games for iPhone.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Dani:** I always wanted to develop an aviation shooter game. I started it in Flash, then a fellow worker introduced me to the iPhone world, and then all clear. But being new to iOS game development and cocos2d framework, I thought the best option would be to publish a short game and learn the whole development and publishing process before starting a more demanding project. This is where "Mosquito's Insomnia" comes in, a tapping mini game, with some humor and polished graphics and controls. It's 4 months work, non full-time, with my brother Alberto as lead graphic artist. This game served to learn the intricacies of iOS development, publishing and marketing.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Dani:** It's simply awesome. Publishing a game is not available to all, so if you manage to

get it, you feel lucky and proud of yourself. You need to work hard in many fields like programming, graphic design, sound edition, music composition, put it all together and create a polished product. Is there something more challenging than this? If you are good at marketing, your game will be played by lots of people.

**Brownlee:** Would you go through it all again?

**Dani:** Of course! When you love indie video game development, you do whatever you need to achieve your goal, even if it's hard as hell. For me, this is not only about business, it's about passion for 2D video games. My brother and I love 2D pixel art video games, we enjoy and learn from them, and we want to share our old school feelings with other users through our games.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Dani:** Yes, a simple question that can be answered with yes or yes:

Ricardo Quesada, did you know that the hard effort of you and your team of developers make lots of iOS game developers dreams come true? Keep up the hard work!

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Dani:** There are a lot of games I love, so I will summarize so that you can understand my video game background. From the pixel art era: Metal Slug (whole saga), Air Gallet, Megaman X (whole saga), Snow Bros, Street Fighter Alpha 3, Final Fight, Undercover Cops, In the Hunt, Kirby, and many more.

From the 3D era: Abe's Oddysey and Abe's Exodus, Final Fantasy (7, 8, 9), Resident Evil (1, 2, 3, Code Veronica), ICO, Shadow of the Colossus, Metal Gear 1, Ace Combat (2, 4, 5, Zero), GTA (Vice City), Syphon Filter 1, and more.

It's difficult to pick only one!

**Brownlee:** What are you currently working on?

**Dani:** We're working on our second iPhone game, an unnamed 2D pixelart aviation shooter that will bring lots of action! Have you ever wanted to fight against a Nimitz class aircraft carrier or a Yamato class battleship in the old school way? Then you will enjoy our next project. Stay tuned!

**Brownlee:** Do you have any other comments on Game Development?

**Dani:** I have much advice, from my own experience, and I can write several pages about that. But we're talking about game engines, so I will stick to the subject. A good game engine lets everybody (programmer or non programmer) reflect their ideas into a game easily. A good game engine makes it easier to you to focus on the game resources (graphics, SFX, music, level design, AI) and doesn't let you waste time fighting framework bugs, setting templates, coding low level, learning computer jargon or whatever. I know some good artists out there that have very cool ideas and can't bring them to life on their own because most game engines seem to be focused on programmers. Please, remember, not all potential game developers are programmers. Even I, a computer engineer, prefer game engines where I can do almost everything in a visual way. Code less, fewer bugs, more productive... that's the idea!

**Brownlee:** How can a reader or fan best get in contact with you?

**Dani:** You can contact us in many ways:

\* Web: <http://meanmob.com>

\* e-mail: [meanmob@gmail.com](mailto:meanmob@gmail.com)

\* Twitter: @MeanMob

\* YouTube: <http://www.youtube.com/user/MeanMob>

### **Footnotes**

[1]: RPG Maker <http://www.rpgmakerweb.com>

[2]: Action Script 3

[3]: Object-Oriented Programming

## **Ahsan Shafiq Chaudhry: Babes vs Robots using Cocos2d for iPhone**

### **Background**

**Brownlee:** What is your current job title or position?

**Chaudhry:** Mobile Game Developer.

**Brownlee:** Where are you located?

**Chaudhry:** Lahore, Pakistan.

**Brownlee:** Could you please introduce yourself?

**Chaudhry:** I completed my undergrad in Computer Sciences in 2010 and started working with a software house, that focused on outsourced work. While I was there we started to develop our own apps. I quit and joined a company named Banckle and continued to develop iOS and Android apps. Two months ago I quit from there and started my own business. Now I have my own clients and I have started developing my own apps.

**Brownlee:** What are some mobile games that you have released?

**Chaudhry:** There are many which I have programmed but I don't own these because I just programmed and they are not mine. Some examples include Babes vs. Robots, Wack in the Box, and Jellysting. I have ported ABC's Zoo from Android to iOS but it has not appeared in the Apple app store yet.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Chaudhry:** Babes vs Robots<sup>12</sup>

**Brownlee:** What platforms was your game designed to support?

**Chaudhry:** iOS / iPhone.

**Brownlee:** Please describe your game?

**Chaudhry:** Babes vs Robots, which I programmed for a client. It's a physics based game, where you have to shoot weapons at robots.

**Brownlee:** What genre is your game?

**Chaudhry:** Shooter.

**Brownlee:** What date was it published?

**Chaudhry:** June 14th 2011.

**Brownlee:** Who published the game?

**Chaudhry:** Tiny Spaceman Media, LLC.

**Brownlee:** What is its price?

**Chaudhry:** \$0.99.

### **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Chaudhry:** Actually, none, although I was in favor of open source engines. I had programmed in cocos2d before and I knew this was the framework I should use for a 2D game. Secondly, if I did not use cocos2d I would be writing my own engine because that's what a good programmer does! Cocos2d structure is similar to engine I'd create, by

which I mean it's that intuitive.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Chaudhry:** I'd say community, documentation and API. Game engines for iOS, started around 2008-09. It took a few years before they got really mature. When I wrote Babes vs Robots, it was when cocos2d was maturing and in this particular period, you can easily expect crucial bugs. So I think for any good open source framework it is necessary that it has community support i.e. people discussing implementations, algorithms, bugs, solutions etc. All other features depend on community support and its just a matter of time before your required feature is implemented.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Chaudhry:** I think Community support. Let me give an example: I think either the mobile game engine should be open source (with awesome active community, like Cocos2d) or it should be like unity3D, not open source (which means expensive) but again with great support, but in my case, I didn't have time to spare for the learning curve, nor money to pay for unity3D.

**Brownlee:** What systematic process did you use to choose a game engine?

**Chaudhry:** I had two options 1: use an open source engine 2: code my own engine. I didn't know any open source engine except Cocos2d, so I went with it.

**Brownlee:** What research did you do into game engines?

**Chaudhry:** Cocos2d forums, that was my home page at that time.

**Brownlee:** Which off-the-shelf game engine did you use?

**Chaudhry:** Cocos2d-iPhone

**Brownlee:** Why did you choose this particular mobile game engine?

**Chaudhry:** Open source and great community support.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Chaudhry:** Read the starting guide, and since its open source just read the source.

**Brownlee:** Would you ever consider writing your own game engine?

**Chaudhry:** Yes! I'd love to write my own engine, but I see the glimpse of my own engine in cocos2d. If I get time I'd love to write one but my schedule is pretty tight. I'd rather contribute to cocos2d to satisfy my urge to write my own engine.

**Brownlee:** What would you do differently if you were to develop your game again?

**Chaudhry:** Make it open source.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Chaudhry:** Again I think "Support" is the feature I'd look for when choosing the mobile game engine.

**Brownlee:** Would you use this game engine again?

**Chaudhry:** Sure, yes! I can do all the possible 2D stuff with cocos2d.



## Having a Finished Game

**Brownlee:** Why did you make this game?

**Chaudhry:** It was challenging i.e. it was similar to Angry Birds and once accomplished I felt so good. At-least now I can say "I programmed a game similar to Angry Birds".

**Brownlee:** Would you go through it all again?

**Chaudhry:** It was hard work but I loved it.

## Final Questions

**Brownlee:** What is your favorite game in the world and why?

**Chaudhry:** Zombie Smash is one.

**Brownlee:** What are you currently working on?

**Chaudhry:** I am making my own game in cocos2d, the name is not yet finalized but probably I'd name it "Save the Sugar" :P.

**Brownlee:** How can a reader or fan best get in contact with you?

**Chaudhry:**

\* Email: [ahsan.shafiq786@gmail.com](mailto:ahsan.shafiq786@gmail.com)

\* Linked in: <http://www.linkedin.com/profile/view?id=43205019>

## Footnotes

[1]: Babes vs Robots Homepage <http://www.babesvsrobots.com>

[2]: Babes vs Robots in iTunes <http://itunes.apple.com/us/app/babes-vs.-robots/id456853926?mt=8>

## **Jose Miguel Gomez Gonzalez: The Big Little Quest using Cocos2d for iPhone**

### **Background**

**Brownlee:** What is your current job title or position?

**Gonzalez:** I work for myself as the main developer and director of my company.

**Brownlee:** Where are you located?

**Gonzalez:** Barcelona, Spain, although when I wrote and released the game I was in London, UK.

**Brownlee:** Could you please introduce yourself?

**Gonzalez:** I'm a software engineer with more than 12 years experience working in the web industry, mainly server side and Flash ActionScript. I have been working for myself for the last 9 years, and focusing on mobile games for the last 3 years. I've got a Computer Science degree and before that I was self-taught. I have already released a few iOS games for myself and for my clients. The most exciting project is something I'm currently working with on some partners and it's going to change how we play games on iOS (hopefully).

**Brownlee:** What are some mobile games that you have released?

**Gonzalez:** My first game Alone<sup>1</sup> is an isometric platformer game. I spent about 1 year and a half (of my free time) to develop this engine and release the game. I then released a second game using the same engine called The Big Little Quest<sup>2</sup>. Neither of them had massive downloads, just few thousands (and mostly free).

I also did some work for clients. The last one was a puzzle game for Cory Games and the Time Geeks series called Time Geeks Cloneggs<sup>3</sup>. This one had so far about 20,000 downloads, still not massive (since it's a free app).

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Gonzalez:** The Big Little Quest.

**Brownlee:** What platforms was your game designed to support?

**Gonzalez:** iOS / iPhone.

**Brownlee:** Please describe your game?

**Gonzalez:** The Big Little Quest is a classic room based isometric adventure game.

**Brownlee:** What genre is your game?

**Gonzalez:** Adventure.

**Brownlee:** What date was it published?

**Gonzalez:** September 2011.

**Brownlee:** Who published the game?

**Gonzalez:** Self-published.

**Brownlee:** What is its price?

**Gonzalez:** \$0.99.

**Brownlee:** How many downloads?

**Gonzalez:** About 2,000.

**Brownlee:** How much revenue?

**Gonzalez:** Really not much, around \$1,200.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Gonzalez:** I first evaluated cocos2d since it covered all I needed. Since I had lot of experience with Flash, actionscript and cocos2d that worke in a similar, way so that really helped. I evaluated other engines later on, like Sparrow, but cocos2d was well ahead of them and with a strong community building up.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Gonzalez:** Basically graphics, the ability to manage sprites and spritesheets, scenes and layers, and support as well for buttons and menus.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Gonzalez:** Spritesheets support, batchnodes, particles, physics engine (or well integration with any of them), and good integration with tools like TexturePacker or Glyphdesigner, among others (cocos2d offers integrations with a lot of tools)

**Brownlee:** What systematic process did you use to choose a game engine?

**Gonzalez:** Probably the first thing that attracted me from cocos2d was the similarities with Flash actionscript.

**Brownlee:** What research did you do into game engines?

**Gonzalez:** First google, then once I found cocos2d, the forum and the community support.

**Brownlee:** Which off-the-shelf game engine did you use?

**Gonzalez:** cocos2d-iphone

**Brownlee:** Why did you choose this particular mobile game engine?

**Gonzalez:** It was pretty easy to put together something pretty fast to demonstrate what I needed to do.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Gonzalez:** A game engine or framework is not going to create the game for you, it's going to help you but you still need good programming skills if you want to do something outstanding.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Gonzalez:** Nothing really, it covers all game aspects perfectly fine, perhaps a bit of lack of support when working with apps and standard UI components, but not really an issue with games.

**Brownlee:** What is the best thing about working with this game engine?

**Gonzalez:** A very dedicated creator, Ricardo Quesada, and the community behind it, lot

of people contributing and giving a lot of help and free code examples on the forum.

**Brownlee:** Would you ever consider writing your own game engine?

**Gonzalez:** No, there wouldn't be any advantage to doing so since cocos2d has lot of hours of work behind it, and a lot of people contributing to it.

**Brownlee:** What would you do differently if you were to develop your game again?

**Gonzalez:** Lot of things. I've learned a lot since my first game, and the main key is to simplify things, trying to make too complex things usually doesn't work.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Gonzalez:** The main thing to consider is what kind of game are you going to develop (2D or 3D mainly), and what platforms you want to support.

**Brownlee:** Would you use this game engine again?

**Gonzalez:** If I were to create an iOS only game, yes, with no question. But I am also considering other alternatives for cross-platform developments.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Gonzalez:** I love programming and I love programming games! I always wanted to do something and the iOS platform is a great way for us independent developers to have our opportunity.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Gonzalez:** It really feels great. At the beginning it felt a bit frustrating to have spent so much time on a game and only get like 2000 downloads, but then you realise 2000 people have your game!

**Brownlee:** Would you go through it all again?

**Gonzalez:** Of course, I have already done a it few more times and will do continue to do so as many times as I can.

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Gonzalez:** Batman (Ocean) on the ZX Spectrum, it is my favourite game ever.

**Brownlee:** What are you currently working on?

**Gonzalez:** I'm working on lot of things at the moment, too many! My main projects are the next series of Time Geeks (Cory Games), Medieval, a really great game, an action-strategy game using isometric and pixel art (the two things I most love in games!).

We are also working on something that if it works, it's going to change the way we play games on mobiles and tablets! Hopefully! But I can't tell much yet, since it's too early.

**Brownlee:** Do you have any other comments on Game Development?

**Gonzalez:** Just to tell people to keep making great games. To the indie developers keep up the good work and try to have your bit of business, if you can, since it's a great job to do!

**Brownlee:** How can a reader or fan best get in contact with you?

**Gonzalez:** Emails at [co@itlgames.com](mailto:co@itlgames.com)

## **Footnotes**

[1]: Alone <http://itunes.apple.com/us/app/alone/id356286001?mt=8>

[2]: The Big Little Quest <http://itunes.apple.com/us/app/the-big-little-quest/id434397667?ls=1&mt=8>

[3]: Time Geeks Cloneggs <http://itunes.apple.com/us/app/time-geeks-cloneggs/id436734457?mt=8>

## **Valerio Mandarino: ZX Piano using Cocos2d for iPhone**

### **Background**

**Brownlee:** What is your current job title or position?

**Mandarino:** I'm a teacher of IT and an indie game developer.

**Brownlee:** Where are you located?

**Mandarino:** I live in Catania, Italy.

**Brownlee:** Could you please introduce yourself?

**Mandarino:** I started programming when I was a child. My first computer was a sinclair ZX Spectrum 16K. I switched to 128K+2 later. I always wanted to develop games since I had the Speccy. In 2001 I started working as developer and I degreed in IT in 2006. In 2011 I Became a High School Teacher but I keep working on my projects.

**Brownlee:** What are some mobile games that you have released?

**Mandarino:** I released ZX Piano, that is my first project in Objective C. It's not a videogame, it's an 8-bit musical keyboard, the ZX Spectrum keyboard! I'm planning to update it, when I'm done with two projects I'm working on.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Mandarino:** ZX Piano.

**Brownlee:** What platforms was your game designed to support?

**Mandarino:** iOS / iPhone.

**Brownlee:** Please describe your game?

**Mandarino:** ZX Piano is an 8-bit musical keyboard.

**Brownlee:** What genre is your game?

**Mandarino:** Musical game.

**Brownlee:** What date was it published?

**Mandarino:** September 28th 2010.

**Brownlee:** Who published the game?

**Mandarino:** Self-published.

**Brownlee:** What is its price?

**Mandarino:** \$0.99.

### **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Mandarino:** I always thought that I would have used SDL for iPhone to create it.

SDL it's not an engine but if you use it with OpenGL you can create a great engine. Finally, my choice was Cocos2D.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Mandarino:** Graphics and sound. I didn't care about physics.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Mandarino:** I think that the most important thing is to understand how it works as easily as possible.

**Brownlee:** What systematic process did you use to choose a game engine?

**Mandarino:** I started looking for tutorials. At that time there were no books about it, so tutorials were the best way to get in touch with it. I found a great site that every Cocos2D developer knows called Ray Wenderlich Tutorials<sup>1</sup>.

**Brownlee:** What research did you do into game engines?

**Mandarino:** Google.

**Brownlee:** Which off-the-shelf game engine did you use?

**Mandarino:** Cocos2D for iPhone.

**Brownlee:** Why did you choose this particular mobile game engine?

**Mandarino:** It is very powerful and very easy to learn

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Mandarino:** It has a great community support!

**Brownlee:** What is the best thing about working with this game engine?

**Mandarino:** It's easy and fast to understand. Its performance is very good.

**Brownlee:** Would you ever consider writing your own game engine?

**Mandarino:** No, it is better to concentrate on your games and save a lot of time.

**Brownlee:** What would you do differently if you were to develop your game again?

**Mandarino:** Many things. Every time I read my own code after one year I think that I could have done better.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Mandarino:** Find a well documented and supported engine.

**Brownlee:** Would you use this game engine again?

**Mandarino:** Yes, I think I'll use it for PC games as well.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Mandarino:** It was my first experiment, my first real iOS game is still under construction.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Mandarino:** It's great! It didn't sell a lot but I'm happy because it's not easy to get in to the AppStore, there are a lot of rules and code signing and the process to upload the binary, made my cry.

**Brownlee:** Would you go through it all again?

**Mandarino:** It's always hard work, but I love it.

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Mandarino:** Half Life, because it is Half Life!

**Brownlee:** What are you currently working on?

**Mandarino:** I'm working on two projects: a book for iPad and a game for iPhone.

**Brownlee:** Do you have any other comments on Game Development?

**Mandarino:** Game development is really complex, it's an art.

**Brownlee:** How can a reader or fan best get in contact with you?

**Mandarino:** Email: [mandarx@gmail.com](mailto:mandarx@gmail.com).

## **Footnotes**

[1]: Ray Wenderlich Tutorials <http://www.raywenderlich.com/>



## **Anders Lundberg: Yacht Dice Games using Cocos2d for iPhone**

### **Background**

**Brownlee:** What is your current job title or position?

**Lundberg:** Indie Developer and Freelance writer.

**Brownlee:** Where are you located?

**Lundberg:** Ulaanbaatar, Mongolia.

**Brownlee:** Could you please introduce yourself?

**Lundberg:** I have no background at all in development really, because I ventured into iPhone games development in 2010. I had tried to learn Delphi and C++ way back in high school, but never got off the ground. Then I had a summer to 'burn', and some cool ideas for apps I thought, so I picked up a book and started teaching myself. Six months later I released my first game, which is unfortunately still my only game in the store. I've been working sort of on and off on my second game for almost a year now, it's a rather complicated word game and I want to make it perfect before releasing it, but it's taking a lot of time since I don't do it full time and sometimes lose my inspiration.

**Brownlee:** What are some mobile games that you have released?

**Lundberg:** My only game actually released so far is Yacht Dice Games. It was the first "yahtzee" type game in the App Store that let's you play with correct Scandinavian rules (at least I think so), but it also has standard rules. I've sold about 7,500 copies so far, but at different price points, so I think I've broken even at least. I'm rather pleased with it, and I've had very good reviews in the store.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Lundberg:** Yacht Dice Games.

**Brownlee:** What platforms was your game designed to support?

**Lundberg:** iOS / iPhone.

**Brownlee:** Please describe your game?

**Lundberg:** Yacht Dice Games is dice game simulator that let's 1-4 players battle it out using several different rule sets: Standard (same as in Hasbro's Yahtzee), Scandinavian (a.k.a. Yatzy), Maxi Yacht (6 dice, much more complex tactics), and Generala (a Latin American game).

You can play either local games (shared device or two devices over Bluetooth) or through Game Center. The game also has Game Center leaderboards and achievements. Yacht has a larger focus on the actual dice rolling than most similar games in the App Store, and was the first game in the store to allow play using the complete Scandinavian rules that players in Sweden, Norway and Denmark, as well as in Finland, are used to.

**Brownlee:** What genre is your game?

**Lundberg:** Dice.

**Brownlee:** What date was it published?

**Lundberg:** February 2011.

**Brownlee:** Who published the game?

**Lundberg:** Self-published.

**Brownlee:** What is its price?

**Lundberg:** Usually \$1.99, but I often run promotions at \$0.99.

**Brownlee:** How many downloads?

**Lundberg:** Paid version has around 8,000 downloads (I got a couple thousand during a free promotion), and free version around 22,000 downloads.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Lundberg:** Cocos2d, Corona and Sparrow.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Lundberg:** Comprehensive sprite graphics, preferably Objective C, continuously developed, API that seems intuitive.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Lundberg:** Easy to use sprite graphics that completely obscure the underlying OpenGL but still lets you get gritty with it if you want to (like adding your own shaders or changing the draw method of a specific sprite).

**Brownlee:** What systematic process did you use to choose a game engine?

**Lundberg:** None, because I had no experience and just looked for one that looked easy to learn and familiar to the UIKit stuff I had been learning so far.

**Brownlee:** What research did you do into game engines?

**Lundberg:** None, really. Just looked at the API's of a couple I found, and the community around them.

**Brownlee:** Which off-the-shelf game engine did you use?

**Lundberg:** Cocos2d-iPhone.

**Brownlee:** Why did you choose this particular mobile game engine?

**Lundberg:** Ultimately I think the availability of a lot of tutorials based on Cocos2d was a major contribution to my decision, but the fact that it's Objective C which I was familiar with from learning UIKit helped, as did the big and active community, and the fact that it seemed a bit more mature than Sparrow and more flexible than Corona.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Lundberg:** There's really a ton of useful tutorials, on sites like Ray Wenderlich<sup>1</sup> and Learn Cocos2d<sup>2</sup>. Plus the Cocos2d forum is very active and already has answers to a ridiculous number of common questions (hint: search carefully before asking something). The engine is flexible enough that you can go from almost as simple as a scripted engine to very complex and customized stuff with your own shaders, your own drawing and whatever you want. It's easy to start with the high level stuff and later add some low level specialization if you require it.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Lundberg:** By far the biggest issue for beginners is that the default setup for scenes and layers has historically been very confusing. It might have been changed by now, but it used to cause a new question to pop up in the forum almost every day. The problem was that there was a single HelloWorld layer that had a method that returned a scene object with itself attached. People naturally assumed that should be the normal way of doing it, while in fact it's only appropriate for the simplest of games and in reality you probably should have custom scenes.

**Brownlee:** What is the best thing about working with this game engine?

**Lundberg:** That it's so flexible. You can make very simple things very quickly, almost like a scripting engine, but you can always add more advanced stuff and mix and match.

**Brownlee:** Would you ever consider writing your own game engine?

**Lundberg:** No, mostly because it would never be worth all the time spent learning OpenGL and then being quite unlikely to actually achieve better performance than Cocos2d anyway.

**Brownlee:** What would you do differently if you were to develop your game again?

**Lundberg:** I would do a lot more planning and make my class structure flexible enough to handle big changes during development. I had to do a major rewrite of my game when I added online multiplayer, which I could have avoided if I had made the basic game layout more open. But that's more of a rookie mistake in development in general than anything to do with Cocos2d.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Lundberg:** Go with whatever feels intuitive to work with for you, but make sure the engine can handle whatever functions you think you might one day add to the game (such as online multiplayer, a physics engine or whatever else you can think of). If you've done Flash development before you might find Cocos2d-iPhone to be too "programmy" and prefer Corona or Sparrow, and if you've already done games development in C or C++ you might like Cocos2d-x better.

**Brownlee:** Would you use this game engine again?

**Lundberg:** Yes, I'm already using it developing my next game. I like Objective C, and I find this engine fits very well with how I think. I rarely run into problems I can't quickly solve myself, and if I do a quick search on the forums is usually enough to "unlock" me.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Lundberg:** Two things: 1) I wanted to make a complete iPhone app by myself. 2) I wanted there to be a Yahtzee game with Scandinavian rules. At the time I started there were none, but around the same time as mine came out a couple of others came out too, though I think I've done better than most of those.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Lundberg:** I have about 7,600 players of the paid version and 21,000 of the free version in total, though a lot of those have obviously lost interest over time and don't play anymore. It's great to have made something all by myself that people enjoy (and they do,

because I tend to get very good reviews in the store and people to whom I directly recommend it usually come back and tell me they like it).

**Brownlee:** Would you go through it all again?

**Lundberg:** I already am, though progress has been a bit slow on my new game.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Lundberg:** You've spent thousands of hours coding something that thousands of people are using to make millions of dollars, and you're giving it away for free. How cool are you?

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Lundberg:** Well I think you meant videogames, but I'm gonna ignore that and say Dungeons & Dragons. I just started playing again after a 6 year hiatus, over Skype because I live far away from my friends, and it's a lot of fun.

**Brownlee:** What are you currently working on?

**Lundberg:** I'm working on a word game for multiple languages that I think has a chance of being really cool. I have the basic functionality, such as a working dictionary search for finding words in a string and a bunch of other stuff ready, but I'm still working on the actual gameplay and graphics and I don't think I'll be ready for a few more months. When it's done it will be cool though.

**Brownlee:** Do you have any other comments on Game Development?

**Lundberg:** It's a lot of hard work and you have to enjoy simple stuff that has nothing to do with games like debugging and making utility code for network play, for storing game data and so much more. It takes a lot of time and it's a pretty risky business in the app store, even with a great idea.

**Brownlee:** How can a reader or fan best get in contact with you?

**Lundberg:** Easiest is by e-mail: [scryb@me.com](mailto:scryb@me.com)

## **Footnotes**

[1]: Ray Wenderlich <http://raywenderlich.com>

[2]: Learn Cocos2d <http://learn-cocos2d.com>

## **Joe Paiva Espindola: Brasil Quest using Cocos2dX**

### **Background**

**Brownlee:** What is your current job title or position?

**Espindola:** Senior Developer.

**Brownlee:** Where are you located?

**Espindola:** Brasilia, DF, Brazil.

**Brownlee:** Could you please introduce yourself?

**Espindola:** I used to work doing web development. After joining IMG Crossmedia Studio, I got into rigging and scripting in Maya. Today, I handle all our programming needs and also develop custom software to handle our workflow and project needs. I like the description "problem solver" better than computer developer for my day job position.

**Brownlee:** What are some mobile games that you have released?

**Espindola:** Only one so far. Brasil Quest was produced for the Brazilian Agency of tourism, Embratur, to showcase all 12 cities that will host the 2014 World Cup in Brazil. Overall on the App Store, we had a little more than 5k downloads so far. We have an average of about 40 installs a day. Our game is free.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Espindola:** Brasil Quest.<sup>1</sup>

**Brownlee:** What platforms was your game designed to support?

**Espindola:** iOS / iPhone, Android.

**Brownlee:** Please describe your game?

**Espindola:** Our game is a simple platform game that we used to showcase all 12 cities that will host the 2014 World Cup here in Brazil. Each level has its own theme and audio.

**Brownlee:** What genre is your game?

**Espindola:** Arcade Platformer.

**Brownlee:** What date was it published?

**Espindola:** March 2012.

**Brownlee:** Who published the game?

**Espindola:** Embratur.

**Brownlee:** What is its price?

**Espindola:** Our game is free. It was built for the Brazilian Tourism Agency, Embratur.

**Brownlee:** How many downloads?

**Espindola:** We have over 5,000 downloads on the app store. Our android port is considerable lower.

**Brownlee:** How much revenue?

**Espindola:** Since our game is free we don't have any.

### **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Espindola:** At the beginning of our project, we built demos using Unity3D. After seeing the amount of assets needed and the quality of the assets we needed to display, we decided that a 2D game would have better visuals.

After a few tries on the most popular engines, I decided to choose cocos2d for iPhone. I already knew that the client would like to build an android port in the near future, and cocos2dx was under heavy development, so choosing cocos2d seemed like a good choice.

After our game was nearly completed, the client decided to hold the game release for the iPhone and release on both platforms (iOS and Android) at the same time. So we converted all of our Objective-C code using cocos2d-iphone to cocos2dx using C++.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Espindola:** I was worried about the amount of assets we needed to display on the game level. So speed and optimization was key. Portability was another selling point. Cocos2d-iphone and cocos2dx both had excellent features and a good active community forum.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Espindola:** A great active community, willing to help others and improve the engine as a whole.

**Brownlee:** What systematic process did you use to choose a game engine?

**Espindola:** A stable and production proven game engine with community support and quality released games.

**Brownlee:** What research did you do into game engines?

**Espindola:** Google. And friends that had already developed games for mobiles.

**Brownlee:** Which off-the-shelf game engine did you use?

**Espindola:** Cocos2dX

**Brownlee:** Why did you choose this particular mobile game engine?

**Espindola:** We chose cocos2dX mainly because of its port for iOS and Android. They seemed fairly stable and already had good games released.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Espindola:** You need a good background in C++ development. Compilation, debugging, libraries and all aspects that involve development for C++ is a must for a good, small and smooth learning curve using the engine.

You will also need to know common aspects of the platforms for which you are trying to build a port. As an example; you simply cannot try to build a port for Android and not have a clue on how to develop for Android. Unless your game is a simple enough game, you eventually will have to dig into the specifics of the platform.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Espindola:** When we started, sharing the same code and libraries for both versions was a bit troublesome. With the new versions (0.12.0 onward) everything became a lot easier.

Including mixing OpenGL surface view with others views like the VideoPlayer and WebView in android, which when had a lot of trouble with previous versions before 0.12.

Almost all platform specifics problems we had were with the Android port. I do not blame cocos2dx alone. Android is too big, has too many different devices, and lot of unexpected things could happen!

**Brownlee:** What is the best thing about working with this game engine?

**Espindola:** Sharing the same code for both Android and iOS. Having the same code execute on both platforms and different hardware was the best part of the development.

**Brownlee:** Would you ever consider writing your own game engine?

**Espindola:** No! You simply cannot perform better and have a better community support then the great game engines already out there today. I think its best to improve the ones that are already available. Most of the good ones are free and open sourced anyway.

**Brownlee:** What would you do differently if you were to develop your game again?

**Espindola:** Write better code. Always! You always find better ways to write your old code. It never ends.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Espindola:** Go to the forum and don't be afraid to ask questions. If you get good and respectful answers, you will know if the game engine is the right one for you. Don't ignore community support! Most importantly, the community forum (or mailing list). In the end, it will beat any tutorials, pre-made examples or any detailed documented API out there.

**Brownlee:** Would you use this game engine again?

**Espindola:** Yes.

Cocos2dx is maturing fast, new features and support for other ports are coming. I would have to say that community support is not as large, neither as active as cocos2d-iphone, but is still good enough to help you through development.

You simply cannot beat sharing the same code for different platforms.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Espindola:** I always enjoyed playing games and since I was a kid, I always wanted a chance to develop one. I have been studying and building simple demos for presentations and small projects for a couple of years. It took me a couple of years to experiment and understand how game development was done and get ready to finally try and build a good solid game.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Espindola:** Feels good, especially when you devote a lot of time to a project and in the end it looks good. Not only artistically but technically, even though not a lot of people will see your bad ass platform-sharing, optimized, functional, and greatly designed coding!

**Brownlee:** Would you go through it all again?

**Espindola:** It was hard, but no days without too much sleep and working weekends will destroy the great feeling of having developed a published game that is not only good looking, but performs well on a lot of different devices and platforms!

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Espindola:** Lets keep up with cocos2d-iphone! We might get even better!

### **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Espindola:** Without doubt: XCom, enemy unknown. It opened so many great perspectives and creative ideas for other games.

**Brownlee:** What are you currently working on?

**Espindola:** We are currently updating our Android port and adding extra features to our game.

**Brownlee:** Do you have any other comments on Game Development?

**Espindola:** Dont lose your mind. It is not easy, but its not impossible. You need patience and willpower.

**Brownlee:** How can a reader or fan best get in contact with you?

**Espindola:** You can email me via [joe@img.tv](mailto:joe@img.tv), or visit our website at <http://www.img.tv>. I am always willing to help and get in touch with other developers!

### **Footnotes**

[1]: Brasil Quest in iTunes <http://itunes.apple.com/us/app/brasil-quest/id508642237?mt=8>



## **Andy Hawkins: Surf Prodigy using ShiVa 3D**

### **Background**

**Brownlee:** What is your current job title or position?

**Hawkins:** Owner, manager and developer.

**Brownlee:** Where are you located?

**Hawkins:** Perth, Western Australia, Australia.

**Brownlee:** Could you please introduce yourself?

**Hawkins:** Independent games developer and full time games course lecturer.

**Brownlee:** What are some mobile games that you have released?

**Hawkins:** Surf Prodigy and Turbo Flick release via App Store from DrewFX

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Hawkins:** Surf Prodigy.

**Brownlee:** What platforms was your game designed to support?

**Hawkins:** iOS / iPhone.

**Brownlee:** Please describe your game?

**Hawkins:** Surf Prodigy is a surfing simulation. You start on an easy beach break in an attempt to gain the interest of a sponsor. The quality of the sponsor depends on how well you surf. As you complete challenges for each surf break you are able to freely surf the next location then enter the competition. However competition entry fees get higher and you'll need a sponsor to support you with this. You can however choose to go it alone and compete without a sponsor, it just takes longer. A special Christmas update added a surf break off the edge of an iceberg with the chance to unlock a wearable item. I hope to add more special features like this soon.

**Brownlee:** What genre is your game?

**Hawkins:** Sports / Arcade.

**Brownlee:** What date was it published?

**Hawkins:** August 8th 2009.

**Brownlee:** Who published the game?

**Hawkins:** Self-published.

**Brownlee:** What is its price?

**Hawkins:** \$1.00.

**Brownlee:** How many downloads?

**Hawkins:** Around 10,000 over 3 years on iOS only.

**Brownlee:** How much revenue?

**Hawkins:** Well 70% of that so \$7,000.

### **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Hawkins:** I looked at Xcode and OpenGL, Torque, Unreal and ShiVa to develop the game. Xcode and OpenGL required a massive learning curve and down time to develop the 3d engine. Torque wasn't doing 3d at the time on the iOS. Unreal lacked documentation for the beginner. ShiVa has a great workflow from Lightwave and a really good IDE so I chose that. Plus, the community really supported iOS development.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Hawkins:** Physics, collision detection of meshes, sound, music, touch and accelerometer controls, 3d model translation, rotation, animation and material support.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Hawkins:** Easy asset workflow. Using a minimal toolset I was able to bring in all assets easily.

**Brownlee:** What systematic process did you use to choose a game engine?

**Hawkins:** I reviewed the games being created by each engine, then I did a beginner tutorial on each one. The one that got my test app on the iPod quickest won the test.

**Brownlee:** What research did you do into game engines?

**Hawkins:** Word of mouth and forums. I had a friend in the biz that had heard good things about ShiVa and he helped me with the asset workflow first.

**Brownlee:** Which off-the-shelf game engine did you use?

**Hawkins:** ShiVa

**Brownlee:** Why did you choose this particular mobile game engine?

**Hawkins:** Using the aforementioned processes and research of features I was convinced when with very little effort I could build a prototype in a matter of hours that supported my models and animation.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Hawkins:** Using LUA to script a game plus templates, I have prototyped all my game ideas in an evening, allowing me to share it with colleagues the next day and get early impressions for a game idea. Once a solid product emerges I then spent the time developing, not developing to Alpha and finding out it was a waste of time.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Hawkins:** The physics engine is a bit slow on earlier iOS chipsets. I had to optimise the iterations and calculations to keep the frame rate up for any devices before and including the iPhone 3G. Also, little or no support for Game Centre, iAd and in-app purchases.

**Brownlee:** What is the best thing about working with this game engine?

**Hawkins:** Asset workflow for the above reasons.

**Brownlee:** Would you ever consider writing your own game engine?

**Hawkins:** Yes I have written my own engine and it was too hard because the SDK kept changing too radically requiring rewrites all the time.

**Brownlee:** What would you do differently if you were to develop your game again?

**Hawkins:** I would probably write the game using an engine that support mesh deformation and real-time polygon collision detection of deforming meshes. Maybe Unreal or more likely Unity.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Hawkins:** Good graphics that work on the iOS like dynamic shadows, rapid 2d blitter, full or almost fully support shader engine and fast physics calcs.

**Brownlee:** Would you use this game engine again?

**Hawkins:** Yes I would use it again and again. They constantly add new platforms to port to and it's so easy to prototype ideas in a matter of hours.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Hawkins:** I started working on a surfing game in the 90s. I thought that using an accelerometer was a natural addition for a surfing game. The original passion was the prospect of becoming an Appillionaire, and racing to get my surf game out before Rip Curl or Billabong did.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Hawkins:** It feels great and it's a good source of passive income. I didn't make Surf Prodigy for everyone, which in hindsight I should have. I get a lot of criticism from haters, but you get that, like I want to say to some of them: "Try write a game yourself buddy!".

It's a great feeling to get over that hurdle of "What if I could make that game?". Now I know but I also realised that is so competitive now and everyone is giving their games away for free. I could never understand why a consumer wouldn't pay \$1 for my game? It's a strange model.

**Brownlee:** Would you go through it all again?

**Hawkins:** Yes it was hard, yes it's rewarding but you need to learn marketing to be successful which I'm now finally starting to learn. My next game should do better I think. I keep doing it because I want people to play in my worlds I create. I once said that the joy of making games is with just keystrokes and mouse clicks I can create magic on screen. That's a great feeling.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Hawkins:** Can you please make the water shader and fresnel shader work on iOS, to make my games look prettier?

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Hawkins:** Defender. Hardcore arcade blaster-fest. Because only some people in the world are good at it.

**Brownlee:** What are you currently working on?

**Hawkins:** I'm working on a Facebook game with an American partner, a horror game, a smash-em-up game, a cuisine game and new spin on my surfing game, but the big one I

want promote is HARD Corps, or Heavy Air Reconnaissance Dropship Corps. It's a blend of Defender and Tower Defence. It's grungy, it's sci-fi, it's hard and it's not for the meek at heart, but it's casual pick and play. Like thrash or metal scares some people, it's a game where you are afraid to play it. It will punish you. It will mock you (ala Z). It will own you. Sound good? That's how I am positioning it in the market. I think it's time to change the face of mobile gaming, and get away from cutesy and cuddly. If I make it into a game that scares some people off like how some people won't go see horror films then I will have achieved what I set out to do.

**Brownlee:** Do you have any other comments on Game Development?

**Hawkins:** Do it because you love it, not for the financial rewards. It's a dark art that not all your mates can do. It makes you feel special because with the click of the mouse, and keystrokes you can make magic happen on the screen. Sure everyone can learn to use these drag and drop engines to churn out spam for the app-store, but not everyone can complete a compelling and fulfilling gaming experience. Check your ego at the door, network with everyone, learn to market and get your hands dirty with the financials. Once that's all in place, put your headphones on, crank up the tunes, lock yourself in and start making games.

**Brownlee:** How can a reader or fan best get in contact with you?

**Hawkins:** Email me [admin@drewfx.com](mailto:admin@drewfx.com) or online at <http://www.drewfx.com>.

## **Fabrizio Terranova: Shootout Hero using ShiVa 3D**

### **Background**

**Brownlee:** What is your current job title or position?

**Terranova:** CEO at Illusionnetwork<sup>1</sup>.

**Brownlee:** Where are you located?

**Terranova:** Rome, Italy.

**Brownlee:** Could you please introduce yourself?

**Terranova:** I'm a professional manager into the video game development industry. I've about 12 years of experience in this sector. Currently I'm the CEO and with my new company and have been since 2005. We have developed many products for both mobile and desktop targets.

**Brownlee:** What are some mobile games that you have released?

**Terranova:** Concerning the mobile segment we developed, two products a game and a 3D interactive application. The first one is a game called "Shootout Hero", a sport game. The second one was a bigger project called "Voyager", the latest version currently in development and is called "Voyager Atlante" it will available during the next month.

Voyager represent one of our biggest mobile project. The first version was launched in December 2009 and won first place project in October 2009 at an important Italian IT event. This project is the world first real-time 4D archaeological navigation system. With Voyager a tourist can see a virtual reconstruction of an ancient area while walking in the same area. Everything is in real-time 3D and the application is able to recognize any geo-referenced monuments around the tourist activating a multilingual audio-guide of the monument we are looking at.

We developed also a desktop indie games using some of the most advanced technologies available such as Gamebryo, Havok, Raknet, Speedtree and many others. We developed and deployed them independently without publisher support.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Terranova:** Shootout Hero.

**Brownlee:** What platforms was your game designed to support?

**Terranova:** iOS / iPhone, Android, and Blackberry.

**Brownlee:** Please describe your game?

**Terranova:** Experience the thrill of shooting and saving a penalty kick, with SHOOTOUT HERO now you can do it!!

Choose your team and start your final match, first control the GoalKeeper and try to save as many shots as you can then control the shooter and score a Goal!

SHOOTOUT HERO offers two different game modes, Tournament and Training.

Win as many matches of the Tournament as you can in order to gain access to the Champions mode.

You can play using both Touchscreen and Sensors (iOS only). Reach another level of difficulty controlling the GoalKeeper by using the accelerometers of your iPhone, moving it in the desired direction.

If you want to use the touchscreen then hold the cursor to dose the force of the kick while moving it in the desired direction.

When you have to save the balls, the more you drag the cursor toward the screen borders the faster the goalkeeper will move.

Enjoy this game and don't forget to contact us if you have any suggestion in order to improve SHOOTOUT HERO!!

**Brownlee:** What genre is your game?

**Terranova:** Sport simulation.

**Brownlee:** What date was it published?

**Terranova:** July 7th 2010.

**Brownlee:** Who published the game?

**Terranova:** Illusionnetwork.

**Brownlee:** What is its price?

**Terranova:** 1.50 euro in the App Store and 0.50 euro in Google Play.

**Brownlee:** How many downloads?

**Terranova:** I don't know exactly, could about 2,000.

**Brownlee:** How much revenue?

**Terranova:** About 1,500 euro.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Terranova:** We evaluated a few off-the-shelf engines, such as Unity, Shiva and the SIO2. We finally decided to use Shiva because the price and the quality of the software was really interesting. We are still using Shiva for all the mobile projects. In the near future we intend to use it for an indie desktop game.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Terranova:** First of all the tool-chain that the engine offers, and other things such as DCC<sup>2</sup> tools compatibility, OS compatibility, documentation and obviously the engine features. The features we looked at were the OpenGL ES 2.0 support, the engine stability, all the physics related features, shaders support and the script system in order to implement a good AI solution.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Terranova:** OS compatibility.

**Brownlee:** What systematic process did you use to choose a game engine?

**Terranova:** All the processes useful to verify the features above, so download the evaluation version and try all the platform functions in order to build a prototype in less

time.

**Brownlee:** What research did you do into game engines?

**Terranova:** The web was the first search method, plus many development forum of different engines.

**Brownlee:** Which off-the-shelf game engine did you use?

**Terranova:** ShiVa3D.

**Brownlee:** Why did you choose this particular mobile game engine?

**Terranova:** Because we were able to easily prototype a game the first time we used it. The second thing was the powerful authoring tool that Shiva provides, where we can do a multi-platform one click deployment.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Terranova:** The Unified Authoring Tool is the first thing, it is a very powerful tool which make a user able to directly deploy an app for all the main platforms at the same time without an extra effort.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Terranova:** We experienced only a little slowdown during the deployment phase.

**Brownlee:** What is the best thing about working with this game engine?

**Terranova:** The UAT as above, second the possibility to easily convert the script to C++ code.

**Brownlee:** Would you ever consider writing your own game engine?

**Terranova:** We did it in the past (about 7 or 8 years ago), but the development costs does not make it worth the benefits.

**Brownlee:** What would you do differently if you were to develop your game again?

**Terranova:** The only thing we could reconsider in concerning some game features, but not so important.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Terranova:** Rapid prototyping capabilities of the game engine.

**Brownlee:** Would you use this game engine again?

**Terranova:** Yes we are still using it for our mobile projects (and in a future for desktop efforts).

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Terranova:** Because we are Italian so we love Soccer!

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Terranova:** A very good feeling. If someone is asking me: "what's your job?", I can say: "I'm a video game developer".

**Brownlee:** Would you go through it all again?

**Terranova:** Yes every time. It's my job and my passion.

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Terranova:** The Max Payne series, it has the best cinematic experience ever.

**Brownlee:** What are you currently working on?

**Terranova:** A desktop oriented game using Shiva, but I can't talk about it because it is in an early development stage, sorry.

**Brownlee:** Do you have any other comments on Game Development?

**Terranova:** Game development is the best job in the world (maybe the Universe).

**Brownlee:** How can a reader or fan best get in contact with you?

**Terranova:** Anyone can contact us directly using the official site and email:

<http://www.illusionnetwork.com> - [info@illusionnetwork.com](mailto:info@illusionnetwork.com)

## **Footnotes**

[1]: Illusionnetwork <http://www.illusionnetwork.com>

[2]: DDC: Digital Content Creation



## **Abhinav Gupta: Music Guitar Instrument using ShiVa 3D**

### **Background**

**Brownlee:** What is your current job title or position?

**Gupta:** Lead developer and CEO of Game Scorpion Inc.

**Brownlee:** Where are you located?

**Gupta:** Mississauga, Ontario, Canada.

**Brownlee:** Could you please introduce yourself?

**Gupta:** I achieved my A+ certification in 2005 and in 2008 I graduated from Ryerson University in Toronto, Ontario, Canada with a Bachelor of Computer Science degree. In the past few years I have run many business from technical support companies to eBay sales companies. I even worked for IBM Canada at one point. Currently I am an app Developer and I love it, all thanks to God! I have a team of people also helping me out which includes my wife (Seema Gupta) who helps in graphics and design as well as Amit Niraj from India who helps out in development.

**Brownlee:** What are some mobile games that you have released?

**Gupta:** We currently have 15 apps and games available across the major app stores. In no particular order, our apps include:

- \* ASRI Astral Space Racer Infinity
- \* Countdown Kitchen Egg Timer Pro
- \* Fun Time 3D eDesigner Easter
- \* iClock Station Pro
- \* iMagicMind
- \* Intimate Fireplace
- \* Intimate Fountain
- \* Intimate Hearts
- \* Melina's Conquest
- \* My Student Toolkit Pro
- \* Music Guitar Instrument
- \* Music Piano Instrument
- \* Quick Jot Notes Journal
- \* Quiz Flashcard Maker
- \* Tic Tac Toe Countdown

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Gupta:** Music Guitar Instrument.

**Brownlee:** What platforms was your game designed to support?

**Gupta:** iOS / iPhone, Android, Blackberry, Nook, Kindle Fire.

**Brownlee:** Please describe your game?

**Gupta:** Want to be a star? Then get this guitar! Be the talk of the town strumming on your device like a pro!

Real guitars can cost \$100 or more, but for a small fee you can own your own digital guitar right on your very own device! Rock to your favorite tunes! Be the life of any party! Serenade a lover! Show those who doubt what you're made of! Every star needs a guitar! Why not get yours today?

We will not be held liable for crazy screaming fans chasing you down wanting to get your autograph! We also are not responsible for any wild romantic getaways that may come out of you serenading your lover. We are also not liable for any extra tag along friends or arm candy that decides to join you due to you touring the world from getting all the attention. Arm candy could give us cavities and we'd have to go to the dentist so too bad for us.

Features Include:

- \* 7 Major chords
- \* Realistic guitar sound
- \* Easy to play (Simply strum back and forth or if you wish you may pluck individual strings)
- \* Unique easy to use interface (Hold it like a guitar in your hand with the chord buttons below)
- \* Fun and entertaining for use in various occasions such as:
  - \* Camp songs for camping
  - \* Romance
  - \* Sing-a-longs
  - \* Learning how to play songs (Very basic purposes only)
  - \* Forming your own band
  - \* MORE

**Brownlee:** What genre is your game?

**Gupta:** Entertainment.

**Brownlee:** What date was it published?

**Gupta:** April 25th, 2012.

**Brownlee:** Who published the game?

**Gupta:** Game Scorpion Inc.

**Brownlee:** What is its price?

**Gupta:** Fluctuates between \$0.99 and \$2.99. We are also looking into a lite version in the future.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Gupta:** None. We had already used ShiVa 3D successfully in other projects. When we were looking at other engines before we found ShiVa 3D we gave them up due to several issues:

- \* Price of engine. Most other engines, even though we paid for them, were just too pricey and only usually supported PC systems or required large sums upfront.
- \* Learning curve. Was an engine too much or too hard to comprehend. ShiVa 3D was a lot easier to figure out.

\* Community support. ShiVa 3D has a very supportive and helpful community. Everyone is eager to help each other out so we always had an answer to any of our questions.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Gupta:**

- \* Ease of use.
- \* Realism in 3D output (ShiVa does a great job).
- \* Portability. ShiVa 3D now outputs to MANY platforms, not just iOS and Android, but Blackberry and Palm/HP as well which has helped to increase our income.
- \* Community.
- \* Price.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Gupta:** Price versus return on investment.

ShiVa 3D costs \$400, return on investment has been many times this over and over and over!

**Brownlee:** What systematic process did you use to choose a game engine?

**Gupta:** Pros/Cons, Price, and Portability.

**Brownlee:** What research did you do into game engines?

**Gupta:** Googled around to see what looked best. Ended up buying several but many were too hard or time consuming or lacked output capabilities.

**Brownlee:** Which off-the-shelf game engine did you use?

**Gupta:** ShiVa 3D.

**Brownlee:** Why did you choose this particular mobile game engine?

**Gupta:** Price, community, ease of use, and portability.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Gupta:** C/C++ is a great background to have, or even Java. The whole code is based on LUA scripting. If you sign up and join the developer forum, you will guarantee some level of success as there is a lot of help available for all and someone always usually has the answer. The ShiVa team is always updating their engine so that is a great reason why we also love ShiVa 3D.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Gupta:** The original learning curve was steep so a lot of the documentation we had to write ourselves to help out the community. However the amount of users who are writing out the basics of ShiVa 3D has increased and so now there is a lot more help and advice than what we had a year ago. It should take much less time for a user to pick up using ShiVa 3D than it did last year.

**Brownlee:** What is the best thing about working with this game engine?

**Gupta:** The money you can make from porting your app to so many markets. With this single engine you can port to iOS, Android, WebOS, Blackberry, Windows, Mac, Flash

and many others being added all the time. It's like every time a new platform to export gets added, dollar signs show up and we end up making more money!

**Brownlee:** Would you ever consider writing your own game engine?

**Gupta:** Nope. Why write our own engine when ShiVa 3D does a great job of things?

**Brownlee:** What would you do differently if you were to develop your game again?

**Gupta:** Start earlier! If I had known about ShiVa 3D before, I would have been much more ahead, however we learnt about it after investing thousands in other engines that just did not cut it at all.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Gupta:** The engine that can bring you the most money at the end of the day. Honestly it's ShiVa 3D due to the amount of platforms you can port your app to.

**Brownlee:** Would you use this game engine again?

**Gupta:** Yes!

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Gupta:** We made the Guitar App because it was a fun all around app to allow users to literally have a digital guitar they could play at any time without having to know chords on a guitar. Instant virtuoso!

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Gupta:** Amazing! If you really want to get in on the excitement of the App Goldrush, then get in now! The longer you delay the more money you are losing to others who are beating you to the punch!

**Brownlee:** Would you go through it all again?

**Gupta:** DEFINITELY! Just remember, it takes a lot of persistence, faith and belief in a higher power to continue when everyone else will try and put you down. The first months you probably won't even make a penny, but I can tell you now a year later I simply love waking up knowing that we are making money even while sleeping! It's such a great feeling and I'm so grateful to God to be able to live my dreams. App development is truly living the life people dream of.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Gupta:** ShiVa 3D is the most amazing development tool we have ever come across thus far! We have literally invested thousands into many other competitive products such as Torque, Blitz 3D, 3D Game Studio and many others, only to be let down when compared to ShiVa 3D. Thank God we found ShiVa 3D!

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Gupta:** God of War. It allows users to go from no experience in a game to full hardcore play and uses the most amazing storytelling, graphics and game play to really get the user engaged. A true masterpiece.

**Brownlee:** What are you currently working on?

**Gupta:** We are constantly updating and upgrading our apps. Our top app is iClock Station Pro followed by our music apps. We are looking to also upgrade our video game lineup as well, including Melina's Conquest and ASRI Astral Space Racer Infinity.

**Brownlee:** How can a reader or fan best get in contact with you?

**Gupta:**

- \* Facebook: <http://www.facebook.com/GameScorpionInc>
- \* Twitter: <http://twitter.com/GameScorpion>
- \* Website: <http://www.gamescorpion.com>
- \* E-mail: [info@gamescorpion.com](mailto:info@gamescorpion.com)

## **James Borden: Pandemic using Sparrow Framework**

### **Background**

**Brownlee:** What is your current job title or position?

**Borden:** Software Architect at Sotsu, Inc.

**Brownlee:** Where are you located?

**Borden:** Tokyo, Japan.

**Brownlee:** Could you please introduce yourself?

**Borden:** I have been interested in programming since I was 10, but despite that I actually didn't turn it into my major. I spent two years as a computer science major, but after that I switched majors to Digital Media (3D animation, game design, website design, etc.). However, I wasn't very good at that, so in the end I ended up being the programmer for projects.

I graduated from Drexel University in Philadelphia in 2008, and moved to Japan in 2009. I got my first official (i.e. non-contract) programming job in July 2011 at a small software company in Tokyo called Sotsu. Their main source of income is Pachinko (Japanese crazy arcade slot machines pretty much) graphics development, but they hired me so that they could expand into other areas.

The bulk of what I've done so far is mobile development, and about half of that has been iOS (the other half being Android and Flash Lite), but from contract and school work I have lots of experience with Unity 3D and C#. Unfortunately, I am not allowed to talk about almost all of my projects because they are designed for other companies who use them, but I did write the game "Pandemic" which is available from Sotsu via the App Store.

**Brownlee:** What are some mobile games that you have released?

**Borden:** The only one I am allowed to talk about is Pandemic, available on the Apple app store. It is free, so I don't have any sales numbers.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Borden:** Pandemic.

**Brownlee:** What platforms was your game designed to support?

**Borden:** iOS / iPhone.

**Brownlee:** Please describe your game?

**Borden:** You must squish and destroy all the viruses on the screen before they completely infect your system, or you run out of time. Another mode is survival mode, which has no time limit and the goal is to survive as long as possible before the viruses overwhelm you.

**Brownlee:** What genre is your game?

**Borden:** Arcade.

**Brownlee:** What date was it published?

**Borden:** August 19th 2011.

**Brownlee:** Who published the game?

**Borden:** My employer, Sotsu Inc.

**Brownlee:** What is its price?

**Borden:** Free.

**Brownlee:** How many downloads?

**Borden:** Unfortunately, Apple's metrics make this a pain to calculate but it seems to average about 100 per week.

**Brownlee:** How much revenue?

**Borden:** Not much, but that wasn't the point of the game.

### **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Borden:** The obvious heavyweight on the scene when making an iOS game is Cocos2D. However, I usually do not blindly go with something simply because it is popular, so I decided to look around a bit more before making a decision. I didn't really have any particular engine in mind.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Borden:** This is a tough question. There are a lot of important factors that go into what makes a good game engine and a bad one. In software, I believe the measure of a good programming language is where the most efficient way to do something is also the most obvious. Ease of use is probably the top factor. This is followed by a close 2nd and 3rd: Community and documentation.

A good community is an invaluable resource. You are unlikely to find a larger group of people who are familiar with the product that you want to use outside of the official community. As an addition to that, a good community includes a good development team that is responsive to input and quick to address issues. Good documentation helps the community, because it frees them up to answer tougher questions that are not addressed in the docs. Also, even if the API is not the best in the world, good documentation can help mitigate that. Anyone who has looked at Unix man pages will probably agree with me.

For this project in particular, it was my first iOS game, so I didn't have any steep requirements. Basically I wanted it to run smoothly, and be easy to use.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Borden:** Ease of use is the most important factor for me. In the case of open-source, that also includes how easy it is to understand the API and customize it, if need be. Graphics and high-end features are nice, but if you can't understand how to use them properly, what's the point?

**Brownlee:** What systematic process did you use to choose a game engine?

**Borden:** Well, I suppose my "process" is finding a tutorial and trying it out myself. If I like the style and structure, I will probably use it.

**Brownlee:** What research did you do into game engines?

**Borden:** Google searches (and by association Stack Overflow), and the tutorials I found from them.

**Brownlee:** Which off-the-shelf game engine did you use?

**Borden:** Sparrow.

**Brownlee:** Why did you choose this particular mobile game engine?

**Borden:** The nice thing about Sparrow, for me, is that it is very cleanly laid out and easy to understand. Everything has a distinct and understandable purpose. This alone convinced me to use Sparrow, and the amazing community convinced me that I should keep using it.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Borden:** You need to be familiar with game development and objective-c. Learn about both of these before you attempt to dive into Sparrow, or any game engine on iOS. It will not be beneficial to you to dive right in. Also, read the wiki and documents before you go to the forum. They are well written and very helpful, and usually have the answers to common questions.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Borden:** The only thing that comes to mind is that its integration with Cocoa and UIKit is less than stellar. It is a bit confusing to add an advertisement framework or keyboard input to your game.

**Brownlee:** What is the best thing about working with this game engine?

**Borden:** The best thing is that the community responds quickly and patiently to questions. Although I didn't have many because it is, once again, easy to use.

**Brownlee:** Would you ever consider writing your own game engine?

**Borden:** I don't think I would ever consider it. Writing a game engine is not a simple task. It takes a lot of time and a lot of talent. I don't have enough of either.

**Brownlee:** What would you do differently if you were to develop your game again?

**Borden:** I would write in a UIViewController from the start, adding one later is too hard.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Borden:** I don't think my advice would change. Pick one that is easy to use for you. If you know your way around the engine, that will be one less thing getting in the way of debugging your game.

**Brownlee:** Would you use this game engine again?

**Borden:** Yes, I don't think I will ever use another one, unless my company wants to start doing 3D.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Borden:** Well, I don't think you are going to get the wonderful answer you expect. I made this game because my boss told me to.



**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Borden:** Well, it certainly gets me a lot of 'oohs' and 'aahs' when I tell people. However, it feels different now. When I first released it, I was very nervous about how it would perform. Would people like it? Would it crash? Would Apple reject it? However, I don't hear anything about crashes so I guess it is doing alright.

**Brownlee:** Would you go through it all again?

**Borden:** It was hard work, of course, but programming always is. Yes I would do it again, surely. This is my career.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Borden:** Well, considering the lead developer is often in the forums answering questions directly, this question seems moot. There isn't anything I'd like to ask that I haven't asked already.

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Borden:** Chrono Trigger because it reminds me of a time when a great story was the key to a great game (these days too many companies think that it is graphics instead).

**Brownlee:** What are you currently working on?

**Borden:** A project that I am not allowed to talk about, unfortunately. However, I can tell you that it's not a game.

**Brownlee:** Do you have any other comments on Game Development?

**Borden:** Um, I like doing it.

**Brownlee:** How can a reader or fan best get in contact with you?

**Borden:** My work email address is [j.borden@so2.co.jp](mailto:j.borden@so2.co.jp).

## **Henry Hauser: JugL using Sparrow Framework**

### **Background**

**Brownlee:** What is your current job title or position?

**Hauser:** Student.

**Brownlee:** Where are you located?

**Hauser:** Wilmington, North Carolina, USA.

**Brownlee:** Could you please introduce yourself?

**Hauser:** I'm a college student in the UNC system. I got into game development when I was about 14 and absolutely love making games. I currently only make Flash and iPhone games but would love to expand into different consoles.

**Brownlee:** What are some mobile games that you have released?

**Hauser:** Geosketch<sup>1</sup> and JugL<sup>2</sup>.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Hauser:** JugL.

**Brownlee:** What platforms was your game designed to support?

**Hauser:** iOS / iPhone.

**Brownlee:** Please describe your game?

**Hauser:** Juggle as many orbs as possible without letting them fall. Bleep, bloop, and tap your way to a high score. Inspired by the hit Flash game Pel, JugL pits you in command of a platform juggling a bunch of colorful little orbs.

**Brownlee:** What genre is your game?

**Hauser:** Arcade.

**Brownlee:** What date was it published?

**Hauser:** August 17th 2011.

**Brownlee:** Who published the game?

**Hauser:** Self-published.

**Brownlee:** What is its price?

**Hauser:** Free! I decided to use the freemium model for JugL, utilizing iAds and In-App-Purchases. I went with the freemium model purely out of curiosity because I used the paid/lite model with my first app.

**Brownlee:** How many downloads?

**Hauser:** Definitely not pleased with the results but I don't mind sharing at all.

JugL has received about 3,400 downloads since its release.

It has received a steady 6-10 downloads per day for the past few months now.

**Brownlee:** How much revenue?

**Hauser:** Highly displeased with these results, but again, no shame on my part. About \$30 from iAd. About \$27 from IAP. Currently brings in about \$5 per month. It's funny

because JugL was of much higher quality than my first app but made about 20x less money than it because my original app was released in August 2009, when the app store had only 60k apps, as opposed to JugL in 2011, when the app store had 400k apps. Currently JugL and Geosketch (my first app) make about the same money now.

## Choosing an Engine

**Brownlee:** What game engines were you looking at before you started the project?

**Hauser:** Coming from a Flash background, I initially thought of using Flash's iPhone packager to make my game. I figured since I'm already so versed in AS3, I should have a final product done in a breeze. While I was able to complete the app insanely fast, performance was awful. I knew then, I had to find an Objective-C platform.

After some Google searches, I found Cocos2d, Sparrow, and Pixelwave. Cocos2d seemed the most powerful and versatile, but also complicated and time consuming to learn. Pixelwave and Sparrow are both based off the AS3 API which immediately attracted me. I ultimately decided on Sparrow because the Pixelwave framework lacked a community and was rarely updated, with little help offered, whereas Sparrow was full of documentation, helpful community members, and loads of features.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Hauser:** One of the most important things for me when I'm choosing an engine is ease of use. This means an intuitive framework, lots of documentation and examples, assistance from the framework's community and developers.

Specific features I was looking for:

- \* AS3 based API.
- \* Intuitive graphics engine.
- \* Tweening<sup>3</sup>.
- \* Native Objective-C.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Hauser:** Documentation and committed developers.

Without a good support system backing up a framework, the user will not be able to decipher much of the code and with no one to help them out, the framework will ultimately be swapped for a better one.

**Brownlee:** What systematic process did you use to choose a game engine?

**Hauser:** I dipped my feet into each engine I checked out by making the same simple application with each framework. The one that I felt most comfortable with, I chose.

**Brownlee:** What research did you do into game engines?

**Hauser:** Google, asking fellow developers and the iPhone Dev SDK <sup>4</sup> website which is a great place to meet thousands of developers (new and old) and to find out everything there is making iOS games.

**Brownlee:** Which off-the-shelf game engine did you use?

**Hauser:** Sparrow Framework.

**Brownlee:** Why did you choose this particular mobile game engine?

**Hauser:** It was simply a process of elimination. After checking out all the game engines, I felt that Sparrow had:

- \* The best support system (community and documentation)
- \* All my feature requirements
- \* Quick learning curve

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Hauser:** Learn the basics of Objective-C first, especially if you're brand new to programming. It's tough enough to completely learn a new engine, but to do it without knowing the language it's in is crazy.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Hauser:** There were 2 things that got under my skin with regards to Sparrow:

- \* It currently does not utilize OpenGL ES 2.0 which is much faster than OpenGL ES 1.1 (what Sparrow uses). However, this is on the Sparrow road map, and should be packaged with Sparrow 2.0 sometime soon.
- \* The other thing that really annoyed me was working with GameCenter (GC) and iAd. Since Sparrow doesn't mesh well with UIKit, integrating GC and iAds was extremely frustrating.

**Brownlee:** What is the best thing about working with this game engine?

**Hauser:** Flash based API. Coming from a flash background, and already having some Objective-C experience, I was able to dive right into development with very little trouble.

**Brownlee:** Would you ever consider writing your own game engine?

**Hauser:** Nope. Way too daunting of a task.

**Brownlee:** What would you do differently if you were to develop your game again?

**Hauser:** I would improve the graphics and aesthetics. One of the keys to success in game making is polished graphics. Even if your game-play is so-so, shiny neat looking animation can be a powerful game changer.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Hauser:** Research as much as you can. Scour the internet for every possible option you have. Once you have a lot of engines in place, try them out. Dip your feet in, make a simple application with each, check out the documentation, find out if any significant apps have been made with that engine. You'll eventually find one that feels right.

**Brownlee:** Would you use this game engine again?

**Hauser:** Yes. In fact, I am using it again. My latest project will be using Sparrow. I enjoyed using it the first time, and it has only improved since last using it.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Hauser:** I love to make games period. I thought it would be a fun experience (which it was) and the money it makes doesn't hurt.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Hauser:** It is an amazing feeling. I get a warm feeling every time I read a new comment. Knowing that someone out there took the time to download and play my game makes it so worth it.

**Brownlee:** Would you go through it all again?

**Hauser:** Definitely. It was so worth it in the end. There's nothing like the feeling you get when you complete a project with this size.

Since I'm a game developer hobbyist, I don't make many games. So, finally completing an app feels so awesome.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Hauser:** Every question I have about Sparrow has already been answered by the developer of Sparrow himself. Check out the Sparrow forums<sup>5</sup>, and ask away. Daniel, Sparrow's developer, will surely answer any of your questions!

## Final Questions

**Brownlee:** What is your favorite game in the world and why?

**Hauser:** Basketball, Go Magic. I assume were talking video games here, so I'd probably say a tie between Super Smash Bros Brawl and Red (by Ivoryboy).

**Brownlee:** What are you currently working on?

**Hauser:** I am currently working on a small reaction math game. Should be done with it by the end of June. After that I will be making a ginormous iPad game. It will easily be the largest game I've ever made, and I'm pretty sure I'll be sticking with Sparrow.

**Brownlee:** How can a reader or fan best get in contact with you?

**Hauser:** My email is [henryah93@gmail.com](mailto:henryah93@gmail.com). I'd be happy to answer any questions from an aspiring developer.

## Footnotes

[1]: Geosketch <http://itunes.apple.com/us/app/geosketch/id323675381?mt=8>

[2]: JugL <http://itunes.apple.com/us/app/jugl/id454111699?mt=8>

[3]: In-betweening, an animation technique that generates in-between frames and gives the impression of one image morphing into the next.

[4]: iPhone Dev SDK <http://iphonedevsdk.com>

[5]: Sparrow Forums <http://forum.sparrow-framework.org>

## **Lenn Lee Dolling: Vancouver Riots 2011 The Game using e3roid**

### **Background**

**Brownlee:** What is your current job title or position?

**Dolling:** Co-Founder, Skyboard Software Systems Developer.

**Brownlee:** Where are you located?

**Dolling:** Maple Ridge, British Columbia, Canada.

**Brownlee:** Could you please introduce yourself?

**Dolling:** At the age of 5 I was given a TRS-80 II[ and from there I knew I loved computers. Since that day I have used computers to forge my life. In the late 80's I ran a couple elite BBS's and from there started my first dot com in 1996. I have tried to do everything from signing techno music deals to indie film acting. I love to skateboard in half pipes and am currently developing aerospace collaboration software called as Skyboard Software.

**Brownlee:** What are some mobile games that you have released?

**Dolling:** Vancouver Riots 2011 The Game on Android, 8 Cups a Day Drinking Water on Android, CDC's FLU Weekly : Sneeze In Your Sleeve on Android, Spacelite Access Portal on Android, and Launch It Land that Shuttle Commander on Unity3D, Android, and is in Beta.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Dolling:** Vancouver Riots 2011 The Game.

**Brownlee:** What platforms was your game designed to support?

**Dolling:** Android.

**Brownlee:** Please describe your game?

**Dolling:** From the press release:

Vancouver Riots The Game 2011 is easy and suitable for people to learn and is challenging for the most advanced strategy players. The game can be started without any previous knowledge of riots or how to contain them. Vancouver Riots The Game 2011 will teach players how to dismantle a riot and as they arrest the hoodlums and see the chaos unfold before there eyes.

Vancouver Riots The Game 2011 release date will forever match the Shishou incident in Hubei Province, in central China between June 19-21, 2009 where at one time it was alleged about 60,000 to 70,000 people were on the street, throwing rocks and empty beer bottles at the police. Skyboard Software's growing family of mobile apps also includes the highly popular 8 Cups a Day Drinking Water Awareness App, based on one of the world's most known facts that people need to drink at least eight cups of water a day to be hydrated.

Vancouver Riots The Game 2011 for Android has been developed to work on most Android versions from 2.1 to Android 3.0 Honeycomb, with support for the latest Android tablets including the Motorola Xoom, Asus Eee Pad, and Samsung Galaxy Tab

10.1.

Vancouver Riots The Game 2011 for Android is now available in both a free version and a much longer timed version with global scoreboard to compete against your friends for \$0.99. The app is available by searching for 'Vancouver Riots The Game' in the Android Market. Skyboard Software's awareness app 8 Cups a Day life game is currently available from major retailers for \$7.99.

**Brownlee:** What genre is your game?

**Dolling:** Casual Game.

**Brownlee:** What date was it published?

**Dolling:** May 20th, 2011.

**Brownlee:** Who published the game?

**Dolling:** Self-published.

**Brownlee:** What is its price?

**Dolling:** \$0.99 with Global Scoreboard + Tweaks and Free Demo Version.

**Brownlee:** How many downloads?

**Dolling:** 2,000+.

### **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Dolling:** I was evaluating as many 2D physics based High Speed OpenGL engines that where open source as I was trying to get a feel for what was available from Android. I was looking for an engine that would allow 30 FPS. I started with jPCT and moved to e3roid when I saw a few demos that made me feel that warm feeling inside where you just want to keep on learning. I felt that with the e3roid. I wanted to write a quick 2D game and the jPCT was a little lacking.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Dolling:** I need OpenGL and 2D box based physics, quick sprites and interaction with tight code, so when I was first trying to figure out what I needed the most I came to see some lots of light shining on the e3roid API as it was based on fast OpenGL based rendering.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Dolling:** My view on what I needed shifted during development. At the start I knew I needed fast graphics and good documentation so I could learn fast. But after spending some amount of time in e3roid I knew I was kidding myself. I needed more than just graphics. I needed an engine where I could write code and have it work on Android, iPhone, Web, Mac, and PC. I have seen the need to have cross platform compatibility in the engine as the one thing.

**Brownlee:** What systematic process did you use to choose a game engine?

**Dolling:** Popularity is a big thing as the more popular it is the more feedback and troubleshooting documentation that will be available. I like to work with an engine that has a proven track record and is in active development with regular updates. I love to see

3rd party development incorporated into the base engine. Where you have a B2D<sup>1</sup> type flow of code and middleware that allows for quick development through a plug-and-play in-engine asset based frameworks.

**Brownlee:** What research did you do into game engines?

**Dolling:** I did the regular Google searches like: "+Android +opengl +free", which really brings up all you could ever need to get yourself going in mobile and android development. Currently I love the community on the Unity3D forum<sup>2</sup>. Everybody in that forum needs a pat on the back for helping people learn.

**Brownlee:** Which off-the-shelf game engine did you use?

**Dolling:** e3roid.

**Brownlee:** Why did you choose this particular mobile game engine?

**Dolling:** I enjoyed the demos that came with the API. The demos allowed you to see all the main features of the engine all separated by there functionality. This demo system acted like a boiler plate for simple hello world's after the fact that would inspire more creativity.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Dolling:** Trap all your code and don't overload your listeners.

**Brownlee:** What is something that didn't go well or a expected with this game engine?

**Dolling:** I fought for a long time with getting the tile system to work without crashing. With persistent and proper coding things will work as designed, I used a few tile editors that you will have search out yourself. 2D tile based game programming is not for the those under time pressure. At times it can feel like a house of cards that is going to fall at anytime but as long as you keep aware of your sprites all should be OK.

**Brownlee:** What is the best thing about working with this game engine?

**Dolling:** I liked how the engine is based in Java, there is no getting away from it. It was nice to work with eclipse and keep my Android programming all on the same page. The engine allows for quick embedding into your current Java Android app that you have in the works. Wow. After thinking about it, I miss Java as I have been working lately with lots of C# in Unity3D.

**Brownlee:** Would you ever consider writing your own game engine?

**Dolling:** I think all programmers wish to have the time to write there own engine. I always have. I think in todays marketplace you will not be able to survive unless you have 100,000+ hours of development time in your "custom" engine as that is what you are competing with.

**Brownlee:** What would you do differently if you were to develop your game again?

**Dolling:** I would have started in 3D versus 2D. I think in terms of 24 hour development, I chose the right path perhaps as I didn't have to over-complicate the project with heavy 3D design and vector math and of course economic resources.

The whole game cost under \$5 to develop. I put my efforts into how sprites performed and interacted based on the sensors that the mobile device exposed to the API. I would like to make more menu's to interact with the game and have the system more enjoyable.



Finger interfaces are tricky to design for games as they have to be large or the system becomes too hard to use accurately. Your finger is not a mouse.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Dolling:** You need to pick an engine that will let you release your game on multiple mobile devices with just minor (if any) code changes. You need to pick an engine that has integrated third-party assets and consistent updates to its framework. You need to have a testing process where you can verify that your game is world ready.

**Brownlee:** Would you use this game engine again?

**Dolling:** I would not plan on it unless I was paid up front. I did enjoy my time working with the system but during my time working with e3roid I was testing Unity3D and Shiva. In saying so I think that I have to recommend that anyone that is thinking on developing a game on a mobile device to look into Unity3D. I do plan on working with Unity Engine or UDK. But as of now I am in the process of making 'Launch It Land that Shuttle Commander' a Unity3D based MMO that is written in C# and uses Photon Networking for its peer back-end and using Delphi or XE2 for all my cloud programming game server logic.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Dolling:** I was rushed in making the the game. I made it in just over a day as I wanted to quickly show what someone could do with their time instead of actual rioting. Putting awareness on how you get points for making arrests and loss points for doing damage. I think this is an inverse on how the current mainstream action game logic is currently set. The world needs less rioters and more programmers.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Dolling:** I can say I have been overwhelmed by how enjoyable the whole process has been. I have seen what I can do and what is possible through others achievements. It takes time to fully know what you can achieve as your own master. But with your perseverance you will be able to see your vision in your mind and make it real. It is just up to you to choose the right tools for the job (and use them properly).

**Brownlee:** Would you go through it all again?

**Dolling:** Of course. I am continuously challenging myself to make larger games with heavier game logic. I was inspired with playing door games on bulletin boards systems where you had to use your imagination to navigate a huge text based system. Big games take hard work. I love to work really hard. Business as usual.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Dolling:** I was happy to find the API and if it wasn't for Kota Iguchi in my mind I wouldn't have experienced how fun it is to work with Java.

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Dolling:** Tribes1 (my game username was "NoveltyID"). It allow me to think I was

always somewhere else other than my computer room.

**Brownlee:** What are you currently working on?

**Dolling:** I am currently on a book release and would love people to buy my book. It is called "ICQ History Volume One" by Infinity Publishing.

In parallel to authorship I am currently working on getting my master skyboard app running on the cloud and all aerospace retro fitted. I have worked on Skyboard Software since 2006 and have along the way released a few mobile apps using the Google marketplace. I do wish that my next release will be huge. I dream of the success.

**Brownlee:** Do you have any other comments on Game Development?

**Dolling:** As a kid I wrote text adventures and ASCII based keyboard driven adventures. I have always dreamed of programming a big hit that will get a video review. Until then I think I will have to keep learning and keep focused on the big picture. You need to do the same. Never stop learning and never think you have learned enough. There is always a better faster way of doing something so you better go out and find it. Sure, you can quote me on that.

**Brownlee:** How can a reader or fan best get in contact with you?

**Dolling:**

\* Fan Site: <http://facebook.com/icqstory>.

## Footnotes

[1]: B2D: Business-to-Developer

[2]: Unity3D Forum <http://forum.unity3d.com>

## **Paolo Manna: Joustin' Beaver using Gideros Mobile**

### **Background**

**Brownlee:** What is your current job title or position?

**Manna:** Owner, Persephone Technologies Ltd.

**Brownlee:** Where are you located?

**Manna:** Northern Italy.

**Brownlee:** Could you please introduce yourself?

**Manna:** I've been a freelance contractor for a couple of years, hired to work on third-party projects. I'm quite old for this market (well over 50, started programming for fun at 20), and I've accumulated a lot of experience, most of the time working on Apple hardware and technologies.

I'm never finished exploring and experimenting, fortunately it seems that I've always picked up something ahead of the curve (not so many were learning Objective-C in 1991!), so I was right there when someone with that experience was needed. That has led me to many wonderful workplaces, and while one would expect me to be in a management position, I still enjoy coding.

**Brownlee:** What are some mobile games that you have released?

**Manna:** Being a freelancer, I don't have much in my own name, and of the 30 or so apps that I've developed on the various stores only a few are actual games or entertainment.

In chronological order, some of them:

- \* Zion Slider<sup>1</sup> for Boulder Mountain Software LLC.
- \* JackpotBJ<sup>2</sup> for Oddsmaster Ltd.
- \* Joustin' Beaver<sup>3</sup> for RC3 Inc.
- \* Start!<sup>4</sup> for Brooks & Penland.

There are a few more I've worked on, but as part of a team, so I won't take credit for those myself.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Manna:** Joustin' Beaver.

**Brownlee:** What platforms was your game designed to support?

**Manna:** iOS / iPhone, Android.

**Brownlee:** Please describe your game?

**Manna:** International superstar Joustin' Beaver needs your help! He's floating down the river on a world tour to meet as many fans and sign as many "Otter-graphs" as he can. But the "Phot-Hogs" will stop at nothing to get a photo of JB when he least expects it. Help Joustin' Beaver navigate the river, sign "Otter-graphs", and knock "Phot-Hogs" into the river with his lance.

If the "Phot-Hogs" float past JB, they'll snap a scandalous photo for the front page of their website. Then it's game over. Remember, the farther you go, the more famous you

become and the more difficult it will become to avoid the "Phot-Hogs". One more thing, do not let JB get caught up in the "Whirlpool" of success or you could both spin out of control! Try to get as many fans as possible and pretty soon you'll be making gold and platinum records, accepting prestigious awards, and even becoming a "Beaver God"!

**Brownlee:** What genre is your game?

**Manna:** Arcade.

**Brownlee:** What date was it published?

**Manna:** February 3rd, 2012.

**Brownlee:** Who published the game?

**Manna:** RC3, Inc.

**Brownlee:** What is its price?

**Manna:** \$0.99.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Manna:** For previous projects, on iOS, I've looked into some common engines, using them in a few projects (Cocos2d and Sparrow, for example). With the publisher RC3, however, we wanted for this game to have the widest audience possible, so a cross-platform engine was in the picture since the beginning. At first, we considered Corona SDK: it looked like it was well supported, and with a good community of developers. Later on, after a first prototype, when it proved unsuitable for a number of factors, we've also briefly considered Moai, but it proved to be at a much lower level for the needs we had.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Manna:**

- \* Cross-platform for iOS and Android.
- \* Language and API well documented and easy to pick up (Lua-based engines looked best).
- \* Interface with as many libraries as possible (physics, sound, animation, etc.).
- \* Good performance on the various devices.
- \* Efficient development tools (IDE, etc.)

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Manna:** I don't think the perfect engine exists, nor that it's even possible: overall, the choice depends on the requirements of the project, so in different circumstances I'd probably choose a different engine.

Thus, if a feature has to be indicated, I'd say expandability.

**Brownlee:** What systematic process did you use to choose a game engine?

**Manna:**

- \* Some engines, although well known from previous projects, were discarded since the beginning because cross-platform was a requirement.

- \* Prototypes of the main scene were built with different platforms, and considered for performance and cleanliness of the resulting code.

- \* Where the engines were lacking, it was considered how easy (or just at all possible) was to extend the engine with the required functionality.

- \* Support from the engine developers was also of great importance: bugs are regularly detected by game developers, engine must be either open source or have excellent support behind

**Brownlee:** What research did you do into game engines?

**Manna:** Oddly enough, the best tool proved to be the one I used to manipulate and package the textures (TexturePacker): I looked at the engines they were supporting, and simply went through all of them that were cross-platform.

**Brownlee:** Which off-the-shelf game engine did you use?

**Manna:** Gideros.

**Brownlee:** Why did you choose this particular mobile game engine?

**Manna:** Pulling the common requirements all the engines considered had, what's left to Gideros advantage is:

- \* Support to different OSs through their standard SDKs, i.e. no need to get to an external service.

- \* The compiled code can be uploaded to the device over-the-air: this means that the code-debug cycle is a matter of seconds.

- \* Where the included libraries are lacking a functionality, a plug-in system is in place, and you can write the specific code for your app.

- \* Object oriented concepts all over the APIs, that help keeping the code clean, expandable and easily maintainable.

All considered, the deciding factor has been flexibility: all engines are, by their own nature, limited to some extent, so if most features are similar (and they are), the engine that allows you to overcome these limitations, on your own or by getting good support from the developer, is preferable.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Manna:** The power of over-the-air deployment to the device during development: this looks like it's 'the' missing feature for any other IDE, and the contribution that it gives to a fast turnaround is incredible.

**Brownlee:** What is something that didn't go well or a expected with this game engine?

**Manna:** Bugs happen, all the time. For example, we had some difficulties with Android deployment: fortunately, the support from the developer has always been on par with (or even exceeding) our expectations, and it was solved in a matter of hours.

**Brownlee:** What is the best thing about working with this game engine?

**Manna:** I'd say the best thing, right now, is the sort of community that Gideros is building, well alive and enthusiastic. I'm not a eager user of online forums, generally, but passing by at Gideros' one has become a welcome routine.

**Brownlee:** Would you ever consider writing your own game engine?

**Manna:** I sure did, at least a couple of times, and even got halfway through. After that, I learned that it's much better to search for engines that don't force developers into a corner, and leave them free to grow while providing enough power at their core. With that, you're much likely to end up a game with the exact features you need, your own engine is both a daunting and never-ending task, and you must commit to it.

**Brownlee:** What would you do differently if you were to develop your game again?

**Manna:** Nothing major, really: when we started, options weren't that clear, but a good thing has been that we've been able to adapt pretty fast, growing together with the engine capabilities.

My only complaint is that the Android version could have been somewhat better, but time was over, and we shipped it.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Manna:**

- \* Decide if the project is cross-platform or not: going on multiple OSs means to compromise, and in some cases this could kill quality and get an average game where it could have been a hit.

- \* Consider if learning a new language/API is preferable to stick to what you know just for the sake of it.

- \* Look at the stability and completeness of the APIs: what drove me away from cocos2d has been the high instability of the beginnings, where at each update I had to spend a couple of days to solve compiling errors (it's no more the case, probably, but I don't bother to check anymore)

- \* Value support, expandability and community over popularity: it's still possible, and very likely, that the perfect solution for you isn't in the buzz.

- \* Test, test, test: feature list is a start, but just the first of the decision steps.

**Brownlee:** Would you use this game engine again?

**Manna:** I've done that already: Gideros has been used for another two apps, a few prototypes and is the tool of choice for a couple of other scheduled games. It's still the best platform, in my opinion, for casual gaming, and is growing steadily. I wouldn't suggest it for non-gaming projects, though, and wouldn't use it for books (although there have been apps of that kind), but it's because I've matured experience with other frameworks, and see no reasons to change.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Manna:** It started as any other project as freelance: some specs, some ideas from the publisher. This time, there were both more stringent technical requirements and a larger opportunity to be creative, as irony and humor play a huge role, so once the tech issues were framed, it's been a matter of who was getting the funniest ideas.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Manna:** It's not my first commercial app, and not the most challenging one by any means. Oddly enough, though, it's the first I can show my grandchildren (not hypothetical nor future, they're here now, and as picky as any modern kid can be), and enjoy

discussing with them!

**Brownlee:** Would you go through it all again?

**Manna:** Absolutely: it wasn't the first game, and won't be the last, but it's been a milestone on its own right, and everything I learned will be of value sooner or later.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Manna:** From a technical point of view, they're doing everything right, but it shouldn't have been easy to come up with the development of their own engine: What's been the deciding factor?

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Manna:** Unsurprisingly, I'm not a gamer myself, my kids (and grandkids!) are though, and what strikes me is how volatile their tastes are. I think it's much, much harder nowadays to find out a game that can withstand the time, as was the case a few years ago.

**Brownlee:** What are you currently working on?

**Manna:** As a freelancer, unfortunately I'm not able to discuss details of present projects, NDAs are usually pretty strict about that. I'm still evaluating writing something on my own, though, hope I'll get to find the time for it.

**Brownlee:** Do you have any other comments on Game Development?

**Manna:** With the right tools, it's still a lot of fun: it may not be as profitable as other kinds of mobile development, unless you score a hit, but I certainly enjoy it more than anything else.

**Brownlee:** How can a reader or fan best get in contact with you?

**Manna:**

\* Website: <http://www.persephonetech.com>

\* Email: [info@persephonetech.com](mailto:info@persephonetech.com)

## **Footnotes**

[1]: Zion Slider <http://itunes.apple.com/app/zion-slider/id413792767?mt=8>

[2]: JackpotBJ <http://itunes.apple.com/app/jackpotbj/id448053052?mt=8>

[3]: Joustin' Beaver <http://itunes.apple.com/app/joustin-beaver/id436128724?mt=8>

[4]: Start! <http://itunes.apple.com/app/start!-free/id508178438?mt=8>

## **Mat Hopwood: BattleBallz Chaos using Marmalade SDK**

### **Background**

**Brownlee:** What is your current job title or position?

**Hopwood:** Technical Director at Pocketeers Limited.

**Brownlee:** Where are you located?

**Hopwood:** Doncaster, United Kingdom.

**Brownlee:** Could you please introduce yourself?

**Hopwood:** I started out in game development when I was around 8 years old using a Sinclair ZX Spectrum. My first taste of game development was typing in games from ZX Spectrum magazines with my father. But I wasn't happy with just typing in hex codes and such so I started a quest to learn what it all meant.

This lead me to learning all about assembler language and the technology that goes into creating a CPU and the other components of a computer. I went on to study electronics and electrical engineering at college and then University as I wanted to design and build computer architectures. However, due to an accident I was forced to give up my degree course so I fell back on my hobby (game development).

I got my first taste of working on games professionally when I wrote a bunch of simple arcade games using a mixture of assembler language and C code for a company that never paid me (this put me off development for a few years). Eventually I landed at Gremlin Graphics in Sheffield, UK. After bouncing around the industry for around 8 years I decided that I was never going to get anywhere unless I worked for myself, so I formed AGB Games with one of my old friends Dave Garrison (one of the best game artists I had met).

We received a warning over our company name from Nintendo so we quickly changed the company name to Pocketeers Limited. At the time we were developing 3D technology for the old Nintendo GBA (which was a 2D system), we produced demos of Need for Speed, GTA and Quake. We received a warning from Activision over our Quake demo videos so we removed those from public view.

Eventually we were spotted by EA Canada who asked us to develop a stream of Need for Speed titles for Nintendo GBA and DS. We also developed a bunch of Java ME (J2ME) games but didn't release most of them because of issues with device fragmentation. Eventually we realised that working on Nintendo games was going nowhere so we moved over to iOS development. We began creating our own cross platform 2D and 3D game engine but quickly realised that it was going to be difficult to maintain so we started looking around at the current crop of cross platform solutions. We spent a while with Unity 3D because it supported C# and its editor is incredible, but we weren't happy that it was difficult to create 2D games with and that the deployed size of our apps were large (the .NET runtime has to be deployed with each app), so we continued searching for cross platform solutions. Eventually we stumbled upon the AirPlay SDK (Now known as the Marmalade SDK) and it was a perfect fit for our needs.

We had low level native access, we could deploy smaller and tighter apps and we had a lot more platforms that we could deploy to. The only thing that we found missing from



the Marmalade SDK was a good solid game engine so we began development of our own cross platform game engine called IwGame Engine, which we made available to other developers for free, including the source to the engine and the complete source to the first version of game cOnnecticOns Puzzle Friends. cOnnecticOns took just 3 days to create from scratch and is 90% mark-up driven.

**Brownlee:** What are some mobile games that you have released?

**Hopwood:** Thus far we have developed BattleBallz Chaos a fast paced 1-2 player arcade title (iOS, Android, Bada and BlackBerry PlayBook), Funky Cam 3D (iOS, Android and Bada) and cOnnecticOns Puzzle Friends (iOS, Android, Bada and PlayBook) as well as a number of other titles for our clients using the Marmalade SDK. Our most successful title to date is Funky Cam 3D which is not strictly a game, but more of a toy. Funky Cam 3D has been downloaded over 1 million times on Android (less on the other platforms). The app takes the cameras real-time camera feed and converts it to a 3D mesh adding depth to it

## **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Hopwood:** BattleBallz Chaos.

**Brownlee:** What platforms was your game designed to support?

**Hopwood:** iOS / iPhone, Android, Web / HTML5, Bada, BlackBerry PlayBook, Windows Phone 7.

**Brownlee:** Please describe your game?

**Other:** Smash arcade game of Chaos for 1-2 players. Do battle across a danger ridden battlefield. earn achievements, poach power-ups, destroy your enemies and boast about your deeds on Facebook. Features:

- \* Insanely addictive game play as well as a wonder to watch
- \* Single and multiplayer (1-2 players)
- \* Variety of game modes
- \* 4 modes of difficulty (easy, normal, hard and insane)
- \* Tutorial mode
- \* New features and hazards added as you progress
- \* Around 80 different achievements that can be earned and posted to Facebook
- \* Pick-ups to help / hinder players
- \* 10, 20 and 30 round games to suit your time
- \* Stats tracking to help you measure and improve your performance or prove how badly you just beat your friend
- \* Great graphics, music and effects
- \* Cool sci-fi theme
- \* Suitable for adults and children of all skill levels
- \* Insane difficulty mode is ultra chaos, designed specifically for the hard core gamer

**Brownlee:** What genre is your game?

**Hopwood:** Arcade.

**Brownlee:** What date was it published?

**Hopwood:** June 2011.

**Brownlee:** Who published the game?

**Hopwood:** Pocketeers Limited.

**Brownlee:** What is its price?

**Hopwood:** \$0.99.

**Brownlee:** How many downloads?

**Hopwood:** Approx 200,000 (across all formats) with majority of sales being on the Bada platform.

**Brownlee:** How much revenue?

**Hopwood:** Approx \$2,000 to \$3,000.

### **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Hopwood:** When we first began our quest to find a mobile game engine we were only interested in native solutions so we side stepped all HTML solutions. We also wanted a solution that we could instantly compile and test on a device, and not have to wait for an IPA or APK to be returned to us. In addition, we were not looking specifically for a game engine we just wanted a cross platform solution that enabled us to build our own gaming technology on top of it.

Our first stop was Unity 3D, Unity 3D is a great system for those that want to get a 3D game up and running quickly. The editor is one of the best we've come across and makes putting a game together incredibly easy. It also supports C# and JavaScript scripting languages. We tried Unity for a while but quickly discovered that we could not access many native features and that we could not create 2D games easily or create our own extensible game engine. We were also disappointed with the deployed size of our test game. We moved over to use the Marmalade SDK and our project finally moved ahead.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Hopwood:** In order of importance:

- \* Cross platform.
- \* Could develop and deploy for all platforms on PC.
- \* Native code using C/C++ or C#.
- \* Support for a wide range of input devices and other native features.
- \* Affordable.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Hopwood:** In this day and age cross platform would be the most important feature that we would be looking for. Focusing on a single platform reduces potential profits and exposure considerably

**Brownlee:** What systematic process did you use to choose a game engine?

**Hopwood:** We simply looked at the features of the various engines to see if they matched our priority list. We did take into account pros and cons of each engine but we did not base our decision on popularity. For us it was a case of whatever fits best to our needs.

**Brownlee:** What research did you do into game engines?

**Hopwood:** Choosing gaming technology is kind of like choosing a wife, once you've made your decision its difficult to get a divorce, As such, we put an incredible amount of leg work into deciding which engine to go with. We spent weeks searching the net via Google, Yahoo, forums and blogs, reading what others were saying about a variety of engines. However the best research for us was to actually try them out. We only found Unity and Marmalade to be worthy of investing significant time and money into trying out back then.

**Brownlee:** Which off-the-shelf game engine did you use?

**Hopwood:** Marmalade SDK

**Brownlee:** Why did you choose this particular mobile game engine?

**Hopwood:** The sheer number of target platforms that the Marmalade SDK supported was the absolute deciding factor for us, although the ability to develop and deploy from PC came a very close second place.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Hopwood:** Read and learn is the best piece of advice I can give. The Marmalade SDK is a huge beast with so many rich features that it can seem a little overwhelming to begin with. However, Marmalade is an engine that allows the developer to get up and running quickly with the minimum amount of fuss. The SDK ships with a huge sample code repository, that many developers seem to overlook. I personally find this sample code repository provides a wealth of information.

We at Pocketeers also provide our own tutorial series to help developers get up and running very quickly with many Marmalade systems<sup>1</sup>. The Marmalade SDK doesn't provide an in-depth gaming engine, but rather provides the underlying technology to allow developers to create or port their own. That said that there are two free popular gaming engines currently available for the Marmalade SDK, which include our very own IwGame Engine<sup>2</sup> and Cocos2D.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Hopwood:** The Marmalade SDK has worked out much better for us than we originally thought it would. Marmalade have provided some great support and help with store promotions on some platforms. We've not really come across any major pitfalls.

**Brownlee:** What is the best thing about working with this game engine?

**Hopwood:** Deploying to multiple platforms using the Marmalade SDK deploy tool is simply incredible. You plug the device into the USB port, hit deploy, set a few options and viola your game is running on the device with no fuss or bother and the deployment process is the same for all platforms. You can even collect debug data very easily and best of all, it can all be done on a PC.

This no fuss approach saves us so much development time during testing. I remember when we first received a test BlackBerry PlayBook device, we took our iOS and Android code base for BattleBallz Chaos, compiled it for PlayBook and deployed it. To our amazement the game just ran without issue and without any changes to the code base. We spent a few hours modifying the game to better fit the wide aspect ratio of the PlayBook

screen then sent it to BlackBerry App World for approval. Our game was up on the app store in less than 24 hours of receiving our test PlayBook Hardware. You can't put a price on that kind of reliability.

**Brownlee:** Would you ever consider writing your own game engine?

**Hopwood:** Pocketeers has traditionally always written its own game engine technology. We developed the cross platform C2 engine for PC, iOS and GBA, we then went on to develop the C3 engine for PC, iOS, Nintendo DS and Nintendo Wii. However, our best engine creation thus far is the IwGame Engine which supports the same platforms as the Marmalade SDK because it is built atop of the Marmalade SDK. IwGame is a solid game engine with a mass of features including its own mark-up language XOML which enables speedy prototyping of games.

**Brownlee:** What would you do differently if you were to develop your game again?

**Hopwood:** Better UI and more social features

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Hopwood:** We would not change our initial process of choosing a game engine because we chose right with the Marmalade SDK.

**Brownlee:** Would you use this game engine again?

**Hopwood:** Absolutely, we will not be moving away from the Marmalade SDK for a very long time. We would have so much to lose if we did. We will be using the Marmalade SDK in conjunction with the IwGame Engine for all of our future native games and apps.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Hopwood:** BattleBallz Chaos has been an idea that was bouncing around in my mind for a long time. We first created the game for web using Silverlight as a test for the technology. We then ported the game to Nintendo Wii but the financial costs to publish the game were too high to warrant the risk of publishing on the Nintendo Wii platform and publishers weren't really looking for fresh unbranded content. We quickly ported the game to Windows Phone 7 because that also supports Silverlight. We then went on to port and improve the game for iOS, Android, Bada and BlackBerry PlayBook

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Hopwood:** It's always exciting to release a new game on the market, but unfortunately very few games actually sell enough copies to warrant their development costs. If we had released BattleBallz Chaos on a single platform we would not have made anywhere near our development costs back. Luckily because we used the Marmalade SDK and deployed to so many platforms we made our development costs back, but that's about it, Mobile app and in particular game development is a cut throat business and if you don't have the advertising budget to back up your releases then 99.9% of new titles will fall to the bottom of the app store oceans.

**Brownlee:** Would you go through it all again?

**Hopwood:** Yes but we would change the type of game we would develop, BattleBallz Chaos was the wrong product for your average mobile user. We have learned many lessons since we began mobile development. The main lesson is not to release a game

without an advertising budget that is at least equal or better than your development budget.

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Hopwood:** I have a few including World of Warcraft, Warcraft 3, Starcraft 2, Red Alert, Doom, Quake. I tend to like competitive social games the most.

**Brownlee:** What are you currently working on?

**Hopwood:** We are currently working on a follow-up product for one of our clients. We are also working on a few things internally as well as upgrading our most recent game Puzzle Friends. And of course we are continually improving the IwGame Engine. Our next major features is support for complex user interfaces.

**Brownlee:** Do you have any other comments on Game Development?

**Hopwood:** Mobile game development is a tough business so be prepared for the long haul and target as many platforms as possible.

**Brownlee:** How can a reader or fan best get in contact with you?

**Hopwood:** I run a blog and forum at <http://www.drmop.com>.

## **Footnotes**

[1]: Marmalade Tutorials <http://www.drmop.com/index.php/marmalade-sdk-tutorials/>

[2]: IwGame Engine <http://www.drmop.com/index.php/iwgame-engine/>

## **Sean Steel: Bubble Love using DragonFireSDK**

### **Background**

**Brownlee:** What is your current job title or position?

**Steel:** My 9-to-5 job is as a developer for a business class software company. My side job is that I run the Never Recycle mobile app development studio.

**Brownlee:** Where are you located?

**Steel:** Cocoa Beach, Florida, USA.

**Brownlee:** Could you please introduce yourself?

**Steel:** My day job is development for a business management software, typically using ASP/C#. On the side I have started a mobile development studio that is starting to expand.

Currently the projects I am most excited about is a new game currently titled Snowball's Chance. It's the first project which involves a full time graphics artist which is producing some fantastic results that exceed previously finished projects.

**Brownlee:** What are some mobile games that you have released?

**Steel:** As far as true games, Bubble Love: The Story of Squeek and Rosi has been released for iOS using Dragonfire SDK as the mobile engine. There have also been a wide variety of social entertainment and music education apps produced including: Beginner Ear Trainer: Guitar, Beginner Ear Trainer: Piano, Beginner Reading Music: Treble, Beginner Reading Music: Bass, Would You Rather: Extreme Edition (this one got rejected by Apple a few times for being too offensive).

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Steel:** Bubble Love: The Story of Squeek and Rosi.

**Brownlee:** What platforms was your game designed to support?

**Steel:** iOS / iPhone.

**Brownlee:** Please describe your game?

**Steel:** Humans only feel but a fraction of the emotions that bubbles are capable of. For this we should be thankful. Bubble Love: The Story of Squeek and Rosi is a puzzle-platformer arcade game where you need to reunite Squeek and Rosi across 30 challenging levels. Throughout the journey you will encounter a number of obstacles including: Pickle missiles, Naughty hens, Exploding Manatees, and more. Each level is ranked with a bronze-silver-gold star system providing an extra challenge for the completionist gamers out there. Oh, it also features an overly-epic sound track. Enjoy.

**Brownlee:** What genre is your game?

**Steel:** Arcade or Platformer.

**Brownlee:** What date was it published?

**Steel:** April 20th 2012.

**Brownlee:** Who published the game?

**Steel:** Self-published.

**Brownlee:** What is its price?

**Steel:** There is both a free and paid version. The free version comes with ads. The paid version costs 99 cents USD and has no ads. Seeing as this game was me getting used to the gaming engine I felt that anything above 99 cents would probably be unfair to the user.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Steel:** I evaluated a number of them, though I can only remember a few: iTorque2d, Cocos2d, and DragonfireSDK.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Steel:**

- \* Plenty of GOOD documentation and training material on the API.
- \* Some sort of technical support available, whether from the company providing the engine or from a well developed community.
- \* The engine must be able to utilize basic mobile phone features, Such as touches, tilts and other popular mechanisms required to make a mobile game.

My list here is fairly light but if I can become fluent with the API and feature set, I can code around almost any other potential shortcoming an engine has.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Steel:** Good, clear and comprehensive documentation and training material. One of the most monotonous things in the world is having to learn a new API as well as development process. Being able to quickly find the answers to your questions can save countless hours of frustration.

**Brownlee:** What systematic process did you use to choose a game engine?

**Steel:** I weighed my requirements versus cost. Since I was interested in developing for iOS and I did not have a Mac I had to calculate the price of buying a new system plus the additional cost of licensing the engine.

**Brownlee:** What research did you do into game engines?

**Steel:** I started nearly all research through Google which led to forums and blogs. This is how I initially collected information. Once I had a list of candidates I did further research through the company's website. I would have loved to been able to try out a demo but most company's don't offer this option, unfortunately.

Two other areas where that helped me with my research and aren't quite as common are YouTube as well as releases by other developers who are already using a particular engine. A lot of people make demos and tutorials on YouTube, which means you can get a sneak peak of some code in action. Lastly, finding apps that were produced using an engine you are looking into is a great way to see what can be accomplished. If they were able to make a great game using that engine then so can you.

**Brownlee:** Which off-the-shelf game engine did you use?

**Steel:** DragonFireSDK

**Brownlee:** Why did you choose this particular mobile game engine?

**Steel:** There were really the two main deciding factors:

- \* Cost. Since I wanted to develop for iOS and I did not have a Mac the cost of getting started was going to be the price of a new computer system as well as the mobile engine licensing costs. With DragonfireSDK, I could do everything I needed to do directly from Windows.

- \* Documentation. I found DragonfireSDK's documentation to be very easy to understand. They had a number of example projects available as well training videos.

### **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Steel:** The best advice I would have to new Dragonfire developers is to use the resources available to you which include:

- \* The well documented help file.
- \* The community forum.
- \* The wiki(that contains FAQs and tutorials).
- \* The example projects.
- \* The Youtube training videos.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Steel:** Probably the biggest pitfall is that I can't use a third-party iOS SDK in conjunction with DragonfireSDK. The only real reason I would need or want to do this is to be able to directly integrate with Facebook, which has become a very popular thing for mobile games to do. I was still able to come up with a solution but it involved some extra work of going through my website instead of 100% inside the app.

**Brownlee:** What is the best thing about working with this game engine?

**Steel:** I have a large number of great things to say about DragonfireSDK but hands down the best thing about them is that I can develop and release apps for iOS all from a Windows machine using a language I am already familiar with, which is C++.

**Brownlee:** Would you ever consider writing your own game engine?

**Steel:** If my needs could not be met by an engine out on the market I would consider doing so. I wouldn't enjoy the experience much as I find producing apps for end users to be a much more rewarding experience. Luckily, as to date my needs have always been met by the available engines on the market.

**Brownlee:** What would you do differently if you were to develop your game again?

**Steel:** In the past I had only worked on PC based games so when I developed my first mobile game, Bubble Love: The Story of Squeek and Rosi, I didn't realize some of the pitfalls of having a game that was 100% touch driven. When playing Bubble Love, you will run into some scenarios where it's hard to play because physically your hand or fingers get in the way of the screen. That's something you never had to think of when developing on the PC.

If I were to redevelop the game I would play around with different movement mechanics. Using a touch to move system seemed great but unfortunately you can't code around



someones fat fingers from being in the way!

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Steel:** Even with hindsight I would still use the same process as mentioned previously when choosing an engine which would be:

- \* Cost.
- \* Documentation.
- \* Meeting your needs.

**Brownlee:** Would you use this game engine again?

**Steel:** I would hands down still use this engine. Any of the aspects that I was unhappy about with this project had nothing to do with the engine. I have already started using it on my next major project and foresee myself doing so for quite some time.

## Having a Finished Game

**Brownlee:** Why did you make this game?

**Steel:** I made this game as I wanted to turn a hobby into something that may potentially become a career. Mobile gaming has revolutionized the gaming scene and made casual games into a viable market where someone, like myself who can turn something that truly enjoy into revenue.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Steel:** It feels good. Even for most simple games many-many hours go into the creation process. No matter how much I enjoy developing, there always comes a point in a project where it stops being completely fun and more of a test of endurance. When the game is finally released and I get to see people having fun playing it is actually worth more to me than any revenue it produces.

**Brownlee:** Would you go through it all again?

**Steel:** It was hard work as learning any new system is. Luckily I found an engine I am happy with so I don't need to relearn another engine for any projects in the near future.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Steel:** I would ask them what inspired them to create the engine. It certainly was more work to create DragonfireSDK then it would be to just go with a regular iOS development solution.

## Final Questions

**Brownlee:** What is your favorite game in the world and why?

**Steel:** Oye, so many games. It's like when someone asks you what your favorite song is. I will go with Wizards and Warriors from NES. I'm sure a lot of reasons I think of it so fondly is it reminds me of my childhood but I still occasionally load it up for a quick run-through. I felt the game contained a very good balance between challenging and fun. It was certainly a rare trait for any game from that era to exhibit. Now that I think about it games today even have that problem, though it's more of a balance between being too easy and being fun.

**Brownlee:** What are you currently working on?

**Steel:** My next major project is a platformer game with the working title Snowball's Chance. It is a challenging obstacle game which introduces realistic 2D physics as well as stunning conceptual artwork. We are well into the development process and hope to have it released into the Apple's AppStore in the first part of June. If anyone is interested in tracking the progress of this project as well as any future developments they can visit our website<sup>1</sup> and click the Facebook Like button.

**Brownlee:** Do you have any other comments on Game Development?

**Steel:** Invariably when I start talking about game ideas with any non-developer one of the phrases that comes out of their mouth is "there's already a game like that". Gaming development is no different from literature or music. At base value there are only a handful of completely original ideas. Upon those few original ideas is an infinite number of variations.

Don't be discouraged if someone has already made a similar game. Make the game you want and good results will follow.

**Brownlee:** How can a reader or fan best get in contact with you?

**Steel:**

\* Email: [buder@neverrecycle.com](mailto:buder@neverrecycle.com)

\* Web: <http://www.neverrecycle.com>

## Footnotes

[1]: NeverCycle Website <http://www.neverrecycle.com>

## **Thomas Nind: Space Squad using libGDX**

### **Background**

**Brownlee:** What is your current job title or position?

**Nind:** Research Assistant, University of Dundee.

**Brownlee:** Where are you located?

**Nind:** United Kingdom.

**Brownlee:** Could you please introduce yourself?

**Nind:** I am a research assistant at the University of Dundee which involves programming tasks on various research projects that are funded either by government, charity or corporate grants.

I teach various programming subjects to undergraduates including a computer gaming course for final year students.

In my spare time I program games off and on (a lot more on than off though recently).

**Brownlee:** What are some mobile games that you have released?

**Nind:** The first game I have developed to release is Space Squad, an innovative scrolling shooter for Android and Desktop PC.

At my day job I have developed various games including a platform for customizable stroke rehabilitation games and a simple asteroids implementation for teaching new undergraduates.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Nind:** Space Squad.

**Brownlee:** What platforms was your game designed to support?

**Nind:** Android, Web / HTML5 and Desktop PC.

**Brownlee:** Please describe your game?

**Nind:** Space Squad is a retro scrolling shooter which differentiates itself by having the player control a squad of 4 ships instead of the traditional lone star fighter. Using the multi-touch screen a player can divide his squad into 2 squads of 2 and control them independently when desired.

Beyond this feature a full customization system is implemented for your squad with the caveat that the more upgrades you choose the less reinforcements (extra lives) you can afford. This leads to tactical decisions: Do you want flamer, beam shot and stealth or how should you add in shields and homing bullets but have no replacements available when you start taking casualties.

Enemies are designed to be more innovative than the traditional "fly in, wander aimlessly, fly out" types that are prevalent these days.

**Brownlee:** What genre is your game?

**Nind:** Shooter.

**Brownlee:** What date was it published?

**Nind:** January 6th 2012.

**Brownlee:** Who published the game?

**Nind:** Self-published.

**Brownlee:** What is its price?

**Nind:** Free, the game has no adverts and does not use the freemium model. This makes advertising a bit of a nightmare since there is no budget for it. Until now I have used only free reviews and posts or videos in forums, etc.

Since the game is constantly evolving I plan to put some money into promotion once I am happy that it is as high quality as it can be. I might implement a donate system in future so that there is money available for more promotion.

**Brownlee:** How many downloads?

**Nind:** 236 downloads (Android), 78 players (Website Applet).

**Brownlee:** How much revenue?

**Nind:** Zero point Zero. I have kept costs (excluding effort) under £100 including registration on the Google Market and the website hosting.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Nind:** Owning a Galaxy S phone and having an inquisitive streak, I was interested in finding out how simple it would be to program for Android. I stumbled across libGDX first while searching about Android games development in Java. Since I began by just being curious about the feasibility I didn't look at any other engines.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Nind:** I wanted to be able to program using a language and syntax that I already knew, ideally without having to learn an entirely new API. I wanted total freedom to program my game how I wanted without being limited by the engine which can sometimes be the case with higher level engines or development tools.

Because I had a 2D game in mind I also wanted an engine to support Sprites without having to get into OpenGL matrices or setting up cameras etc.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Nind:** It has to have an easy to follow setup tutorial so I can get it up and running in under an hour and begin exploring it's capabilities.

**Brownlee:** What systematic process did you use to choose a game engine?

**Nind:** I began searching using terms such as Android games development Java. I chose these terms because I wanted to avoid C/C++ at all costs because such low level languages really slow development. At the time I wasn't even aware that all Android applications are written in Java or a higher level abstraction tool.

I didn't use a more systematic approach because, developing in my free time, I was more interested in getting something going fast, I was willing to try the first one that came

along.

**Brownlee:** What research did you do into game engines?

**Nind:** I did research as it was required to advance the game. Whenever there was something I wanted to implement that I thought should be provided by the engine I researched it and in most cases found that it was.

In researching, I explored the libGDX Google Code site which includes tutorials and demos of basic functionality, wiki and SVN repository. Because libGDX is cross platform I proceeded to write Java code as I normally would. The only direct interactions with the engine came in the rendering, file loading and input handling.

Because I did so little research I actually ended up duplicating some of the functionality of the engine in my own program e.g. loading images from a sprite sheet manually rather than using a TextureAtlas and in my initial implementation of Bitmap Fonts

**Brownlee:** Which off-the-shelf game engine did you use?

**Nind:** libGDX

**Brownlee:** Why did you choose this particular mobile game engine?

**Nind:** Fundamentally it was the first one I came across. But from reading the site I especially liked the idea of developing cross platform on the Desktop and Android. This spoke to me that I would be able to use my extensive knowledge of desktop Java programming without having to learn a lot of new syntax or API calls.

If I had found the engine difficult to setup or clumsy to use then I would have abandoned it and looked for an alternative.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Nind:** Don't rely on the libgdx site for documentation. Access the blog or the forums. If you plan to offer your application in HTML5 then look into the restrictions e.g. you can't use Thread and many other classes.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Nind:** Handling multiple screen densities is a nightmare. As soon as you set the target Android API level above 1 your game will start rendering at the native device resolution meaning your game suddenly only occupies the bottom half of the screen as all your images are squished down.

Worse than that is when a device has a different aspect ratio than your world coordinates. While different device resolutions are supported to some extent in the native Android API there does not appear to be similar support in libGDX and it is up to the author to tailor his program to display more-or-less of the game world or resize the current images or use larger high density versions.

**Brownlee:** What is the best thing about working with this game engine?

**Nind:** The cross platform nature of the engine is it's greatest feature including the ability to launch the game on your Desktop without having to mess around connecting up your phone and installing your APK file or waiting for an emulator to boot up. This also extends to deploying it on a web server as an Applet or HTML5 program

**Brownlee:** Would you ever consider writing your own game engine?

**Nind:** My programming interest is in making games and making cool stuff happen quickly so I would never start from absolute zero (the devices native API). Having done this on iOS I know how horrible and time consuming it can be.

That said libGDX leaves a lot of implementation up to the user, it is quite low level as engines go.

**Brownlee:** What would you do differently if you were to develop your game again?

**Nind:** I would use more of the built in classes such as TextureAtlas, BitmapFonts and the UI libraries. Implementing this functionality myself was time consuming and resulted in a less professional final product. In many cases I switched to using the library classes once I learned about them.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Nind:** Find a review site that clearly shows which engines offer what so you can make an informed choice. Alternatively find a forum where you can discuss engines with other programmers.

I think if I was to develop another game I would probably stick with libGDX.

**Brownlee:** Would you use this game engine again?

**Nind:** I would use libGDX again because I am now familiar with it's functionality and the benefits it offers. I might investigate engines such as Box2d which libGDX supports as an extension rather than programming a lot of my own navigation or collision logic.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Nind:** I enjoy programming. I felt I had a unique idea on a genre of game I love (a space shooter where you control more than 1 ship) and I thought that the current offering of space shooter games on Android was poor.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Nind:** It feels immensely satisfying to have a game out there that people are playing and enjoying. I check each day to see how many people are playing and it really drives me to continue development. Because there is no revenue stream from the game (it being free and without ads) promotion is a challenge but I remain optimistic that if you make a good enough game it will self propagate.

**Brownlee:** Would you go through it all again?

**Nind:** Yes, this has been a surprising and exciting adventure. I have met many people who have in many cases been particularly kind in offering free effort, press, reviews, etc. such as PlayAndroid who provided a free review and promotion simply because the game was free and had no revenue source.

When I show the game off at conferences and recruitment fairs I have had considerable interest and even a job proposition on the strength of the application alone.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Nind:** What is the next platform you're looking to expand to?

## Final Questions

**Brownlee:** What is your favorite game in the world and why?

**Nind:** I think Baldurs Gate series are probably my favourite games ever. Their storytelling is fantastic and the engine was revolutionary at the time. I must have played through the game at least 4 times.

**Brownlee:** What are you currently working on?

**Nind:** I am currently focusing on improving Space Squad. I have released a Survival mode and am now working on refining the collision detection and plan to investigate adding an on-line scoreboard.

**Brownlee:** Do you have any other comments on Game Development?

**Nind:** I would advise developers to watch some videos about game coding versus application coding. Things like optimization and avoiding inheritance for your core classes is important in a way that it might not be in traditional development.

Focus on making each feature good enough for now rather than perfect. You can always revisit it later if it proves to be a problem.

You can get help from friends but make it as easy as possible for them to help, don't give them a graphics specification or rigid outline of how you want the music to sound. Instead see if they already have some tracks kicking about you can use or let them draw what they like and adapt to fit.

**Brownlee:** How can a reader or fan best get in contact with you?

**Nind:**

\* email: [tnind@computing.dundee.ac.uk](mailto:tnind@computing.dundee.ac.uk)

\* website: <http://spacesquad.co.uk>

## **Tomasz Kucza: Memory Owl HD using libGDX**

### **Background**

**Brownlee:** What is your current job title or position?

**Kucza:** Freelance Programmer.

**Brownlee:** Where are you located?

**Kucza:** Poland.

**Brownlee:** Could you please introduce yourself?

**Kucza:** I'm a professional programmer. I studied IT for five years (with some game projects along the way). I then worked at some big companies in Poland for four years only to later become a freelancer, to have more freedom. Right now I'm making games for Android and HTML5.

**Brownlee:** What are some mobile games that you have released?

**Kucza:** I've made a lot of solitaire games for Android: Spider Solitaire HD, FreeCell Solitaire HD, and Klondike Solitaire HD. My most recent game is Mahjong HD, which is also a solitaire, but of a different kind. It has received quite a lot of downloads, much more than I anticipated. Memory Owl HD on the other hand, while cost me a lot of work, is less popular but I think may get more players once I add more levels and game types (which should be very soon).

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Kucza:** Memory Owl HD.

**Brownlee:** What platforms was your game designed to support?

**Kucza:** Android, Ubuntu.

**Brownlee:** Please describe your game?

**Kucza:** Memory Owl HD is a dynamic variation of a classic memory game that uses a physics engine to make the game more challenging and fun.

**Brownlee:** What genre is your game?

**Kucza:** Puzzle.

**Brownlee:** What date was it published?

**Kucza:** September 2011.

**Brownlee:** Who published the game?

**Kucza:** Magory, it's my one-person company.

**Brownlee:** What is its price?

**Kucza:** Free. The game is supported by ads. I'm considering a paid version without the ads (and maybe with more levels) in the future when all episodes are ready.

**Brownlee:** How many downloads?

**Kucza:** Probably about 20,000. Only 30 or so on Ubuntu where it's paid and costs a few dollars.

**Brownlee:** How much revenue?



**Kucza:** Won't disclose, not much though.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Kucza:** I considered writing the game without an engine, but that would have taken a lot more time so I looked through engines available for Android - both paid and free - looking for something fast and powerful that wouldn't limit me in the future. During this time I decided to make a completely different game. I considered AndEngine and some Java engines that had additional Android back-ends. libGDX was the one I chose because it's free, open source and seemed to be updated all the time. It also had the opinion of being the fastest.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Kucza:** To be honest, the only thing I needed was the ability to draw sprites. Physics engine included in libGDX gave me an idea though that made my game much more interesting. Documentation was not that important because I prefer to read the code, so I was looking for an open source engine.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Kucza:** It has to use OpenGL and allow for drawing things on screen.

**Brownlee:** What systematic process did you use to choose a game engine?

**Kucza:** Well, I read reviews on the Internet, checked what games were made with this engine, and looked at the forums and blogs of it's creators to see if it was still supported and generally "had a future".

**Brownlee:** What research did you do into game engines?

**Kucza:** I mostly used Google, but also looked on forums of the engines, to check how they were looked upon by their users.

**Brownlee:** Which off-the-shelf game engine did you use?

**Kucza:** libGDX

**Brownlee:** Why did you choose this particular mobile game engine?

**Kucza:** I think the thing that convinced me was the fact that it is so modular. If I don't like some part of it, I can simply use my own code. At the same time it had everything that you would need for a 2D game: music, sound, drawing sprites, box2D for physics and a powerful scene2D class for manipulating objects on the screen.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Kucza:** I think when using libGDX you need to first read the documentation to become familiar with some of the modules and to always look into the Java Docs to check if maybe, just maybe the thing you are trying to do is already implemented. I wrote some helper classes for libGDX only to later discover that something like that already exists in the library (like for example managing assets).

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Kucza:** At the beginning I had some problems with compatibility across the wide range

of Android devices, but libGDX is constantly updated. I also fixed some of my own bugs and right now I get very little reports of problems related to the engine itself.

**Brownlee:** What is the best thing about working with this game engine?

**Kucza:** The best thing? I love the way you can animate stuff on the scene by defining actions (rotate, move, scale), sequences of actions and you can simply add your own actions to it. I added for example action for changing the texture on the fly that helps with the animated reversing of the tiles in the game. I also love how simple it was to incorporate box2D.

**Brownlee:** Would you ever consider writing your own game engine?

**Kucza:** I did consider writing my own game engine. I even had one that was half-ready before I decided to stop wasting my time reinventing the wheel. Why? Because it is fun and my own engine is always the way I want it to be, right? Why not? Because it takes too much time and in the end, I couldn't beat engines that are already on the market.

**Brownlee:** What would you do differently if you were to develop your game again?

**Kucza:** I would have used more of the features of libGDX instead of writing my own classes for everything. I didn't know about some modules of libGDX and some were not yet ready when I started writing Memory Owl HD (for example AssetManager for managing textures etc.).

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Kucza:** Probably the best way is to first select a few engines that are popular, and then try some tutorials for them and try making a simple game in them to test if you like them.

**Brownlee:** Would you use this game engine again?

**Kucza:** Sure, I use libGDX a lot. I know it very well right now and I made some helper classes for it by myself. I have even looked into the source code to check how things are done. It's a very powerful engine that gets better every day. They recently added HTML5 support for example.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Kucza:** When I was a kid I learned how to program by making small games in AMOS - old but powerful Basic for Amiga designed for making games. One of the first games that I finished was a simple memory game, I drew every image for it in Deluxe Paint, even composed some music for it in Protracker. So when I decided to make some games for Android, one of the first games I decided to make was a memory game. This time with much better music, much better graphics and some original challenges (made possible with the use of box2D physics engine) like rising water level, birds that help you recover tiles, ice tiles that melt when you touch them, and an ice dragon that eats tiles.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Kucza:** I was proud of myself, and happy I got back to the one thing in programming I like - making games. I'm a professional programmer and writing applications and designing web pages is much more boring than making a game.

**Brownlee:** Would you go through it all again?

**Kucza:** Definitely, I'm making games all the time now.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Kucza:** How did you find time to make it?

### **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Kucza:** Lost Vikings 2 (SNES version, because DOS version has very bad 3D-like graphics). Why? Because it has great humor, very good level design and combines action with puzzles in an insanely playable way. I hope to make similar platformer one day, maybe even this year, I have it in my plans.

**Brownlee:** What are you currently working on?

**Kucza:** Right now I'm working on a game in which you have to push furry creatures to a portal on a colorful board and avoid throwing them from a cliff at the same time. It will have very colorful graphics and challenging levels. I also hope to make a puzzle platformer this year.

**Brownlee:** Do you have any other comments on Game Development?

**Kucza:** It's the best thing a programmer could do. If you want to do it by yourself you have to know not only programming but also graphics and even how to compose music. Composing music is a skill I always thought was the most useless of mine but Memory Owl HD has got some five star reviews thanks to the music I made for it. :)

**Brownlee:** How can a reader or fan best get in contact with you?

**Kucza:** E-mail is the best way. I have a developer e-mail visible on Google Play. I especially appreciate good bug reports!

## **Kenta Iwasaki: Bitracker using libGDX**

### **Background**

**Brownlee:** What is your current job title or position?

**Iwasaki:** Dranithix Games, Founder, Freelance Programmer

**Brownlee:** Where are you located?

**Iwasaki:** Hong Kong, China.

**Brownlee:** Could you please introduce yourself?

**Iwasaki:** My name is Kenta Iwasaki, and I am more of a hobbyist programmer that came from a relatively international background. I am a relatively young programmer. I started programming with my first language, VisualBasic6 when I was 13 years old. I am currently 17 years old, and my main programming focus is on Java, which I have been using for 4 years. I am starting up a small indie game team known as Dranithix Games which will be specifically targeting games for the Android platform. In addition, I am also the head developer for Dranithix Games, and we are working on our first debut that will give an impression of our teams capabilities.

**Brownlee:** What are some mobile games that you have released?

**Iwasaki:** Bitracker.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Iwasaki:** Bitracker.

**Brownlee:** What platforms was your game designed to support?

**Iwasaki:** Android, Web HTML5.

**Brownlee:** Please describe your game?

**Iwasaki:** Bitracker is a futuristic version of the classic block-breaking game where you challenge your friends to a game of finger reflexes alongside fast-paced music.

**Brownlee:** What genre is your game?

**Iwasaki:** Arcade.

**Brownlee:** What date was it published?

**Iwasaki:** January 14th 2012.

**Brownlee:** Who published the game?

**Iwasaki:** Dranithix Games (myself).

**Brownlee:** What is its price?

**Iwasaki:** Dranithix Games main goal is to create simple free games, while having our main games paid.

**Brownlee:** How many downloads?

**Iwasaki:** Bitracker is specifically for Android only, and has about 30,000 downloads altogether.

**Brownlee:** How much revenue?

**Iwasaki:** Because of the fact that we rely on advertisement networks for our free games

(and due to the fact that we only have 1 game as of right now), we really only get about \$20USD per month.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Iwasaki:** A few game engines which I was looking at before I started this small project were Slick2D, JMonkeyEngine, and JGame.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Iwasaki:** A few main features that I was looking for were a basic or complex physics engine pre-implemented or no hassle in connecting a library, and a low level graphics engine that was easy to work with and was performance-optimized.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Iwasaki:** The main feature which I have been looking for in a game engine was a great high level API that would not restrict you on what you could create for your game.

**Brownlee:** What systematic process did you use to choose a game engine?

**Iwasaki:** I've aimed to look for the most community-supported game engine available. I have also been looking for a game engine that was quite complete but still in active development, meaning that the main developer of the engine is active, and that they are able to incorporate any possible fixes to the game engine if needed.

**Brownlee:** What research did you do into game engines?

**Iwasaki:** I have mostly collected information about general Android game engines from Google and JGO<sup>1</sup>.

**Brownlee:** Which off-the-shelf game engine did you use?

**Iwasaki:** LibGDX.

**Brownlee:** Why did you choose this particular mobile game engine?

**Iwasaki:** LibGDX had convinced me as their community of developers are very supportive, and due to the fact that it was in active development. What's more, it is a fully featured high-performance wrapper of OpenGL ES 1 and 2 which made it easier for me to develop without worrying to much about the differences between Android phones. Also, a huge bonus in using this mobile game engine was that it also provided many helpful extensions (especially the Box2D extension).

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Iwasaki:** Some really good advice to spare setup time is to use the projects own setup, as it prepares everything necessary in the Eclipse IDE for the creation of your game with LibGDX.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Iwasaki:** Something that did not really go well with this game engine was that once you get deeper into the engine's features, it gets quite confusing. For example, in the beginning of the creation of the game, a problem that I had was with its advanced Camera API. However, if you are guru in OpenGL, learning LibGDX's API should be a piece of

cake.

**Brownlee:** What is the best thing about working with this game engine?

**Iwasaki:** The best thing about working with this game engine is that it aims to provide every basic need an advanced or simple game ever requires. Also, if you do not have the feature you want, you can always access the lower level OpenGL API in order to function it on your own.

**Brownlee:** Would you ever consider writing your own game engine?

**Iwasaki:** I would never consider writing my own game engine, however I would consider making a modified version of a simple application interface, such as LibGDX. I would not create my own game engine because it would be reinventing the wheel, and increase our development time indefinitely.

**Brownlee:** What would you do differently if you were to develop your game again?

**Iwasaki:** What I would do differently if I were to develop Bitracker again is to actually spend much more time on it, and work out bugs and supply more features to the fan-base. The game itself in our opinion is actually similar to other Android games available today, and if I were to have more time on it, I could have potentially made it unique.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Iwasaki:** A process I recommend to a new mobile game developer on choosing a mobile game engine is to first start finding available engines in a programming language that suits you. Afterwards, I would recommend checking if the community for the engine is active, as dead engines could leave you wondering on how to enable certain features of the engine. Finally, I would look over the API and check if it well documented with a bundle of tests as it would tell me if it has a bundle filled with basic features that my game requires.

**Brownlee:** Would you use this game engine again?

**Iwasaki:** I would definitely use this game engine again, in fact my next game called TerrorAce would be using LibGDX again. The reason why I would use this engine again is because it is not too difficult to comprehend, and due to the fact that its community is helpful and supportive whenever you are wondering about a specific feature of the engine.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Iwasaki:** The reason why I made this game was because I was always interested in classical games being reinvented into a modern parody of their former selves, kind of like the Air Hockey with neon lights and lasers.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Iwasaki:** It feels great that I have my first game on the market. It seems compelling as shown by the fact that people compete against each other on the leader-boards to play a game that is visually appealing to its audience.

**Brownlee:** Would you go through it all again?

**Iwasaki:** It was hard work at first since I was completely new to what engine I was using,

but it was all worth it and I would go through it again. After all, the game engine I used minimized the amount of necessary work for a simple Android game, and the LibGDX community have supported me in implementing features that are quite advanced.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Iwasaki:** Would the iOS back-end for LibGDX be authorized by Apple so that the application may be listed in the Apple App Store?

## **Final Questions**

**Brownlee:** What are you currently working on?

**Iwasaki:** I am currently working on our first major game, which will be called TerrorAce. I can not leak out too many details of it right now, but I am planning to make this game a cartoonish gore-ish game that would appeal to any teenager gamer with simple game play. Finally, all I can tell you about TerrorAce is that it is emulating the classic Bomberman with men dropping bombs on cartoonish men.

**Brownlee:** Do you have any other comments on Game Development?

**Iwasaki:** I understand that game development is really hard work, and that indie development is hard when you are solo at the beginning. However, do notice that once you start a fan base with the tools that you have selected for your games, you may be able to make a profit out of your own hobby of programming.

**Brownlee:** How can a reader or fan best get in contact with you?

**Iwasaki:**

\* email: [dranithix@gmail.com](mailto:dranithix@gmail.com)

\* Twitter: @DranithixGames

\* YouTube: Dranithix

## **Footnotes**

[1]: Java Gaming <http://www.java-gaming.org>

## **Petras Zdanavicius: Type Sea Monsters Away using libGDX**

### **Background**

**Brownlee:** What is your current job title or position?

**Zdanavicius:** Freelancer, Web Development.

**Brownlee:** Where are you located?

**Zdanavicius:** Vilnius, Lithuania.

**Brownlee:** Could you please introduce yourself?

**Zdanavicius:** I am programmer by profession and by life style. I have a MS in computer science. My day job mostly turns focuses around the Web. I am a web developer by trade using Python, PHP, and JavaScript. I have 5 years of work experience, all of them for building websites and web applications.

I have always been fascinated with computer graphics 2D and 3D. I once even tried to work as 3D modeler, but ended writing PHP for the same company (long story).

Computer graphics. one of my hobbies, finally led me to trying to make my own game. So, for the last year I have spent my free time making games. You can see my other pet project in my portfolio<sup>1</sup>. My future plans? I think now is a turning point for me. I am thinking of becoming a professional game developer. My other option is to stay in web development. Decisions, decisions.

**Brownlee:** What are some mobile games that you have released?

**Zdanavicius:** Squares Are Better<sup>2</sup> and Type Sea Monsters Away<sup>3</sup>.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Zdanavicius:** Type Sea Monsters Away

**Brownlee:** What platforms was your game designed to support?

**Zdanavicius:** Android.

**Brownlee:** Please describe your game?

**Zdanavicius:** It is addictive (I am hoping) typing game for android phones. It uses system keyboard, so You can learn to type with Your own android keyboard and not some half baked imitation.

**Brownlee:** What genre is your game?

**Zdanavicius:** Learning to type.

**Brownlee:** What date was it published?

**Zdanavicius:** March 27th 2012.

**Brownlee:** Who published the game?

**Zdanavicius:** Self-published using Google Play.

**Brownlee:** What is its price?

**Zdanavicius:** It is free and open source<sup>4</sup>.

I have planned to make this game free, but for me the main problem with Google Play (Known as Android Market) is that I can not sell anything with Google Checkout,



because I am from Lithuania. So, if I want to sell something on Google Play I should do some strange machinations. For example, create account in other countries and so on."

**Brownlee:** How many downloads?

**Zdanavicius:** Now (2012 May 1) it has 106 download. It is really really small number. Main reason? I have done almost nothing to promote it. No social media, no anything - except for posting it in several gamedev forums. So small number of downloads is partially my problem.

**Brownlee:** How much revenue?

**Zdanavicius:** Zero. Or minus something if You count time I have spent to make it.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Zdanavicius:** Unity3d. I chose not to go with Unity3d because at that time it did not have a good interface to access the Android internal SDK. My game required access to the internal SDK for the keyboard, which takes main role in my gameplay. I also considered Cocos2d. I am a Python programmer and Cosos2d is one of the best 2D libraries in the Python world, but the Android version wasn't as good as the Python one. It was not mature enough.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Zdanavicius:**

- \* It had to support 2D
- \* Easy to pick up and start coding (it needs to be said that I can write pure OpenGL. So, it is possible that libgdx is not the easy to use engine as I thinking it is).
- \* Easy Android SDK integration
- \* SceneGraph
- \* Documentation

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Zdanavicius:** Fast. Not fast in FPS or rendering, or polygon count, or other technical parameter. But fast as it lets you to make your game (or prototype) fast. I work alone so this is really important to me.

**Brownlee:** What systematic process did you use to choose a game engine?

**Zdanavicius:** My thought process went something like "Can I do it with Unity3d? Yes? Is it good. No? What I should choose then?". So if I am not doing it with Unity3D, the most important aspect I think is that it must be free (I am poor). It must have impressive games already released with it, and it must have good documentation to get started.

**Brownlee:** What research did you do into game engines?

**Zdanavicius:** I checked with the following resources:

- \* Google.
- \* GitHub, BitBucket, GoogleCode, and others.
- \* A Lithuanian gamedev community<sup>5</sup>.
- \* Asking my friends from gamedev world.

**Brownlee:** Which off-the-shelf game engine did you use?

**Zdanavicius:** libGDX.

**Brownlee:** Why did you choose this particular mobile game engine?

**Zdanavicius:** For the following reasons:

- \* Good documentation.
- \* Written with Java (so I can easily mix library with Android SDK).
- \* Free.
- \* Open Source.
- \* Really good scene API.
- \* Easy to run hello world.

And most important: After 10 minutes of investigating this engine I could easily see that it had everything I need to conquer every technical challenge I had because of non-standard game play concept that my game has.

### **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Zdanavicius:** Investigate and use libGDX's scene graph API. It is really helpful and powerful. But it is really easy to miss it.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Zdanavicius:** The audio API is the weakest component in this engine. First of all, the API is strange. Second, (at the time of writing) there is some nasty bug that terminates your application after your game wakes if music was playing before your app was backgrounded.

**Brownlee:** What is the best thing about working with this game engine?

**Zdanavicius:** It is pure Java. You can easily use your standard Android development environment. This fact really speeds-up all processes, such as: testing, running, debugging, and using other Android libraries (even not game related ones).

**Brownlee:** Would you ever consider writing your own game engine?

**Zdanavicius:** Of course. Because I am narcissist and I believe that I can do it better then others did it. Others with far more experience and knowledge than I have.

**Brownlee:** What would you do differently if you were to develop your game again?

**Zdanavicius:** I would probably would try not to make such a bizarre and bad class hierarchy as I managed to do while coding. Also, I would try to find some artist to paint for me, because drawing it myself took a lot of time for me. Finally, I would probably try to test it on more real devices, because the Android world is huge and differences on each phone are not minor.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Zdanavicius:** My process: I spend 30 to 45 minutes with each engine. If I can't even code hello world with it during that period I would throw it away and try to find a better one. If I can run something with it, even after small period of time, then I feel if I can make what I want to make with it.

For totally new game programmers: I do not think that mobile is right platform to learn

how to write games. There is just too many things going on and it is too confusing. For new mobile game programmers: You are a game programmer and you should be capable enough to swim on your own. I do not think I am competent to tell you what to do.

**Brownlee:** Would you use this game engine again?

**Zdanavicius:** Yes. I managed to release my game. This is a huge milestone for me. So, if I can release one game. That means I can release even more.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Zdanavicius:** I just love making games. It is enough for me. I need nothing more to do it.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Zdanavicius:** I am proud because I 'made it myself'. It is one of the nicest entries in my portfolio. It is on Google Play market but it is a little bit disappointing because almost nobody is playing it but I have done no marketing at all.

**Brownlee:** Would you go through it all again?

**Zdanavicius:** Of course. It is a nice trip and valuable experience, and it is proof that I am one of those "who gets things done". Maybe not a smart one, but definitely I can get things done.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Zdanavicius:** I can not think anything engine specific. Maybe something like this: "How You manage to be so productive?" or something.

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Zdanavicius:** Oh, tough one. I do not know. There is a lot of games I admire. Mostly RPG. Gothic I, II (III and IV not so much); Elder Scrolls series; HoMM series.

But there is on game that managed to get me addicted. It was "Vampire: The Masquerade - Bloodlines". Yes it was buggy. Yes it had few stupid levels. Yes it's combat system was out of balance. But I was addicted on it. I think main reason was atmosphere. Great writing, great story, great characters, great soundtrack.

**Brownlee:** What are you currently working on?

**Zdanavicius:** Sometimes I try to code a prototype of some game, but nothing feels like it deserves to become a full game.

**Brownlee:** Do you have any other comments on Game Development?

**Zdanavicius:** Just try it yourself.

**Brownlee:** How can a reader or fan best get in contact with you?

**Zdanavicius:**

\* Homepage: <http://petraszdz.com>

\* Twitter: @petraszdz

## **Footnotes**

[1]: Petras's Portfolio <http://petraszdz.com>

- [2]: Squares Are Better <https://play.google.com/store/apps/details?id=com.petraszd.android.squaresarebetter>
- [3]: Type Sea Monsters Away <https://play.google.com/store/apps/details?id=com.petraszd.android.typingtrainer>
- [4]: Game source code <https://bitbucket.org/petraszd/android-typing-trainer>
- [5]: Lithuanian gamedev community <http://gamedev.lt>

## **Mike Lentini: Uncle Sam using libGDX**

### **Background**

**Brownlee:** What is your current job title or position?

**Lentini:** Student at Rochester Institute of Technology

**Brownlee:** Where are you located?

**Lentini:** USA.

**Brownlee:** Could you please introduce yourself?

**Lentini:** My name is Mike Lentini, I'm 20 years old, and I'm a Software Engineering student at the Rochester Institute of Technology, currently about to finish my third year. I did an internship at a start-up company called QuoJax for six months doing web development, and I'll be heading to Amazon in Seattle this summer for a 12 week internship working on Amazon Instant Video.

**Brownlee:** What are some mobile games that you have released?

**Lentini:** The only game I have released so far is Uncle Sam (and Uncle Sam Free). Between Google Play and the Amazon Appstore, it has around 3,000 downloads.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Lentini:** Uncle Sam.

**Brownlee:** What platforms was your game designed to support?

**Lentini:** Android.

**Brownlee:** How many downloads?

**Lentini:** Around 3,000.

### **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Lentini:** First, I looked into making a game using the tools Android provides, but decided I was too amateur at the time to do that. I started searching around for engines and frameworks and I believe Rokon, AndEngine, and LibGDX were the ones that most developers were recommending so I checked those out.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Lentini:** When I was trying to decide which engine to get started with, graphics was not an issue for me at all. My game was going to be 2D so most of the graphics would be drawing sprites, so this was not a consideration. I never really considered the physics aspect either, mainly because I didn't know much about game development at the time. Most engines and frameworks support at least Box2D anyway.

The big things for me were a helpful community, good documentation, an easy to understand API, speed (I was concerned about Java), price (see: free), and making sure the engine was under active development.

**Brownlee:** What is the most important feature a mobile game engine has to have for you

to consider it?

**Lentini:** I definitely cannot pick just one thing. It depends entirely on what type of game you are trying to make and what your goals are in general. Some engines are better at things than others, and it really comes down to what trade-offs you are willing to make.

**Brownlee:** What systematic process did you use to choose a game engine?

**Lentini:** I pretty much just thought about what I wanted out of an engine for my game and what I wanted to get out of the experience (developing Uncle Sam was a learning process for me). There are plenty of engines out there where you can drag and drop to make a game or you just need to learn their simple scripting language or something. These work great if you want to focus more on game design or you aren't really into coding. As somebody who enjoys re-inventing the wheel for learning purposes, I was looking to do as much of the work myself as my experience level allowed me.

**Brownlee:** What research did you do into game engines?

**Lentini:** I started with Google and from there branched to blogs, forums, official pages for the engines, IRC channels dedicated to the engine, and tutorials for the various engines. Blogs and forums are great because you get to see what other people are experiencing and what they think of the engines. Forums also have the advantage of being able to closely interact with those people and getting any questions you have answered. IRC channels take that one step further, interacting with people in real-time. Most of the time people are really enthusiastic about the engine and they're willing to answer questions and help you along the way, as long as you have done some of your own research first.

Official pages are nice because you get an overview of what the engine is, what the development team's goal for the engine is, and other important things as you would expect. You can also check out the API documentation and try to get a feel for how the engine is laid out and how it should be used. Even better for this is checking out tutorials. This is the number one way, in my opinion, to decide if you will feel comfortable using the engine. If the tutorials make sense to you quickly, you will probably be very productive when you start development. This doesn't mean that it is the engine you should use, but it is a big plus for that engine.

**Brownlee:** Which off-the-shelf game engine did you use?

**Lentini:** LibGDX.

**Brownlee:** Why did you choose this particular mobile game engine?

**Lentini:** The engines I looked at all seemed to have a reasonable community, documentation, and API (and they were all free to use) so it was mainly down to speed and active development. I'm not sure how AndEngine is doing now (I believe that started using pieces of LibGDX), but at the time AndEngine was much slower than LibGDX so I ruled it out. Rokon at the time was no longer under development, though development has started again using LibGDX as a base, so Rokon was out too. Therefore, LibGDX was really my only consideration left. LibGDX was more difficult to use than the others, but it was faster, had a great community, and was updated daily via nightly builds.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Lentini:** Since LibGDX is a little more low-level than other engines, it would help to have at least a general idea of how OpenGL works and how frame-rate independent movement works. These were my biggest issues when I started, mainly with using cameras and coordinate systems and such. Frame-rate independent movement is hugely important, although it is a fairly simple concept. Also, you should have a good understanding of how to use the eclipse IDE and all of the tools that the Android SDK provides.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Lentini:** I didn't have many expectations going into it, since this was my first attempt at game development. Almost everything that went wrong was due to my lack of knowledge and research prior to starting development. For example, I was having issues with the character having different jump heights on different screen resolutions. It turns out that I wasn't really using OpenGL's cameras properly, which I found out after talking to one of the LibGDX contributors. This is just one example of not doing enough research before starting development. But this is also something that you do once, fix it, and then you remember it for every project you do in the future.

**Brownlee:** What is the best thing about working with this game engine?

**Lentini:** By far the best thing about LibGDX is that you can run your applications on your computer, and I don't mean in the Android emulator. You can write code that runs the application on Windows, Linux, and OS X, then just add like 6 lines of code to make it run on Android. This is great because you don't have to build the application for Android and deploy it to the device every time you want to test the game, and you can even release your game for Windows, Linux, and OS X if you want to.

**Brownlee:** Would you ever consider writing your own game engine?

**Lentini:** I'd love to do it at some point just for the learning aspect, but I'm definitely not skilled enough with OpenGL to do it right now. I'm taking a course on OpenGL right now and hope to take one or two more next year, so maybe I'll get the chance to write my own engine some day.

**Brownlee:** What would you do differently if you were to develop your game again?

**Lentini:** I would have done more research before hand, I would have made sure the game was exactly how I wanted it before I released it, and I would have started with a free ad-supported version. I released the game and then put out some updates to get it where I wanted it, but I feel like I might have lost some users from the initial version lacking some features. Also, I started with Uncle Sam for \$0.99 before deciding I needed a free version as well to get some users. Android users tend to want free versions of games, so it is important to have that unless your game is already popular on other platforms.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Lentini:** I would definitely recommend the process that I used. Think about what your game is going to be, what your goals are for the project, and check out forums, blogs, IRC channels, and tutorials. There are tons of engines out there, and plenty of information about each of them to make the right decision for your project.

**Brownlee:** Would you use this game engine again?

**Lentini:** I would use LibGDX again since I'm familiar with it, it has a great community,

and it probably has more power than I need so it is easy for me to grow as a game developer with it. But at the same time, I want to start developing games for iOS as well, so I've been looking at cross-platform alternatives like cocos2d-x.

### **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Lentini:** I've always wanted to make games ever since I was a kid. I love writing software and creating things that people will use, so it was a natural decision for me.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Lentini:** It's a pretty cool feeling to check how many people are downloading your game or seeing people on your game's high score board and stuff. It's also funny to see people's reaction when you tell them you have an app on Google Play.

**Brownlee:** Would you go through it all again?

**Lentini:** For sure. It was hard but it was fun solving problems and watching the game progress from a couple of white blocks on the screen to an actual game.

### **Final Questions**

**Brownlee:** What are you currently working on?

**Lentini:** I have a few projects in mind, but nothing worth mentioning as of now. Mostly in the planning stage.

**Brownlee:** Do you have any other comments on Game Development?

**Lentini:** Making games is probably one of the most enjoyable and rewarding forms of software development. It can be stressful and frustrating, but in the end you will have tons of fun with it and make some really cool stuff. If you're at all interested in it, give it a shot.



## **André Schnabel: TinyWorld0x17 using libGDX**

### **Background**

**Brownlee:** What is your current job title or position?

**Schnabel:** Student, Leibniz University Hanover.

**Brownlee:** Where are you located?

**Schnabel:** Obernkirchen, Germany.

**Brownlee:** Could you please introduce yourself?

**Schnabel:** I'm a computer science student from Germany who likes to program video games and compose amateurish songs in his spare time. I started programming at an early age and created some little games while I was in school. Most of them written in C++ utilizing the Simple DirectMedia Library. At the moment I'm finishing my studies for a MSc. degree.

**Brownlee:** What are some mobile games that you have released?

**Schnabel:** I released my first mobile game SpaceSoldier3D for free in the Android Market last summer. It's an Android port of a game I wrote in 2006, which is basically a 2.5D first person shooter highly similar to the classic Wolfenstein 3D from id Software.

Later in 2011 I published my second mobile game initially called Steinkraft (now called PetraVis) in the Android Market and Apple AppStore for approximately \$1.00 in most countries. It's a Minecraft clone targeted at low-end devices with a focus on creative building. It sold rather well. Unfortunately Mojang didn't like the name "Steinkraft" too much and to avoid further issues I chose to rename it to something that's impossible to confuse with Minecraft.

Just a couple days ago I released a third game in the Android Market called "TinyWorld0x17" which is my entry for the Ludum Dare timed game development competition. It's free and was developed in much less than 48 hours.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Schnabel:** TinyWorld0x17.

**Brownlee:** What platforms was your game designed to support?

**Schnabel:** Android, Web/HTML5 , Windows, Mac, and Linux.

**Brownlee:** Please describe your game?

**Schnabel:** It is a platformer and was made in less than 48 hours for the 23rd Ludum Dare game development competition. It is very hard. It contains some elements from my two favorite platformers Commander Keen and Super Meat Boy.

**Brownlee:** What genre is your game?

**Schnabel:** Jump and Run.

**Brownlee:** What date was it published?

**Schnabel:** April 25th 2012.

**Brownlee:** Who published the game?

**Schnabel:** Self-published.

**Brownlee:** What is its price?

**Schnabel:** Free. Considering its scope I couldn't justify demanding any money for it. In my experience, if the game is big or good enough to stack up against the paid competition and you really care about user reviews I recommend paid over free with ads. This is because free games usually get lower review scores than paid games. The reason for that may be that people downloading a paid game spend a longer time evaluating it before purchasing and then rating it. This is especially true if there's a limited demo version also available. If you don't care about reviews and ideally offer in-app purchases, free seems to be very successful for a lot of games since you can spread a free game much quicker which helps marketing.

**Brownlee:** How many downloads?

**Schnabel:** Only a handful as of now. I don't really expect it to be a hit since its main goal was to be an entry for a 48 hour game development competition.

**Brownlee:** How much revenue?

**Schnabel:** None since free and no ads.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Schnabel:** I evaluated Unity3D, XNA, libgdx and OpenTK. Besides Unity, most of these are often considered frameworks and not engines since they're still rather low-level and don't have as much built-in features (e.g. scene management, physics, content pipeline).

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Schnabel:** Portability (iOS and Android are especially important to me), size (as small as possible), support for 2D or 3D graphics and of course a good architecture with a well documented API.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Schnabel:** Right now it is iOS support. My experience still shows that from a financial standpoint all other major mobile platforms (Android and especially Windows Phone 7) vanish in terms of revenue when compared with iOS. This of course might change in the near future.

**Brownlee:** What systematic process did you use to choose a game engine?

**Schnabel:** I tried to build a very simplistic game with each engine. Something like drawing a simple sprite and translating it on input events and maybe playing a sound. Also I tried the deployment infrastructure before making my decision. It's not always the case that a cross platform engines makes it easy to get a build running as intended on a specific target platform.

**Brownlee:** What research did you do into game engines?

**Schnabel:** Mostly Google and Wikipedia.

**Brownlee:** Which off-the-shelf game engine did you use?

**Schnabel:** libgdx

**Brownlee:** Why did you choose this particular mobile game engine?

**Schnabel:** There were a couple of reasons:

- \* I had already completed a game with it (SpaceSoldier3D).
- \* In addition to Android support, it also offers support for all desktop platforms (Windows, Mac OS X, Linux) and HTML5 which is very important for Ludum Dare so many people can test your game.
- \* It is suitable for quickly getting some basic game play done.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Schnabel:** There's a lot of documentation for libgdx on it's website. Read it! When you've finished the basic tutorials take a look at the sample games.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Schnabel:** It is weird but actually everything went well. There are some things like HTML5 requiring OpenGL ES2 that I'm not too happy about but that is not a problem with libgdx.

**Brownlee:** What is the best thing about working with this game engine?

**Schnabel:** It allows you to test your game on your desktop computer even if you mainly want to target Android. When you're using Eclipse as the IDE it opens up the possibility to do hot-swapping. This means you can do certain smaller changes in your code, save it and directly see the result in the game. This is extremely valuable for adjusting parameters in equations and generally for iterative programming. This is a killer-feature of desktop Java development in Eclipse that can be utilized for Android game development when using libgdx.

**Brownlee:** Would you ever consider writing your own game engine?

**Schnabel:** For my game "PetraVis" I essentially did write a small game engine. There is lots of ugly low-level code interfacing with the native APIs of Android (the NDK to be more specific) and iOS in the game. In retrospect I slightly regret choosing that path since it made me spend time reinventing the wheel in parts of the code. Yet it had the advantage of making the game relatively small and efficient since all code down to the OpenGL ES calls were tailored specifically for a Minecraft'ish voxel game.

That's pretty much the trade-off a programmer has to make with engines: The more high level you get (e.g. Unity or even CryEngine) the less work you have to do yourself but the price for that is that for the specific problem you're trying to solve the general solutions those engines provide might not be optimal.

**Brownlee:** What would you do differently if you were to develop your game again?

**Schnabel:** I would spend more time on the player controls and movement code. Other than this very game specific mistake of moving on to other tasks before having this important part finished sufficiently I don't think I would do anything differently. I'm very pleased with the work-flow Java, Eclipse and libgdx offered me.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Schnabel:** I would recommend to first filter out many options by considering hard

constraints like license, price, supported platforms and programming languages. After that hopefully there are only a handful of candidates left. Then one could do some tiny throwaway prototypes in each of them to see how they compare in practice.

**Brownlee:** Would you use this game engine again?

**Schnabel:** It depends. Since right now many engines are in constant evolution a couple months from now there might be other interesting alternatives I'm not aware of now. Even yesterday I stumbled upon a framework from BlackBerry called GamePlay that looks very promising for 2D or 3D game development for iOS and Android in C++. Also libgdx currently has no iOS support and that makes it pretty much a no go if I want to start another big project since financially iOS is the most important platform at the moment.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Schnabel:** I did this game to see if I could create something fun and complete in just 48 hours. Also I haven't done a jump and run game in half a decade so I figured it was time.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Schnabel:** It's mostly great but there are downsides. For example my Minecraft clone was really popular for a while (and it still kinda is). I'm really happy when players compliment me on my game or give me constructive criticism (e.g. describe a bug or feature request). But then there are those one star reviews with people just insulting my creation and sometimes even myself.

The worst experience overall is doing a small little change in your code to improve the controls that actually ends up making the game unplayable for a lot of people although this isn't reproducible on any of your testing devices. I'll never forget those days I had to wait for Apple to approve and release the reverted version while getting bad reviews and angry mails every hour.

**Brownlee:** Would you go through it all again?

**Schnabel:** Yes. What makes programming so addicting to me is that on the path to the finished products you're always in this feedback loop of trying things out and comparing the results with what you've aimed for. Sometimes you're way off and have to spend far too much time in the debugger. This can get quite stressful. Yet especially in those cases the reward when you finally figure out your mistake is unmatched. And in the end you've learned a lot and got a finished product to play yourself.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Schnabel:** Since I'm really interested in iOS support for libgdx I already asked him on Twitter what work was left to finish that. His answer was basically that there's not really a TODO list there but essentially it involves implementing many components of the library adapted for iOS and compiling the native parts of the library.

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Schnabel:** I guess Doom is a good candidate. It was one of the first video games that

immersed the player just by the quality of its graphics. Of course nowadays the graphics are terribly outdated but the game is still fun to play (especially in multiplayer). Since its source code is GPL'ed (and written in C, a programming language that will probably be supported by processors in at least half a decade from now) there is a very high chance this game will be ported and playable on pretty much any future hardware with a CPU. Doom was also one early example where parts of code responsible for technicalities like loading a level and rendering the graphics were reused by other games (most notably HeXen and Heretic).

In fact the widespread use of the term "game engine" is closely related to Doom and its code parts reused by other games, now called the Doom engine. Oh and although Wolfenstein 3D is considered by many to be the first FPS (first person shooter) Doom popularized the genre. After Doom was released many games now classified as FPS were considered Doom-clones. So that's why Doom is my favorite game in the world: it has an important place in the history of games, game development and in the history of many gamers.

**Brownlee:** What are you currently working on?

**Schnabel:** At this point in time I still have to finish my MSc. degree in computer science. Especially considering that I have to write a big thesis this winter and that there are still some exams ahead for me I can't really plan any big projects right now. I've been working a bit on the side on a successor to my Minecraft clone but considering the competition of highly paid full-time developers I'm not sure if that's still the most valuable use of my spare time.

**Brownlee:** Do you have any other comments on Game Development?

**Schnabel:** Game Development is one of those things that many people do for fun yet it is actually more complicated than a lot of things people do solely for the money. Especially as a programmer it's weird to see myself optimizing code to run fast enough to get 60 frames per second in a hobby project. I could have it easy and just code some relatively inefficient PHP scripts for someones website but I'd rather create something that matters to me. Something I'm proud of. Even if it often means more work for less money.

**Brownlee:** How can a reader or fan best get in contact with you?

**Schnabel:**

\* Website: <http://andre.steinkraft.net>

\* E-Mail: [andreschnabel@me.com](mailto:andreschnabel@me.com)

## **Bernhard Wagesreiter: Findlii using libGDX**

### **Background**

**Brownlee:** What is your current job title or position?

**Wagesreiter:** I am a technical engineer at a consulting company in Austria. My current project is the integration of telecom equipment at an Austrian telecom provider.

**Brownlee:** Where are you located?

**Wagesreiter:** Vienna, Austria.

**Brownlee:** Could you please introduce yourself?

**Wagesreiter:** I was born in 1974 in a village in Austria. I can proudly say I am a kid of the C64 generation. Since this time my interest in computers was always quite high, which resulted in an education at an engineering school for IT. My job has always related to the telecommunication industry in different areas.

A big part of my spare time was all the time reserved for experimenting with computers hardware and software and doing private projects with it. One of the most thrilling times was writing an emulator in Java for the good old video game console Magnavox Odyssey 2. Unfortunately this project never came to its end, but it was quite exciting to see the first sprites moving on the screen after loading the emulator with original ROMs written 25 years ago. During this time I learned a lot of how computers work internally.

**Brownlee:** What are some mobile games that you have released?

**Wagesreiter:** I have released "Que's Find The Difference" and "Findlii".

Both games are for Android devices only at the moment, but I am working on the port to iOS. They can be downloaded via google play.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Wagesreiter:** Findlii.

**Brownlee:** What platforms was your game designed to support?

**Wagesreiter:** Android.

**Brownlee:** Please describe your game?

**Wagesreiter:** Test the reaction of your Eyes! Do you find the duplicate icon on the screen? On screen you see a series of icons, but only one appears twice. Once in the upper half and once in the lower half of the screen. Find it as fast as possible and tap on it.

In One Player mode you play against either the time or you have to find a certain number of duplicate symbols as quick as possible. Your personal record is saved so that you can compete against yourself.

Play Findlii against friends. In Two Player mode, the screen is split. The players sit facing each other. The goal is the same. Find the duplicate icon faster than your opponent and tap on it on your half of the screen.

Rock Paper Scissors is out. Play Findlii!

**Brownlee:** What genre is your game?

**Wagesreiter:** Brain and Puzzle.

**Brownlee:** What date was it published?

**Wagesreiter:** October 2011.

**Brownlee:** Who published the game?

**Wagesreiter:** Self-published.

**Brownlee:** What is its price?

**Wagesreiter:** I have a free version in the market which is limited to 20 games in two player mode and displays ads during the game. The full version costs \$1 and is without ads.

**Brownlee:** How many downloads?

**Wagesreiter:** The free version was downloaded around 600 times. The full version was not downloaded at all. Compared to Que's Find The Difference which was downloaded already around 9,000 times, this is not much.

One reason might be that I didn't do any advertising so far. So this seems to be quite important and I started with that a few days ago.

**Brownlee:** How much revenue?

**Wagesreiter:** Almost nothing, but maybe this book will boost me to the top downloads.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Wagesreiter:** My first game "Que's Find The Difference" was written without any game engine for Android devices. Although such a game doesn't need many features a game engine provides, I had to invent things like screens or collision detection by myself.

So I began searching around for Android game engines by using search engines. The only two game engines that fit my needs were AndEngine and libGDX. At the time (2010) libGDX had a growing community and the activity level was very high on this project. So I decided to use it without testing AndEngine.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Wagesreiter:** I was searching for a 2d game engine supporting Android devices. At the time of writing Findlii (spring 2011) I did not consider writing games for other devices like the iPhone or BlackBerry. When I think of a game engine today it should support as many different devices as possible, because porting games is complex and I want to prevent that in the future if possible.

Important for me was that it makes life easier. This means it had to support main features like handling scenes, collision detection or playing sounds and music, things each game engine supports. This was already a big improvement compared to writing games without an engine. Furthermore, I wanted to have a community behind the engine and it not to be a dying project.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Wagesreiter:** My main focus on a game engine today is the support of different mobile devices. At least Android and iPhone. Support for BlackBerry, Windows and HTML5 is an advantage. I want to focus on programming the game logic and not the device API.

But, of course, if I need for instance a physic engine for a game and the desired game engine doesn't provide it, it is out of the picture.

**Brownlee:** What systematic process did you use to choose a game engine?

**Wagesreiter:** Two years ago search engines only brought results for AndEngine and libGDX for my search parameters. libGDX had more attention and was more advanced at this time.

**Brownlee:** What research did you do into game engines?

**Wagesreiter:** First of all I used google and feed it with tags. Google then provided needful links to Blogs and Forums. I was very interested what other developers were saying about a particular game engine.

**Brownlee:** Which off-the-shelf game engine did you use?

**Wagesreiter:** libGDX

**Brownlee:** Why did you choose this particular mobile game engine?

**Wagesreiter:** I was definitely searching for a game engine which was open source so I could also dig in the source code if required. Also a requirement for me was that the working level on the project was as high as possible with an active community. This made me sure that the game engine had a good chance to survive for years and will be improved further.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Wagesreiter:** libGDX is lacking documentation. For new projects one has to play around with the examples and dig into the source code.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Wagesreiter:** When I started with libGDX it worked well and was stable. Features were missing at this time, which I needed and had to be worked around.

**Brownlee:** What is the best thing about working with this game engine?

**Wagesreiter:** I really like the support of JOGL in libGDX which makes it possible to run the apps on the development machine without using an emulator during the development phase.

**Brownlee:** Would you ever consider writing your own game engine?

**Wagesreiter:** My first game I wrote without a game engine and I learned how painful it could be. Writing a well working game engine is hard work. I want to focus on the game logic.

**Brownlee:** What would you do differently if you were to develop your game again?

**Wagesreiter:** Making games is a learning curve and one cannot know all the concepts and mechanisms at the beginning. For Findlii I used a lot of features libGDX provides, but I didn't take advantage of scene2d, a 2D-scenegraph implementation for 2D scenes, which makes life much easier.



**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Wagesreiter:** Every game developer has to answer some questions to himself. Here are some which are important for me:

- \* Which platforms do I want to support? Is there a game engine which supports all these platforms? If not, which platforms are more important to me?
- \* What kind of games do I want to make? Which features are a must have?
- \* Is it a 2d game or 3d?
- \* Do I want to implement any special gaming network for i.e. achievements or high scores? Is it possible to implement it with a given game engine?

**Brownlee:** Would you use this game engine again?

**Wagesreiter:** libGDX fit all my needs for Findlii and most probably it provides all the features I am going to need in my future projects. The game was to be released for Android devices only, so the decision to use libGDX was good. Nowadays, I look for engines that support as many different devices as possible, but at least Android and iPhone. Maybe I'll give cocos2d-x a try.

## Having a Finished Game

**Brownlee:** Why did you make this game?

**Wagesreiter:** The first game I released to the Android Market was "Que's find the difference". As the name already says one has to find the five differences in two pictures. You can find such a game around ten thousand times in google play.

So I wanted to make a more unique game which resulted in "Findlii". The original idea actually came from my girl friend. To make her happy I started with this project, and it shouldn't have been too difficult to make.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Wagesreiter:** Android phones and the iPhone are devices everyone is talking about and had in their pocket. I am proud to make games for them.

**Brownlee:** Would you go through it all again?

**Wagesreiter:** I would definitely do it again. Although it was very hard work to learn all the techniques, it gave me a deep insight how computer games work.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Wagesreiter:** After thinking a while: Will it ever be possible to use libGDX on the iPhone? Is this technically possible at all? I know there are huge differences like architecture and programming language.

## Final Questions

**Brownlee:** What is your favorite game in the world and why?

**Wagesreiter:** Giana Sisters on the C64 was, is and forever will be my favorite. I sat for hours and hours listening to the music of this game. For me, it was the perfect game and it was a dream of mine to make such a game by myself in one day.

**Brownlee:** What are you currently working on?

**Wagesreiter:** At the moment I work on the port of "Findlii" and "Que's Find The

Difference" to the iPhone and iPad. Furthermore, I'm extending both games with social links to twitter, facebook and to my website. To relax from coding I draw more pictures for my version of FindIt.

**Brownlee:** Do you have any other comments on Game Development?

**Wagesreiter:** Making games is a learning process which takes a long time, but it is very interesting and it pays off.

**Brownlee:** How can a reader or fan best get in contact with you?

**Wagesreiter:** I really appreciate any feedback on my games even it is negative, because it helps me to get a feeling whether people like the game or don't, and whether it makes sense to go this direction or not.

\* email: [office@querika.com](mailto:office@querika.com)

\* website: <http://www.querika.com>

\* facebook fanpage: <http://www.facebook.com/querika.com>

\* twitter: [http://www.twitter.com/querika\\_com](http://www.twitter.com/querika_com)

## **Charles Dunn: Virtual Acoustic Guitar using libGDX**

### **Background**

**Brownlee:** What is your current job title or position?

**Dunn:** Android App Developer at Alkaline Labs.

**Brownlee:** Where are you located?

**Dunn:** Wales, United Kingdom.

**Brownlee:** Could you please introduce yourself?

**Dunn:** I am currently 22 years of age and live in Wales, United Kingdom. After I completed my secondary education and obtained A levels, I left home and went on to study Bsc (Hons) Music Technology in the University of Glamorgan, Wales. My son was born on my graduation day and I ended up moving back home with my partner to try and find work to support our new family.

I had purchased the first Android phone, the G1 and had only purchased phones running Android since, developing quite a liking for the operating system. I especially enjoyed downloading and using all the applications and games available, which then led me into wanting to start developing my own. After a few months of studying Java and also a book called "Beginning Android Games" by Mario Zechner I began developing apps for Android phones and tablets.

**Brownlee:** What are some mobile games that you have released?

**Dunn:** I have only released one actual 'game' called "Jumparoo!" and have focused on audio-based applications otherwise.

\* Jumparoo! released in October 2011. Lite Version has 6k downloads and the full version has 19 downloads.

\* Virtual Acoustic Guitar released in August 2011. Free version has 300k downloads, Ad-Free version has 950 downloads.

\* Virtual Electric Guitar released in April 2012, Free version has 136k downloads, the Ad-Free version has 30 downloads.

My other apps are Ambient Sounds, Colour Torch, Screen Breaker and Electric Guitar Tuner.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Dunn:** Virtual Acoustic Guitar.

**Brownlee:** What platforms was your game designed to support?

**Dunn:** Android.

**Brownlee:** Please describe your game?

**Dunn:** Virtual Acoustic Guitar is an easy to use, multi-functional tool for anyone who is either learning, or just starting to come to grips with playing acoustic guitar. Even experienced guitar players will find it useful! Key features include:

\* 23 Chords to play with and to learn

- \* Tuner (Standard)
- \* Professionally recorded sounds
- \* Instructions for learning chords
- \* Open/Solo Mode

This virtual acoustic guitar app is available in 12 different languages and is completely free. It is ideal for trying out new chord combinations, or maybe getting a feel for different sounds if you haven't played a guitar before. It allows for individual plucking of strings as well as full strumming at any speed.

It also teaches you exactly how to play different chords, even if you're a beginner.

Virtual Acoustic Guitar won't be beaten on sound quality. All sounds are professionally recorded from a real acoustic guitar.

**Brownlee:** What genre is your game?

**Dunn:** Music/Audio.

**Brownlee:** What date was it published?

**Dunn:** August 2011.

**Brownlee:** Who published the game?

**Dunn:** Self-published.

**Brownlee:** What is its price?

**Dunn:** Free with banner ads displayed throughout the app, and also an "Offer Wall" ad that sometimes shows up at app start up, but can be skipped. There is an ad-free version available for 60 pence (all available currencies too).

**Brownlee:** How many downloads?

**Dunn:** The free version has gained over 300,000 downloads and the ad-free version just over 1,000.

**Brownlee:** How much revenue?

**Dunn:** I have made about £2,000 from the free version and about £700 from the ad-free version.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Dunn:** I wasn't really looking to use an engine when I started developing, but rather a basic framework which I had learnt to build in the book "Beginning Android Games". After speaking with the author, Mario Zechner I became aware of the engine he and some others had created; libGDX. I did look at AndEngine afterwards, but I was pushed to use libGDX due to it's great community support and the fact that I had gained much of my Android development abilities from one of the creators of the engine.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Dunn:** I needed an engine that would be able to support a novice like myself, as I had only been learning Android and Java for a few months. Having an active community was very important in this way and it has benefited me greatly since using the engine. I also wanted a reliable way to manage audio, which libGDX offered.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Dunn:** I would have to say the community, since problems are inevitable during development and you can't always solve them by yourself.

**Brownlee:** What systematic process did you use to choose a game engine?

**Dunn:** I didn't really know much about engines and their benefits when I chose originally. Regardless libGDX seemed to be popular, had many pros and very little cons, so I didn't look much further.

**Brownlee:** What research did you do into game engines?

**Dunn:** I collected most of my research directly from their website and from their videos on how to start using the engine and how to set it up etc. During the process I discovered good things about libGDX in various places across the web.

**Brownlee:** Which off-the-shelf game engine did you use?

**Dunn:** libGDX.

**Brownlee:** Why did you choose this particular mobile game engine?

**Dunn:** The deciding factors for me was that it had a great community, was relatively easy for a novice to use and it was also solid and well-made.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Dunn:** There are videos on Youtube on how to set-up the engine in your development environment and also how to begin using it. It's much easier to follow a video than read text so I would recommend making use of them.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Dunn:** The community is made up of mostly intermediates and experts, so at times you may feel out of your depth when engaging with them if you are less than an intermediate developer yourself. Sometimes people in the community would assume I knew/understood certain things when communicating with me. This made it harder to work with the engine at times.

**Brownlee:** What is the best thing about working with this game engine?

**Dunn:** It's much easier to use than if you were not using an engine on the Android side of things. The hard work is already done for you by the engine, so you can focus on actually building your project.

**Brownlee:** Would you ever consider writing your own game engine?

**Dunn:** No, I would not. There are many engines out there at this time and it would be impractical to consider building my own. I would also not know how to begin building one.

**Brownlee:** What would you do differently if you were to develop your game again?

**Dunn:** I would manage my resources more effectively. This is partially due to how the engine works, but it's easy to adapt to if you understand how it works. The way I set up my texture files was inefficient and could potentially improve the performance of the app if I had done it better in the beginning.

**Brownlee:** With a released game, in hindsight, what process do you recommend for

choosing a mobile game engine?

**Dunn:** I believe that it depends on the developer and only he or she knows what they want out of an engine, based on their individual needs and abilities. There is no standard process to go through in my opinion.

**Brownlee:** Would you use this game engine again?

**Dunn:** I would and I do. In fact I have used it for all my apps and games. I have become greatly accustomed to it and all the features it offers to me make it the best route to take each time.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Dunn:** I used an app called "Solo" on the Android Market Place (now named "Google Play Store"), which simulates an acoustic guitar. I believed I could improve on the app in a number of ways from what I had learned in my degree in Music Technology. This is what drove me to build the application.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Dunn:** It feels quite incredible, especially when you have localised your game or app. I receive downloads from all corners of the globe from localising my apps and games (only some of them are localised), which make it that much more incredible a feeling. The thought that I could meet someone one day who is using something I made is quite exciting.

It is also very cool to show people you know that you created something that is available to all those people.

**Brownlee:** Would you go through it all again?

**Dunn:** Developing is always a headache at different points in the process, but it can be so rewarding, especially when your project is received well. There is more than just financial profit to be made.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Dunn:** I would just applaud them for creating something so awesome!

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Dunn:** I'd have to say my all time favourite is "Command and Conquer: Generals".

**Brownlee:** What are you currently working on?

**Dunn:** I have a big project on at the moment, but I wish to keep the actual app a secret. However you can follow Alkaline Labs through social media like Twitter and Facebook if you are interested.

**Brownlee:** Do you have any other comments on Game Development?

**Dunn:** The road is filled with obstacles and rewards. Never give up and always try to think out-of-the-box during development. There is always a way to do something.

**Brownlee:** How can a reader or fan best get in contact with you?

**Dunn:** Just e-mail me at [alkalinelabs@gmail.com](mailto:alkalinelabs@gmail.com) You can also check out my website at

<http://www.alkalinelabs.net>

## **Justin Stahlman: Dreamsong using ImpactJS**

### **Background**

**Brownlee:** What is your current job title or position?

**Stahlman:** Adjoint au Directeur du développement numérique

**Brownlee:** Where are you located?

**Stahlman:** Montréal, Québec, Canada.

**Brownlee:** Could you please introduce yourself?

**Stahlman:** In 1985, my 5th grade teacher helped me make a haunted house in hi-res graphics on the Apple IIe. I stayed after school every day to type that in line by line. Within a year I was showing other kids how to make lo-res animation by plotting an image, erasing the screen and plotting the next frame. We drew it all on graph paper first and coded each line manually in BASIC. Everyone in the class was into it, because computers were so new, and yet we kids were programming them. I remember a boy with only one parent who often skipped school who sat down to make a football animation. It seemed like even he had been seduced by computer graphics and animation.

After outgrowing Apple IIe ProDos and the Beagle Compiler, I moved on to the PC where I could make games in more colours using Microsoft QuickBasic (16-colour EGA). I made two shareware games: Diving for Dollars, and To Tame A Land. They were distributed on Bulletin Board Services (BBS) via 2400 baud dial-up modem, before Windows or the Internet.

in 2010 I transferred some old PC games from 5.25" floppy disks to my Mac using a USB disk controller. Using DosBox on the Mac I can run those games under emulation. I have begun recreating some of them in ImpactJS, just for the fun of it. I keep the same graphics of course since ImpactJS makes it so easy to blow up the pixels to recreate the retro look.

Impact makes it so much easier than the way I used to program in QuickBasic, but it's nonetheless very interesting to open a 20-year old computer program made by the 16-year-old me, to see how a teenager programmed in the language of the time (it was pretty bad, but creative).

**Brownlee:** What are some mobile games that you have released?

**Stahlman:** I have worked on two games:

- \* Quexlor: Lands of Fate, using The iPhone Game Kit (community iPad project). It was free and had over 10,000 downloads. I created the music, most of the levels and much of the AI of the enemies.

- \* Sauterelles, for Le Journal de Montréal (HTML game for the browser created in 8 hours to go with breaking news about grasshoppers let loose in a university).

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Stahlman:** Dreamsong.

**Brownlee:** What platforms was your game designed to support?



**Stahlman:** iOS / iPhone, Web / HTML5.

**Brownlee:** Please describe your game?

**Stahlman:** Trapped in her own dream, a girl encounters a wise man who sends her on a quest through earth, wind, fire and sea to retrieve four musical instruments. When the instruments play in unison, a great secret will be revealed.

**Brownlee:** What genre is your game?

**Stahlman:** Platform.

**Brownlee:** What date will it be published?

**Stahlman:** December 2012.

**Brownlee:** Who published the game?

**Stahlman:** Self-published, Stahlman Design.

**Brownlee:** What is its price?

**Stahlman:** Free. This game is more of a spiritual quest than money-making venture. I want kids and adolescents without a credit card to discover it.

**Brownlee:** How many downloads?

**Stahlman:** Not sure for the web-based version. Too soon to tell for the app.

### **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Stahlman:** Adobe Flash, Cocos2D for iPhone, The Sparrow Framework for iOS, JawsJS, GameJS, and ImpactJS.

**Brownlee:** What features were on your list of requirements when selecting a game engine? (if none, why?)

**Stahlman:** It must work on the iPad in the browser, 2D collision focus to make platformers (Super Mario) and top-down (Zelda) games, and have good demos and examples to understand the code quickly.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Stahlman:** Example files that I can easily modify to get my game working. This way I can see if it's worth investing in.

**Brownlee:** What systematic process did you use to choose a game engine?

**Stahlman:** I'd do some work in one engine, but then keep looking for a simpler solution.

Does it support Sprite Sheets?

I started with Cocos2D because it looked pretty good and people were saying good things about it, but it was complex, and I couldn't apply what I learned in Objective-C to my day job which is mostly Javascript web design. I also realized that I couldn't easily port my game to Android.

**Brownlee:** What research did you do into game engines?

**Stahlman:** Google mostly. Once I decided I wanted to do it in HTML5 so I could use Javascript and easily port to Android or use in the browser, I searched for "HTML5 game engine" or "Javascript games". Initially, there wasn't much, but a lot of people were

talking about how it would be possible to create games in Javascript, especially since Microsoft finally decided to support Canvas in IE9. No one was saying "stay away from Javascript".

**Brownlee:** Which off-the-shelf game engine did you use?

**Stahlman:** ImpactJS.

**Brownlee:** Why did you choose this particular mobile game engine?

**Stahlman:** This is the game engine that seemed like the advanced evolution of all the others. It didn't have the bells and whistles of Flash and Cocos2D, but the engine was focused just on games. It was highly polished and focused.

For example, Cocos2D has lots of tutorials showing how to use effects and rotation of sprites, but to make a game you're pretty much writing it from scratch. Just the way that Impact has a method for flipping sprites left and right is an example of something I'd have to write in other engines. I'd also have to write my own gravity, acceleration, friction, velocity. Impact had all of that as part of a base "Entity" which is what you build a character out of. One year later I still make pleasant discoveries in Impact's code.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Stahlman:** Sound effects and music support is fractured. So yes, you can play your game in the browser on the iPad, but sound won't work. It is however possible to compile the game as a native app and get sound working, but this requires a third-party product.

Fonts and text support is poor, but this engine is aimed at retro gaming like Nintendo. You can combine regular HTML and CSS text with the Canvas, but that will only work in the browser (not a compiled app), and there may be problems with focus (clicking in a text field outside the game canvas may make your game unresponsive until you click back on the canvas)

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Stahlman:** So far I'm disappointed with sound not working the same way in different browsers, but this is not the fault of Impact. Hopefully as browsers evolve they will agree on how to support sound. Especially in mobile browsers.

There is limited support for special effects like glow and shadow. But that makes it like the old days when you had to be creative and use the tools you have.

**Brownlee:** What is the best thing about working with this game engine?

**Stahlman:** It will make your Javascript coding much better. I'm starting to understand all the JQuery code out there now, and how Javascript objects are like dictionaries with key-value pairs. I like Javascript more all the time because this engine has showed me how it's a very flexible and powerful language.

Impact also makes it easy to write plug-ins for missing features. Plug-ins mean you can easily transfer some code to another game. For example, I made a ladder plug-in that works unmodified in 3 different games.

**Brownlee:** Would you ever consider writing your own game engine?

**Stahlman:** I don't have the right kind of skills to make my own engine. But if I did, it would be a lot like ImpactJS, because a lot of the things I need and use are already built

in, such as timers, collision detection and a level editor. Some of the things that I created previously in other games I now see how to do much more simply and efficiently thanks to how Impact is designed.

**Brownlee:** What would you do differently if you were to develop your game again?

**Stahlman:** Before building the giant game world and map (the fun part) I would build a small level that included all the things I could possibly do: ladders, jumping, climbing, shooting, falling, swimming, getting into a spaceship, etc. Because once you get the game feeling really good at a small scale, your work is half done. Then you get the reward which is building the giant map, adding creatures and designing levels. In my case I got the reward first, so the rest is less motivating.

In the documentary "Indie Game: The Movie", it looks like this is exactly how Johnathan Blow developed his 2008 game Braid. He started with blocky figures jumping on blocky platforms. All possible types of movement were figured out very early in development. Level design, sound and beautiful graphics came later once the architecture was nailed down.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Stahlman:** Try to build a mini version of your game, with simple placeholder graphics. Can you do basic things quickly and easily? If you can't even figure out how to do gravity or change from a swimming animation to jumping, this is a problem. If your game is bigger than the screen, can you scroll the background easily? Is there an active community in the forums to help you out?

**Brownlee:** Would you use this game engine again?

**Stahlman:** I had to develop a bunch of mini games, one a week, and with Impact I could rapid prototype them in a few days. Plus Javascript integrates tightly with other web design. I will use Impact more and more. I don't have the ambition to create a game so advanced that I can't use Impact. Also, I think that multiplayer support is coming in version 2.0. It is currently possible with Node.js, but I think that is going to be built in with examples and documentation. That's going to be very interesting.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Stahlman:** I grew up with what we now call retro games (Atari, Apple II, NES). It was so mysterious to me how those pixels could come alive, and now I can make those same games, which it turns out are pretty simple. I don't want to make 3D games because they require a whole team of specialists. It's not the creativity or vision of one man creating his world. It's more like making a movie and working with many levels of bureaucracy.

Retro games were often programmed by one or two people, and I feel that same excitement with my lone creation that they must have felt back in the day. Instead of a movie, it's like writing a story. One person writes a novel, not a team. I'm the creator god making a world and its rules, and determining the behaviour of the creatures.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Stahlman:** It's kind of anti-climatic. It's important to finish a project, but creating it and watching your enemies become animated with the AI you wrote, in the environment you

designed, that's the fun part. Maintenance and updates, not so much fun. In life we need things that come to a close, so that new things can manifest.

**Brownlee:** Would you go through it all again?

**Stahlman:** Of course, this is the only thing I want to do right now. It's not hard really, but it's extremely frustrating at first when you don't understand basic syntax errors. Then it's just a matter of not having enough time. Even if you are organized, it's easy to get caught up in drawing the graphics and avoiding harder tasks like AI. But when it starts to come alive, and especially when you get some good sound, it's worth it. It makes your brain work. You're creating a world.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Stahlman:** Are you committed to long-term maintenance of this engine, and if you could no longer develop or support it, would you sell it if you knew it were going to be in good hands?

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Stahlman:** Below the Root (Apple IIe / Commodore 64). The main character explores a vast platform world of giant trees (just like in the book it was based on). It's the same kind of game I am making now. Besides having the biggest map for any game at that time, it had sophisticated and subtle movement. You could walk, run, crouch, jump, and glide like a flying squirrel (if you had a shuba). It was also one of the first games where you could choose to be one of 5 different characters, each having strengths and weaknesses that would change how you approach tasks in the adventure.

Since it was based on three books, it referenced mysterious words from the story that didn't really affect gameplay, but set a mood. This is really the main reason I want to make a game, to create magical worlds like this.

**Brownlee:** What are you currently working on?

**Stahlman:** Several mini games for the London Olympics.

**Brownlee:** Do you have any other comments on Game Development?

**Stahlman:** It's a great time to get into making games. Because of the iPad, there's a window open where simple games can really work. Start small, making different types of established games to see how it's done. Make a platformer, space shooter, or even checkers. In all cases you'll have to learn about managing objects and keeping things in arrays and comparing data all in an update cycle. Eventually you'll get ideas for something original, or maybe you'll just want to make copies of existing games. Either way, it's fun, it exercises your brain, and the kinds of skills you will learn are in demand in other (more boring) areas like web design and data visualization.

**Brownlee:** How can a reader or fan best get in contact with you?

**Stahlman:** Web: <http://stahlmandesign.com>.

## **Willian Molinari: Reconquest using Akihabara**

### **Background**

**Brownlee:** What is your current job title or position?

**Molinari:** Programmer.

**Brownlee:** Where are you located?

**Molinari:** São Paulo, Brazil.

**Brownlee:** Could you please introduce yourself?

**Molinari:** I'm a 24 year old developer from Brazil. I graduated in information systems and I'm currently working with cloud computing at a large hosting company in Brazil.

**Brownlee:** What are some mobile games that you have released?

**Molinari:** I'm just playing with HTML5 for mobile and have created 3 games, one of them is work in progress right now.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Molinari:** Reconquest.

**Brownlee:** What platforms was your game designed to support?

**Molinari:** Web / HTML5.

**Brownlee:** Please describe your game?

**Molinari:** You play as the mighty Ice Titan, killing human soldiers that try to raid into your ancient city. You must protect it by casting frost bolts, stopping them from destroying and trespassing your ice wall.

**Brownlee:** What genre is your game?

**Molinari:** Top-view shooter.

**Brownlee:** What date was it published?

**Molinari:** 2011.

**Brownlee:** Who published the game?

**Molinari:** Self-published.

**Brownlee:** What is its price?

**Molinari:** Free. It's a webpage.

**Brownlee:** How many downloads?

**Molinari:** Not so many people accessing the webpage but we're not marketing it.

**Brownlee:** How much revenue?

**Molinari:** Nothing, just the knowledge and fun to make the game.

### **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Molinari:** I was looking at ImpactJS, MelonJs, Crafty and Akihabara.

**Brownlee:** What features were on your list of requirements when selecting a game

engine?

**Molinari:** Works reasonably well on mobile phones was one of the main features for me, we have tons of HTML5 game engines today but a lot of them just focus on desktop browsers without considering the low performance around the mobile devices. More than one open source demo game released is a plus because you can learn a lot from them and build your game better.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Molinari:** I'm just thinking on HTML5 and for this kind of engine the most important feature is the performance.

**Brownlee:** What systematic process did you use to choose a game engine?

**Molinari:** I usually make a spreadsheet with the features that I appreciate and put there all the engines I have in mind. After studying all the features of each engine I fill the spreadsheet with the results and choose the best one (for my case) from it.

**Brownlee:** What research did you do into game engines?

**Molinari:** Google and game engines documentation.

**Brownlee:** Which off-the-shelf game engine did you use?

**Molinari:** Akihabara.

**Brownlee:** Why did you choose this particular mobile game engine?

**Molinari:** More than five open source game examples, good performance (reasonable for an HTML5 game engine compared to others) on mobile devices, support for mobile pad on screen, open source and all the code available on Github.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Molinari:** The version 1.x from this engine is not currently developed and the version 2.x is a work in progress. They have a forum to help the developers but you can't be afraid to go deep into the code to understand some design decisions.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Molinari:** The documentation is not as good as it needs to be, but this is something that they are working on for the new version.

**Brownlee:** What is the best thing about working with this game engine?

**Molinari:** The game examples are really helpful, 4 (or 5?) different gameplays to base on and a lot of code that can be reused in your game.

**Brownlee:** Would you ever consider writing your own game engine?

**Molinari:** Sometimes I think about it, but I decided to help Akihabara instead, and I'm one of the core developers right now.

**Brownlee:** What would you do differently if you were to develop your game again?

**Molinari:** I would work more on the basics before start coding the game itself. Some things like the development environment on Akihabara are not so easy to setup. You can work with it as it is but it is but some things should be improved.

**Brownlee:** With a released game, in hindsight, what process do you recommend for

choosing a mobile game engine?

**Molinari:** That depends on what a developer wants to do. If the developer just wants to make a game without putting in much effort on it, I recommend to pay for a good game engine and be happy. If he wants to make a good game, work on a good engine, contribute to it with code and have in mind that a lot of effort will be on this work, I recommend they choose one of the great open source libraries. Akihabara is one of them!

**Brownlee:** Would you use this game engine again?

**Molinari:** Yes! This is a good game engine, open source, some cool people around it and space to contribute. I like it.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Molinari:** Global Game Jam! 48 hours, some friends and the motivation to work with HTML5.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Molinari:** Actually, the idea is to work with HTML5 and see what it can do for the game development. We got some interesting results, some things are evolving right now and others are good enough.

**Brownlee:** Would you go through it all again?

**Molinari:** It was hard work but worth it. Good friends, a good idea to code and a lot of knowledge to grab. I'm already doing it, but with more than 48 hours.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Molinari:** I think I've got all the answers to my questions talking to the developer. Almost all questions were about performance and good code. A lot of the decisions that makes the code look so ugly, makes it to run faster too.

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Molinari:** Shenmue from Dreamcast. This game is really awesome!

**Brownlee:** What are you currently working on?

**Molinari:** I'm working on Akihabara code when possible and developing a platformer game made with Impact engine. This game is not ready yet, but we'll have a demo on our website<sup>1</sup> soon.

**Brownlee:** Do you have any other comments on Game Development?

**Molinari:** A developer should focus on what they want to do. I really like to contribute to open source projects and write code for different purposes, so open source engines looks really shiny for me, but sometimes my games are delayed by it. You just want to focus on what you want to do, just write a game or write good code and contribute? I just want to have fun coding.

**Brownlee:** How can a reader or fan best get in contact with you?

**Molinari:** RECONQUEST was developed by: RECONQUEST was developed by Altair Gonçaves (@\_bojak), Bruno Croci (@crocidb), Willian Molinari (@pothix) and Rafael Masoni (@rmasoni). Feel free to get in touch with us on Twitter. To talk about

game development and HTML5 in general with me, send me an e-mail to [pothix@pothix.com](mailto:pothix@pothix.com).

### **Footnotes**

[1]: Plaev Website <http://plaevteam.com>



## **Chad Doriguzzi: Nuclear Hipster using UDK**

### **Background**

**Brownlee:** What is your current job title or position?

**Doriguzzi:** Character Artist.

**Brownlee:** Where are you located?

**Doriguzzi:** Emeryville, California, USA.

**Brownlee:** Could you please introduce yourself?

**Doriguzzi:** I graduated from the art institute of portland in 2006, since then I've worked on Tomb Raider, Tony Hawk, Army of Two, Heros of Newerth and Warhawk. I'm currently a character artist at s2games.

**Brownlee:** What are some mobile games that you have released?

**Doriguzzi:** Just recently I've started my own indie game company on the side called Doriguzzi studios. I released my first game called nuclear hipster for iphone/ipad. I made it all on my own over 5 months.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Doriguzzi:** Nuclear Hipster.

**Brownlee:** What platforms was your game designed to support?

**Doriguzzi:** iOS / iPhone.

**Brownlee:** Please describe your game?

**Doriguzzi:** You're a hipster riding a retro robot dinosaur fighting bear sharks and anarchist aliens. They captured your indie rock band and threaten to nuke the planet. Save your band... you save the world...

**Brownlee:** What genre is your game?

**Doriguzzi:** Adventure/Puzzle.

**Brownlee:** What date was it published?

**Doriguzzi:** March 29th 2012.

**Brownlee:** Who published the game?

**Doriguzzi:** Self-published.

**Brownlee:** What is its price?

**Doriguzzi:** \$1.99.

### **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Doriguzzi:** I first looked into Unity. The engine seemed super easy to use, but the need of a programmer made me finally decide on Unreal Development Kit (UDK).

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Doriguzzi:** I wanted an engine that would allow an artist to make their game come to life

without the need of a full-time programmer. Unreal has kismet, a node based scripting language. This allowed me to focus more on the art and less on the scripting. Just the way I like it.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Doriguzzi:** I personally love creating 3D artwork, so I wasn't interested in a sprite engine. Unreal was capable of producing state of the art graphics for a price any indie developer could afford. It was an easy decision for me.

**Brownlee:** What systematic process did you use to choose a game engine?

**Doriguzzi:** I knew programming was going to be the challenging part for me so it was the end decision factor for me.

**Brownlee:** What research did you do into game engines?

**Doriguzzi:** I skipped the research and just downloaded both engines, Unreal and Unity which are both free to try. After using both, Unreal was the clear winner.

**Brownlee:** Which off-the-shelf game engine did you use?

**Doriguzzi:** Unreal (UDK)

**Brownlee:** Why did you choose this particular mobile game engine?

**Doriguzzi:** I had used Unreal in the past so being familiar with it help my choose as well.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Doriguzzi:** Keep the number of your draw calls low, combine as many meshes as possible with the lowest materials possible. You can get away with 128 textures for the iPhone. Keep your game idea simple, small scaled at first just to learn the engine.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Doriguzzi:** I'm still trying to figure out how to add iAds and In App Purchases. The documentation isn't super great for this part of development.

**Brownlee:** What is the best thing about working with this game engine?

**Doriguzzi:** You can use any 3D software program and just export your art as a fbx into Unreal. Super straightforward. The Unreal community forums are a life saver as well. Always nice guys willing to help out a beginner.

**Brownlee:** Would you ever consider writing your own game engine?

**Doriguzzi:** Nope. I'm an artist, I wouldn't know where to begin.

**Brownlee:** What would you do differently if you were to develop your game again?

**Doriguzzi:** I would add more features. Better instructions on what to do in the game.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Doriguzzi:** Whatever suits your position best. If you're an artist I would go with Unreal.

**Brownlee:** Would you use this game engine again?

**Doriguzzi:** Yes. The game had barely any hiccups during development, it went super smooth.

## Having a Finished Game

**Brownlee:** Why did you make this game?

**Doriguzzi:** At my full-time job I don't get the creative control that you get developing your own game. So every day after work I came home and worked another 5 hours. I had no life for about 5 months because of this. Was it worth it in the end? Well lets just say I haven't given up yet. I want to retire young.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Doriguzzi:** The day it went live in the app store was the most exciting moment of my life. For one guy to make a game just blows my mind. I still can't believe I finished it.

**Brownlee:** Would you go through it all again?

**Doriguzzi:** It was more work then you could ever imagine. At times I forgot to eat dinner, I stopped going out to the bars on the weekend. the game became my life. It's all I could think about. Having a girlfriend wasn't even an option. But thats part of why I did it. I was new to the bay area so I didn't have many friends yet so I had a lot of extra time on my hands. I would go through it again. Just not right away. I miss having a social life. Something people take for granted.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Doriguzzi:** Why didn't you add some kismet scripting for in game app purchase?

## Final Questions

**Brownlee:** What is your favorite game in the world and why?

**Doriguzzi:** The original Legend of Zelda. It's what made me become the video game developer I am today.

**Brownlee:** What are you currently working on?

**Doriguzzi:** Still tossing around ideas for my next project. But I'm currently creating an update for Nuclear Hipster. You can buy it from the App Store<sup>1</sup>.

**Brownlee:** How can a reader or fan best get in contact with you?

**Doriguzzi:**

\* Email: [nuclearhipster@gmail.com](mailto:nuclearhipster@gmail.com)

\* Facebook: <http://www.facebook.com/nuclearhipster>

\* Twitter: @nuclearhipster

## Footnotes

[1]: Nuclear Hipster <http://itunes.apple.com/us/app/nuclear-hipster/id507384025?ls=1&mt=8>

## **Conor O'Kane: The Last Flight of the Bumble Bee using iTorque 2D**

### **Background**

**Brownlee:** What is your current job title or position?

**O'Kane:** Lecturer, games degrees at RMIT University, Melbourne.

**Brownlee:** Where are you located?

**O'Kane:** Melbourne, Victoria, Australia.

**Brownlee:** Could you please introduce yourself?

**O'Kane:** I'm an independent game developer and teacher. I'm currently developing iOS titles and teaching in the games degrees at RMIT University, Melbourne. I have been working in the games industry as an artist and technical artist for console game developers since 1999, and have been releasing my own games since 2007. I work primarily with the Torque 2D game engine both for desktop and iOS.

**Brownlee:** What are some mobile games that you have released?

**O'Kane:** My most recent release is "The Last Flight of the Bumble Bee", a free iPad game which was developed at the Global Game Jam 2011 and won the Audience Favorite and Best Art awards. I'm currently working on a real-time strategy game for the iPad called DroneSwarm Command.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**O'Kane:** The Last Flight of the Bumble Bee.

**Brownlee:** What platforms was your game designed to support?

**O'Kane:** Windows, Mac and iPad.

**Brownlee:** Please describe your game?

**O'Kane:** The Last Flight of the Bumble Bee is a free shoot-em-up for Windows, Mac and the iPad.

It was created by Conor O'Kane and Ivan Dixon in 48 hours for the 2011 Global Game Jam in Melbourne.

Features:

- \* Simple touch controls - drag to move, tap to fire a honey-bomb.
- \* Automatic shooting.
- \* Unique scoring system - pollinate flowers to score points.
- \* Pixel art graphics and a retro soundtrack.

The game and its source code are available online<sup>1</sup>.

**Brownlee:** What genre is your game?

**O'Kane:** Shoot-em-up.

**Brownlee:** What date was it published?

**O'Kane:** January 2011 for desktop, February 2012 for iPad.

**Brownlee:** Who published the game?

**O'Kane:** Self published.

**Brownlee:** What is its price?

**O'Kane:** Free.

**Brownlee:** How many downloads?

**O'Kane:** Around 3,000 downloads from the App store. Unknown downloads for the desktop versions.

**Brownlee:** How much revenue?

**O'Kane:** Zero! Although it did win 2 prizes at the Global Game Jam: Audience Favorite and Best Art.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**O'Kane:** When developing for iOS I feel the choice really comes down to two engines, iTorque 2D and Unity. I'd use Torque for a 2D game, and Unity for a 3D game. Technically you could make a 2D game in Unity but it's not optimal. You'd need to purchase some plugins to make working with 2D sprites easier, whereas with Torque the workflow is already optimized for 2D graphics.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**O'Kane:** As a developer with an art background, one of the main features I look for in an engine is a visual editor which reduces the amount of coding I need to do. The next important feature is a simple scripting language that's easy to learn, read and debug.

Other important features are: good documentation with example games, access to source code for finished games, and a helpful community either on forums or IRC.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**O'Kane:** Ease of use. For me, performance isn't an issue as I can design around a low-performance area, however ease of use makes for faster development.

**Brownlee:** What systematic process did you use to choose a game engine?

**O'Kane:** If I'm making a 2D game I'll use iTorque 2D, if it's a 3D game I'd use Unity. There are other engines available but none of them have visual editors which are as fully featured as these two engines. UDK is another option for 3D games, however I find their pricing scheme (where they take royalties from your game) unsuitable.

**Brownlee:** What research did you do into game engines?

**O'Kane:** When I started my own development career I was interested in making shoot-em-up style games primarily, and so I sought advice on the shmup-dev.com forums. I was also advised by a colleague to try Torque and this recommendation, along with a few weeks of playing with the engine convinced me that it was the way to go.

**Brownlee:** Which off-the-shelf game engine did you use?

**O'Kane:** iTorque 2D.

**Brownlee:** Why did you choose this particular mobile game engine?

**O'Kane:** In the case of this game, it was developed with Torque 2D (the desktop engine)

for Windows during the 2011 Global Game Jam. So when I decided to port it to the iPad, iTorque 2D (the iOS version of Torque) was the only choice.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**O'Kane:** I think it's well worth learning the basics of the Torque 2D engine by prototyping your game in Windows or MacOS before diving into the iOS version. Rather than trying to learn everything at once, take the time to become familiar with how Torque works and then move on to creating your iOS version.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**O'Kane:** Not everything in Torque 2D can be ported directly into the iOS version. In this case I had to make all the particle systems and tilemaps again. Some features such as scripts, images and audio can be moved directly into iTorque 2D.

There is also a significant amount of work involved in moving from Keyboard/Joystick input to Touch/Tilt style control schemes so this shouldn't be underestimated.

**Brownlee:** What is the best thing about working with this game engine?

**O'Kane:** I think Torque has two main strengths: its visual editor and scripting language. The editor allows you to set up all the objects in your game, and lay out the levels without having to type any code.

Then the scripting language allows you to focus on gameplay specific scripting, as the engine provides much of the typical functions you'll need to make a game, such as collisions, input, triggers, and animations.

**Brownlee:** Would you ever consider writing your own game engine?

**O'Kane:** No. I am a game developer and as such my focus is on the game itself, not the tools used to create it. I think it's well worth the investment to buy an engine rather than spend my own time making tools.

**Brownlee:** What would you do differently if you were to develop your game again?

**O'Kane:** When I initially designed the game it was not running at iPad resolution, so I had to modify some of the graphics to make them work better on iPad. Preparing for this in advance would have saved me some time.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**O'Kane:** There are two ways to look at this. If you're starting from scratch and have no existing experience with any engine then you should design your game on paper and select an engine which provides most of the features you'll need.

What's more likely though is that you, or someone on your team will have experience in some tools or language such as Unreal, Lua or C#. In that case look for engines that allow you to take advantage of this experience and design your game around the strengths of that engine.

**Brownlee:** Would you use this game engine again?

**O'Kane:** Yes, I am very happy with the iTorque 2D engine. I've released 3 apps using it and plan on releasing more. GarageGames (the developers of Torque) are continuing to improve the engine and add new features so I'm confident it will be well supported in the

future. I've found the Torque community to be very helpful also, which is important when you get stuck on bugs and need advice from someone.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**O'Kane:** This game was made for the 2011 Global Game Jam. I created it in 48 hours along with Ivan Dixon. Ivan did the graphics and animations and I did the programming and audio. Around a year later I decided to port the game to the iPad and release it for free, really as a learning exercise. GarageGames had recently added Game Center support to iTorque 2D and I felt I needed to learn this so I could use it in my future games. Porting an existing game to iOS felt like a good way to do this rather than starting a new game from scratch.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**O'Kane:** It's very important to finish projects and not just tinker with prototypes forever. It's quite easy to start a game, but completing it and polishing it so that there are no bugs and the game feels professional takes much more work. Releasing on the app store takes more work again, as you have to understand the submission process and pass Apple's quality control tests.

It's very satisfying to get positive reviews and hear feedback from fans, and ultimately the reward of earning an income by doing something you love is worth the effort.

**Brownlee:** Would you go through it all again?

**O'Kane:** Yes I certainly plan on releasing more games. It's hard work at first, but once you become familiar with your tools it gets easier and you're able to focus more on what you want to make rather than how you can make it.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**O'Kane:** Actually I'm in regular contact with the developers of the iT2D engine, and my most common questions is "When is the next version coming out?" Thankfully, they are very good at releasing patches for critical issues and taking feedback from the community.

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**O'Kane:** My favorite game is R-Type, an arcade game by Japanese developer Irem. It's my favorite for a few reasons. I played it a lot when I was young (they had one in an arcade near my bus-stop so I would always have a game before taking the bus home). It's a memory based shooter, meaning the enemies always appear in the same location, so if you can remember the patterns you can improve next time, which gives it great longevity. And lastly the graphics and music really stood out above the other games at the time. It's always been an inspiration for me, and when I started programming myself my first game was a shoot-em-up.

**Brownlee:** What are you currently working on?

**O'Kane:** I'm currently working on an iPad strategy game called DroneSwarm Command. You can find out more about it at <http://droneswarm.com>.

**Brownlee:** How can a reader or fan best get in contact with you?

**O'Kane:** Contact me at [cokane@cokane.com](mailto:cokane@cokane.com) and you can download my free games from my website <http://www.cokane.com>

### **Footnotes**

[1]: The Last Flight of the Bumble Bee Homepage <http://cokane.com/games/bumblebee>



## **Scott Wilson-Billing: Cannibal Cookout using iTorque 2D**

### **Background**

**Brownlee:** What is your current job title or position?

**Wilson-Billing:** Game Designer at MeYuMe.

**Brownlee:** Where are you located?

**Wilson-Billing:** Dorset, UK.

**Brownlee:** Could you please introduce yourself?

**Wilson-Billing:** I've worked in IT since I was 18 (a long time!) and first started developing on a Commodore PET. One of the first games I wrote and had published was for the PET and was called Diatron Attack, it didn't sell much but it kicked-started me onto a software development career. I actually lead a double life. By day I work on large scale commercial software projects and at night, weekends I'm designing and developing iOS games.

**Brownlee:** What are some mobile games that you have released?

**Wilson-Billing:** Neodefender 2, Invaders World Tour, and Cannibal Cookout.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Wilson-Billing:** Cannibal Cookout.

**Brownlee:** What platforms was your game designed to support?

**Wilson-Billing:** iOS / iPhone.

**Brownlee:** Please describe your game?

**Wilson-Billing:** Hector and Elvira need your help becoming Head Chefs. Only problem is, they only eat Nibblers, who won't go down without a fight.

Cannibal Cookout gives a whole new meaning to the term "pressure cooker". You will be tasked with cooking multiple lively recipes while you work your way up the cooking ranks. Sounds easy right? Along your way you will have to fend off an array of pestering hurdles ranging from sneaky birds and bolts of lightning to UFOs and army tanks.

**Brownlee:** What genre is your game?

**Wilson-Billing:** Time Management / Tower Defense.

**Brownlee:** What date was it published?

**Wilson-Billing:** March 29th 2012.

**Brownlee:** Who published the game?

**Wilson-Billing:** MeYuMe.

**Brownlee:** What is its price?

**Wilson-Billing:** Free with in-app purchase.

**Brownlee:** How many downloads?

**Wilson-Billing:** Approx. 27,000.

**Brownlee:** How much revenue?

**Wilson-Billing:** Less than \$1,000.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Wilson-Billing:** We looked at Unity and iTorque2D.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Wilson-Billing:** We knew we had to go with a game engine as we didn't have any real experience of developing games on the iPhone. We need to hit the ground running and did not want to go through the pain of writing our own platform. Why would you!

The important features for us were a good robust 2D engine and something that we could get started with really quickly. At the time, Unity didn't really offer a 2D solution whereas iT2D ticked the boxes.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Wilson-Billing:** Features! We needed an engine that would allow us to push sprites around the screen, have some built in physics, the ability to build menus etc. It needed to support as many features of the iPhone as possible.

**Brownlee:** What systematic process did you use to choose a game engine?

**Wilson-Billing:** To be honest we only looked at two; Unity and iT2D. The Torque engine won us over because the price was keen and it already had out of the box support for 2D graphics.

**Brownlee:** What research did you do into game engines?

**Wilson-Billing:** None really. We tried out demos of both and Torque won out.

**Brownlee:** Which off-the-shelf game engine did you use?

**Wilson-Billing:** iTorque2D.

**Brownlee:** Why did you choose this particular mobile game engine?

**Wilson-Billing:** Initially it was the price and a good feature list. Later on we realised that having the source code and being able to modify the engine was a major plus.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Wilson-Billing:** Read the manual. Try out the demos. Read the manual. Search the forums!

Oh, and make sure you understand that the iPhone is a mobile device and is therefore limited on CPU, memory, GPU etc. Plan your game carefully and particularly how you manage resources e.g. loading and unloading sprites for different levels.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Wilson-Billing:** Performance. The performance of iT2D is the one thing that lets the engine down. It is not optimised for the iPhone. That is changing now and the next release should be smoking.

However, the saving grace is that we had the source code so were able to make some

tweaks ourselves and improve the performance.

**Brownlee:** What is the best thing about working with this game engine?

**Wilson-Billing:** Ease of use. It is very easy to create a game, TorqueScript is easy to learn and very extensible.

**Brownlee:** Would you ever consider writing your own game engine?

**Wilson-Billing:** Nope, too many man hours are required to produce a decent engine.

**Brownlee:** What would you do differently if you were to develop your game again?

**Wilson-Billing:** I would use a game engine that had the ability to export to multiple platforms; Android, Facebook (HTML5). Unity looks good for this.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Wilson-Billing:** Research, try out the demos, perhaps create a simple game and get it on to the app store. This gets you familiar with the workflow for game production and the hoops you need to jump through. You need an engine which has the end to end workflow well thought out.

**Brownlee:** Would you use this game engine again?

**Wilson-Billing:** Probably not. I am now looking for an engine that gives me the ability to write the game once and "export" to a multitude of platforms e.g. iOS, Android, Facebook, Windows, etc.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Wilson-Billing:** At the time it seemed like a fun thing to do and there wasn't (and still isn't) a game like it.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Wilson-Billing:** It does feel good and we appreciate the feedback we get from our users.

**Brownlee:** Would you go through it all again?

**Wilson-Billing:** Probably not. The aim now is to build upon Cannibal Cookout and expand it out into a much larger game. It's a bit like having children. The game has been born but now we are going to nurture it and see that it reaches its full potential.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Wilson-Billing:** Where is the performance?

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Wilson-Billing:** I like the old favourites like Dungeon Master. New games like Oblivion/Skyrim.

**Brownlee:** What are you currently working on?

**Wilson-Billing:** The next new project will be an expansion to NeoDefender.

**Brownlee:** Do you have any other comments on Game Development?

**Wilson-Billing:** Game development is not easy and you probably won't make much

money. However, it is very rewarding, and like any project, there is a lot of satisfaction to be had from creating the end product.

**Brownlee:** How can a reader or fan best get in contact with you?

**Wilson-Billing:** Facebook: <http://www.facebook.com/CannibalCookout>

## **Luiz Felipe Beneton: Earth Under Siege using Unity3D**

### **Background**

**Brownlee:** What is your current job title or position?

**Beneton:** Programmer at Insane Games.

**Brownlee:** Where are you located?

**Beneton:** São Paulo, Brazil.

**Brownlee:** Could you please introduce yourself?

**Beneton:** I'm a game developer at Insane Games, a Brazilian game house. We are very small, but we intend to get bigger soon. I graduated in Physics from Universidade de São Paulo (USP) but I never really used all that knowledge. I started my carrier as a flash programmer for a publicity agency, and about 3 years after that I was invited to develop a big MMO for a new company.

Well, the MMO idea didn't work out, but we managed to create some facebook games, and after that some mobile games. The one I'm most proud of is Earth Under Siege. We did it with 2 programmers, 2 2D artists, 2 3D artists and a freelancer Sound Designer. It's on sale at AppStore today and it's going well. We were so focused on creating the game that we forgot we had no idea how to promote it.

Now I'm working with some outstanding figures, like the brazilian soccer player Neymar and comic book characters like M<sup>^</sup>onica, from Turma da M<sup>^</sup>onica (They are very popular in Brazil).

**Brownlee:** What are some mobile games that you have released?

**Beneton:** Earth Under Siege (EUS) is the only real game we released that I'd like to talk about. Many others were test projects, and I don't think they fit here.

EUS had a big sale boost in China the week we put it for free. It was downloaded 140,000 times during those 2 weeks, but soon after we changed to \$1.99 it dropped to 2 to 5 per day. We did not use any publisher.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Beneton:** Earth Under Siege.

**Brownlee:** What platforms was your game designed to support?

**Beneton:** iOS / iPhone.

**Brownlee:** Please describe your game?

**Beneton:** Your objective is to defend earth from the alien invasion by building giant upgradable towers on different outposts. Not all towers act the same, however, as some require you to interact with them directly in order to make them function. The game features 45 campaign levels, a survival mode, and multitouch controls.

**Brownlee:** What genre is your game?

**Beneton:** Action, Tower Defense.

**Brownlee:** What date was it published?

**Beneton:** August 10th 2011.

**Brownlee:** Who published the game?

**Beneton:** Insane Games.

**Brownlee:** What is its price?

**Beneton:** Currently at \$1.99. We changed from \$2.99 to free for a while to get attention and back to \$1.99.

We got a lot of attention when it was free, but it soon vanished when we put at \$1.99 again.

**Brownlee:** How many downloads?

**Beneton:** We got 140k downloads as a free app and about 160k downloads total.

**Brownlee:** How much revenue?

**Beneton:** I'm not sure, I'm not involved with sales on this project.

### **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Beneton:** By the time we started Earth Under Siege, we had a pretty good idea that we had to use Unity. Before choosing to make Earth Under Siege, we spent about a year learning Unity with some test projects.

Right after we choose Unity for the first game engine to test, we realised we did not need any other. Unity was very good for us. It is fast to work with it, it's simple enough that even the artists could produce some assets for the programmers and it was OK with our budget.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Beneton:** We needed a game engine with out-of-the-box Physics 3D engine and was easy to learn. Unity has it all. Unity's community is great, the Documentation is not that great, but after some time you get used to it.

The most import part was that none of us had any experience with game development and the 3D world. I came from Flash, so I had no idea how to make things in 3D. Unity was easy enough for me to make that transition with no problem.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Beneton:** Performance. Right now, performance is the bottle neck for every mobile game. It's not hard to make a very good looking game, but make it perform good in a mobile device is hard.

**Brownlee:** What systematic process did you use to choose a game engine?

**Beneton:** We did not try many engines. In fact, after we got to know Unity is was a matter of choosing Unity or Flash. And well, Unity won for 3D games on mobile.

Now flash, with the new Stage3D feature is back in the game. But the flash IDE is not good for 3D games, and as Unity is not great for 2D games, I think we will use both, depending on the project.

**Brownlee:** What research did you do into game engines?

**Beneton:** Well, we used it all. Google is great of course, and StackOverflow is great for programmers. We visited many blogs and forums, and Unity's forum is great.

**Brownlee:** Which off-the-shelf game engine did you use?

**Beneton:** Unity.

**Brownlee:** Why did you choose this particular mobile game engine?

**Beneton:** Unity is easy to learn. It is fast to work with. It performs well on mobile, and it is 3D.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Beneton:** Watch your draw calls. The fewer, the better. Don't use Unity's GUI. At least not for now. They promised to upgrade it for better performance, but it has not happened yet.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Beneton:** The first project we used Unity for was about cars competing in hell. The last car alive would win. We wanted it to be multiplayer and we wanted to use physics.

Well, at that time, Unity's physics was not that great (it's perfect now!) and multiplayer support was bad (it still is!). So we abandoned the project. Multiplayer with Unity is not provided out-of-the-box. You need to get it from outside Unity and integrate it, and we had no experience with that, so that was a deal breaker.

**Brownlee:** What is the best thing about working with this game engine?

**Beneton:** The best thing about Unity is that it is fast to make something. Usually things are very easy to do withing Unity. Artists and programmers both understand how Unity works and that makes everything that much faster.

**Brownlee:** Would you ever consider writing your own game engine?

**Beneton:** I'd love to, but I don't think I qualify. I'm a high level programmer, and I like being that.

**Brownlee:** What would you do differently if you were to develop your game again?

**Beneton:** I would make it universal. For now, EUS is for iPad only, because we needed all 1024 pixels to make the game the way it is, and I'd certainly change the revenue model.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Beneton:** I'd say that the engine must fit the kind of game you want to make. Unity is great for 3D games, especially shooters. But I would think twice before using it for a 2D game. Always keep in mind performance.

**Brownlee:** Would you use this game engine again?

**Beneton:** Yes, I would, and I am. Unity is our game engine of choice. We will use it for every new 3D game we make. Mobile or not.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Beneton:** As a company, Insane wanted to make an iPad game. So we gathered and spent some time planning the game. We made the game we wanted to play, and that made all the difference. It was fun to make it.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Beneton:** It's very nice. Every one can see what I did (with many others)

**Brownlee:** Would you go through it all again?

**Beneton:** Earth Under Siege was my first mobile game. So it was very hard to make everything work as intended with all iPad limitations. But sure I would, and I'm doing it right now. Every game I make I try to do my best, and so no project is the same as another.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Beneton:** Congratulations for the great work, and can we please have a better network solution?

### **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Beneton:** Well, I can't hide, it's World of Warcraft, but I love all Blizzard games.

**Brownlee:** What are you currently working on?

**Beneton:** Right now I'm working in a game for Neymar, a Brazilian soccer player. It will be ready very soon, but I can't talk that much about it right now. Sorry.

**Brownlee:** Do you have any other comments on Game Development?

**Beneton:** I think Game Development is the best work in the world. If you are a gamer, you will have fun all day long. You won't have to wait until after work to start having fun.

**Brownlee:** How can a reader or fan best get in contact with you?

**Beneton:** You can get in touch with me by mail, [beneton@gmail.com](mailto:beneton@gmail.com) or if anyone wants to contact Insane Games: <http://contato@insanemedia.com.br>



## **Benjamin Lee: Siegecraft using Unity3D**

### **Background**

**Brownlee:** What is your current job title or position?

**Lee:** Blowfish Studios, Managing Director and Lead Programmer.

**Brownlee:** Where are you located?

**Lee:** Sydney, Australia.

**Brownlee:** Could you please introduce yourself?

**Lee:** I was born in Sydney, Australia. I grew up and went to school in far North Queensland, came back to Sydney to go to University at UTS. I completed a Bachelor of Engineering in Computer Systems. I did some normal engineering jobs, then moved into Game Development in 1998 making PC based Arcade games. I then moved on to a research role in real-time 3D graphics.

In 2009 I started a game studio, Blowfish Studios, with a friend, Aaron Grove. Blowfish has since released 3 different titles, with our 4th any day now and grown to nine full-time employees.

**Brownlee:** What are some mobile games that you have released?

**Lee:** Self-published Qbism, Qbism HD and Hungry MonstR for IOS and Android. Qbism HD had about 300,000 free downloads.

Developed Siegecraft in-house, published by Crescent Moon Games on IOS, self-published on Android. Over 250,000 paid downloads.

About to release Razor Salvation, published by Crescent Moon Games on IOS, self-published on Android. Should be on sale June 2012.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Lee:** Siegecraft.

**Brownlee:** What platforms was your game designed to support?

**Lee:** iOS / iPhone and Android.

**Brownlee:** Please describe your game?

**Lee:** SIEGECRAFT is the ultimate 3D physics-based game! Lay waste to your enemies using crossbows, catapults, battering rams and more.

Simple to pick-up and play with plenty of content to keep you entertained for hours.

You are the best siege team money can buy. Work for each race as they rage war on each other. Perform well to get paid more and buy awesome power-ups and upgrade your siege machines!

### **BEAUTIFUL WORLDS**

Exquisitely created environments and 3 unique races to play, Knights, Vikings and Samurai. Each race has their own campaigns to battle through and hand crafted units, buildings and scenery. Embed yourself in each world with unique warriors, weapons,

buildings and monster bosses! Did someone mention mountain trolls??

**Brownlee:** What genre is your game?

**Lee:** Arcade Strategy.

**Brownlee:** What date was it published?

**Lee:** September 2011.

**Brownlee:** Who published the game?

**Lee:** iOS: Crescent Moon Games, Android: self-published.

**Brownlee:** What is its price?

**Lee:** The price is currently \$2.99 and there are lite versions on Android, but has ranged from \$0.99 to \$2.99.

**Brownlee:** How many downloads?

**Lee:** About 250,000 on IOS, over 50,000 on Android.

**Brownlee:** How much revenue?

**Lee:** About \$200,000.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Lee:** Previously I had worked with Unreal and Gamebryo, but since we were targeting 3D on IOS I evaluated ShiVa 3D and Unity 3D 2.0.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Lee:** Very good support and documentation. Good real-time 3D. Physics engine. Good third-party support.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Lee:** Stability and Reliability.

**Brownlee:** What systematic process did you use to choose a game engine?

**Lee:** Weighted a list of the pros and cons.

**Brownlee:** What research did you do into game engines?

**Lee:** Google, which led to blogs and forums. I then downloaded an evaluation versions and tried to make a simple game project with it.

**Brownlee:** Which off-the-shelf game engine did you use?

**Lee:** Unity 3D.

**Brownlee:** Why did you choose this particular mobile game engine?

**Lee:** Unity 3D overwhelmingly had better reliability, 3D performance and features. In the end it turned out to be the right choice, as Unity 3D became the number one game engine for multi-platform game development.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Lee:** Unity 3D is amazing for "develop once, deploy to multiple platforms". My advice is

to try to build a nice framework so that this is possible with any of your games.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Lee:** It is hard to get low level access to the rendering pipeline and load times can be a little slow on mobile devices.

**Brownlee:** What is the best thing about working with this game engine?

**Lee:** The iterative development process is extremely rapid with near zero build times while in the editor.

**Brownlee:** Would you ever consider writing your own game engine?

**Lee:** I have built my own game engine once and also worked in a team on a couple of other proprietary game engines. I would only consider it again if a game I wanted to create absolutely required some special technical features. Otherwise I would prefer to spend development time on creating the game play.

**Brownlee:** What would you do differently if you were to develop your game again?

**Lee:** I don't think there is anything I would do differently. With the limited resources we had and the limited time, I think we were able to create an amazing game.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Lee:** Have the game in mind that you want to create and download all the game engines you think might suit. Then just try to build and run the sample projects included. Cull any engines that fail this simple test. Then spend a few days on each remaining engine and build a prototype of your game. That should quickly give you an idea of which engine suits your game and your development style.

**Brownlee:** Would you use this game engine again?

**Lee:** Yes, I would use Unity 3D for Siegecraft again and I am using it for all our current and future projects. It is a pleasure to work with and the third party support is amazing. There is a huge pool of resources to take and work with to speed up your development time and to make it with better quality.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Lee:** I love making computer games and I've always wanted to publish my own games. I have so many game ideas swimming around in my head that I think people would enjoy playing. The hard part is finding a way to make a living while also having the creative freedom to create.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Lee:** Leading up to launch day and on launch day it was very stressful, but it was all worth it. It's very cool to run into strangers that have played my game! Sure, not everyone enjoys the game, but the stories of people who do like it really make it worth it.

**Brownlee:** Would you go through it all again?

**Lee:** I am going through it all again and yes it is extremely hard work! If you have a passion for making games you will always want to put the best possible product forward (in the time that you have) and this creates stress and long work days.

**Brownlee:** What is one question you would put to the developer of the game engine you

used?

**Lee:** How will they make it better?!

### **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Lee:** Hard call. At the moment the Uncharted series on the PS3, it has beautifully designed worlds and amazing interaction between the player and the world (specifically the animations). Another all time favourite is Myth by Bungie, it had the right combination of strategy and fun!

**Brownlee:** What are you currently working on?

**Lee:** Our latest game, Razor Salvation, has been in development for 5 months now and will be on sale in the month of June. It will be published by Crescent Moon Games again for iOS, while we are doing another special version for Nvidia on Android.

**Brownlee:** Do you have any other comments on Game Development?

**Lee:** Game development can be a very rewarding experience, but as with anything in life, you get out of it what you put into it. If you want to be able to do what you love for a living, always try to put your best foot forward!

**Brownlee:** How can a reader or fan best get in contact with you?

**Lee:** [ben@blowfishstudios.com](mailto:ben@blowfishstudios.com)

## **Chris Robinson: Man Vs. Mosquito using AndEngine**

### **Background**

**Brownlee:** What is your current job title or position?

**Robinson:** Software Engineer at a major medical device company.

**Brownlee:** Where are you located?

**Robinson:** Minneapolis, Minnesota, USA.

**Brownlee:** Could you please introduce yourself?

**Robinson:** I have a bachelor degree in Electrical engineering from the University of Minnesota. I started my career working for an engineering company where I helped develop automated test solutions for embedded system (medical and mobile industry). I've spent the past 8 years working as a Software Engineer for a major medical device company. In my day job I do mostly C, C++ and Python development.

In December of 2010 my brother Scott and I decided to get into mobile application development. We started our own company (Population101), and have been doing android development on the side ever since. My cousin Andrew has recently joined the company, so it is turning into a real family business.

**Brownlee:** What are some mobile games that you have released?

**Robinson:** We currently have one game that has been published on the Google Play, Amazon App store and on the Blackberry Appworld market. The game is called Man Vs. Mosquito. The game has been live for 4 months and we have about 21,600 downloads.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Robinson:** Man Vs. Mosquito.

**Brownlee:** What platforms was your game designed to support?

**Robinson:** Android and Blackberry Playbook.

**Brownlee:** Please describe your game?

**Robinson:** What could be worse than one hungry, annoying mosquito? How about hundreds of hungry, annoying mosquitoes on a sugar high! These winged intruders are looking for a meal and they have you in their sights. Don't become lunch, squish them all! Download this simple, fun and highly addictive new app for your Android device. Challenge yourself each time you play with a new high score, mosquitoes squished in a row or highest level achieved.

**Brownlee:** What genre is your game?

**Robinson:** Action.

**Brownlee:** What date was it published?

**Robinson:** February 20th 2012.

**Brownlee:** Who published the game?

**Robinson:** Self-published.

**Brownlee:** What is its price?

**Robinson:** The game is free but it is ad supported using a combination of Admob and LeadBolt advertising (banner ads and App Wall).

**Brownlee:** How many downloads?

**Robinson:** Blackberry Playbook: 5,200, Google Play: 15,800, Amazon: 230, SlideMe 450.

**Brownlee:** How much revenue?

**Robinson:** Up to this point we are making about \$100 per day off of ad revenue. That corresponds to roughly \$0.40 per 1,000 impressions.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Robinson:** Initially I wasn't planning to use a game engine at all. I was new to Android development so I wanted to get my feet wet by learning the Android SDK and the Android life cycle. It didn't take me long to realize that the performance wasn't going to cut it using the standard android Canvas, so I started looking for an engine that had good OpenGL support.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Robinson:** When selecting a game engine I had four basic requirements:

- \* Free. For my first game I didn't want to have to invest any money in software.
- \* OpenGL 2D support. Graphics performance became a road block early on, so I needed an easy way to leverage OpenGL in my game.
- \* Good examples. As long as you have good examples then the API doesn't need to be extensively documented.
- \* Active development community. If I ran into a problem then I wanted to have confidence that I could get help from other developers that had likely encountered the same types of issues.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Robinson:** I would say that having an active development community is the most important feature. If no one is fixing bugs or answering questions on the forums then it's impossible to put out a high quality product in a reasonable amount of time.

**Brownlee:** What systematic process did you use to choose a game engine?

**Robinson:** I choose AndEngine because it fit all of my requirements. At the time it was a fairly new engine, but it appeared to have a lot of momentum. There weren't a lot of other open source options available for Android at the time.

**Brownlee:** What research did you do into game engines?

**Robinson:** I discovered AndEngine via a simple google search. That led me to their forum and blog. I read a number of reviews comparing different engines and settled on AndEngine after a couple of days worth of research.

**Brownlee:** Which off-the-shelf game engine did you use?

**Robinson:** AndEngine.

**Brownlee:** Why did you choose this particular mobile game engine?

**Robinson:** AndEngine Android application is what convinced me to use AndEngine. The app servers as an excellent demo of what the engine is capable of. Each of the examples in the application is available for download for free. It was clear from this app how powerful AndEngine actually was.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Robinson:** Do not expect to find a lot of API documentation. The comments in the code are sparse and there is no Java Doc. The best way to learn the engine is to open up the examples in Eclipse and start modifying them to fit your needs. Identify the features of the engine that you plan to use inside your game and study those examples first. You will quickly discover that each API is easy to use and the architecture behind the engine is well designed.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Robinson:** The only problem that I had is that they branched the engine a few months before I launched my game. GLES1 was the original version that my game was developed against. In December 2011, a pre-release version of GLES2 became available. The minimum requirement for that version was Android 2.2. That was a problem for me because two of my test phones were running Android 2.1. Also, the Android emulator did not support OpenGL 2.0 which is used by GLES2. I held off on making the switch and decided to release my game using the GLES1 instead.

GLES2 is now the preferred platform since GLES1 is no longer being maintained. The branch effectively split the forum into two different communities. The API is very similar between the two versions, but there are some significant differences. Porting a complex game from GLES1 to GLES2 is not a trivial task. I have since successfully ported my game over to using GLES2, but I have not published an update yet. There seems to be less traffic on the GLES2 forums, but that's probably because of bunch of developers are still using GLES1.

**Brownlee:** What is the best thing about working with this game engine?

**Robinson:** The excellent examples are definitely the best thing about the engine. Most of the time if you are experimenting with a new feature there's an example that is very close to what you are trying to accomplish.

**Brownlee:** Would you ever consider writing your own game engine?

**Robinson:** Definitely not. I don't have the time or the desire to take on such an endeavor.

**Brownlee:** What would you do differently if you were to develop your game again?

**Robinson:** Off the bat I would probably strive to offer multi-platform support. The only real knock that I have against AngEngine is that I don't have a future path to easily port my game to iOS or Windows 8. That's where the commercial games engines like Unity have a huge advantage. You can develop once and publish on multiple platforms.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Robinson:** I would definitely consider ahead of time if you are planning to release your game on multiple platforms. If yes, then it doesn't make sense to learn two engines unless you are able to dedicate a developer to both platforms. You would probably be better

served to start with an engine that supports both.

Once you put hundreds of hours into an engine it is painful to even consider switching to something else.

**Brownlee:** Would you use this game engine again?

**Robinson:** Yes. Let me first say that I absolutely love AndEngine. If you are looking for a way to quickly develop a high quality Android game then you can't go wrong with AndEngine. If you have plans to release a complex game that you also plan to release for iOS or Windows 8 then AndEngine isn't the right engine to use.

My next game will likely be a word game that's much simpler than Man Vs. Mosquito. At this point I'm still planning to use AndEngine for the Android version. The main reason being that I already have a good game framework in place so I can re-use a lot of what I have already done. I do eventually plan to release an iOS and Windows 8 version of the game. I will likely consider switching over to Unity or possibly something else at that time. For simple Android games AndEngine will continue to be my fall-back engine.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Robinson:** I did not and do not expect to make much money from the game. Developing an Android game gave me the opportunity to improve my Java development skills. I don't use Java in my day job, and having a published Android game will look good on my resume. More importantly, it allowed me to work closely with my brother on a project. We live 100 miles apart, but it has given us an excuse to see each other more often and talk much more frequently than we did before we started this project.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Robinson:** It feels great. I definitely felt a rush the first week that it was released. I recall waking up at 3:00AM the first few nights to check the download statistics. I still check them every morning and the game has been available for 2 months.

Very few of our friends knew that we were developing a game, so I think it took most people by surprise. We grew up in a small town with 101 people. As far as we know our game is the first game to come out of our home town. A local newspaper actually wrote a news story about us which I guess means they thought it was news.

**Brownlee:** Would you go through it all again?

**Robinson:** I am married, have a full time job and have 2 kids. Working on a game at night isn't always the most family friendly endeavor. I do plan to develop a second game, but I will need to establish some guidelines first. The biggest one will be to limit the amount of time that I'm allowed to spend working on the game. I need to find a better balance between work and family.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Robinson:** Does he have any plans to make the engine cross platform? iOS or Windows 8 support would be huge!

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?



**Robinson:** I play Tiger Woods 2012 for the iPad the most. It's really easy to pick and play one hole if you have 2 minutes that you don't know what to do with.

**Brownlee:** What are you currently working on?

**Robinson:** At this point I'm spending 90% of my free time working on updates for Man Vs. Mosquito. We initially launched the game before we had completed all of the features that we had intended to implement. That was OK because it allowed our friends to test it out for us and give us some valuable feedback. We haven't marketed the game at all yet, so once we feel like it's finished our attention will switch from development to marketing.

We also have a couple of other game ideas on the table that we have been kicking around. One game is going to be a larger project that involves a lot of graphics. The other game is word based, and it will be much simpler to implement. We have started brainstorming ideas for both games and we are developing some artwork for the larger game.

**Brownlee:** Do you have any other comments on Game Development?

**Robinson:** If you are considering getting into game development then go for it. If you use open source tools, then the cost of getting started is almost nothing. It is definitely a lot of fun and very rewarding once you actually get a product to market.

**Brownlee:** How can a reader or fan best get in contact with you?

**Robinson:** You can contact us via email at: [population101@gmail.com](mailto:population101@gmail.com) or via our website at: <http://www.population101.com>.

## **Flavius Ivasca: Zap The Ghost using AndEngine**

### **Background**

**Brownlee:** What is your current job title or position?

**Ivasca:** Java Developer (IBM Contractor) for Berg Computers

**Brownlee:** Where are you located?

**Ivasca:** Timisoara, Romania.

**Brownlee:** Could you please introduce yourself?

**Ivasca:** My name is Flavius Ivasca, I'm 26, I live in Timisoara, Romania and I'm a Software Engineer with over 4 years of experience with Java Development. My education includes a Bachelor's Degree in Computer Science and a Master's Degree in Software Engineering obtained at the West University of Timisoara, Romania.

For the last 4 years I have worked as a Software Engineer (IBM Contractor) for Berg Computers. Most of this time, I worked for an IBM project called IBM TivoliStorage Productivity Center. Recently I got interested in Android Development and I wrote one game (powered by AndEngine) called Zap The Ghost.

**Brownlee:** What are some mobile games that you have released?

**Ivasca:** I got interested in Android development recently and as of now I have developed only one game. This was developed using AndEngine and is called "Zap The Ghost", which I published on Google Play under my name.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Ivasca:** Zap The Ghost.

**Brownlee:** What platforms was your game designed to support?

**Ivasca:** Android.

**Brownlee:** Please describe your game?

**Ivasca:** Zap The Ghost is a free (ad-supported) game in which the goal is to score as many points as possible by tapping various characters that randomly appear in the windows of a haunted house. These characters can be bad (ghosts, skulls, vampires, etc.) or good (boy, girl, frog). Tapping bad characters will bring points, however missing them will lose a life. As expected, tapping good characters will cost the user one life. Once the lives are over, if good enough, the score, will be recorded in local and global leaderboards.

**Brownlee:** What genre is your game?

**Ivasca:** Brain and Puzzle.

**Brownlee:** What date was it published?

**Ivasca:** March, 31st 2012

**Brownlee:** Who published the game?

**Ivasca:** Self-published.

**Brownlee:** What is its price?

**Ivasca:** The game was released as free (with ads). I initially planned to charge \$0.99 US dollars (or so) for it but the current lack of availability for Google Checkout Merchant Accounts in Romania, more or less, forced me to release it as free.

**Brownlee:** How many downloads?

**Ivasca:** As of today (June 4th), roughly two months after the release, it has just under 1,000 downloads. This number might seem quite low but keep in mind that this is my first game and the advertising done for it including just posting information about it on social networks, forums and blogs.

**Brownlee:** How much revenue?

**Ivasca:** Since it's free and just under 1,000 downloads the revenue is basically zero. However I did learn and gain some valuable skills while developing this game and I am sure the knowledge will help me with my future games.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Ivasca:** Before starting the project, while searching for documentation, I came across AndEngine, which I considered to be suitable for my needs. I haven't really reviewed other Android game engines because AndEngine seemed to be good enough for my needs.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Ivasca:** I was looking for a game engine which would be open source, easy to use, support 2D graphics, sounds, music and also be lightweight, yet powerful.

Of course some of the other key points were to have good documentation, tutorials and an active community, forum, and provide support for Android 2.1 and up.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Ivasca:** I think it should have the characteristics that define a game engine, mainly to support 2D and 3D graphics, sound, music and physics. This would allow developers to create more complex games.

**Brownlee:** What systematic process did you use to choose a game engine?

**Ivasca:** I did not have an actual process since I was fairly new to Android Development. I guess the criteria was to be the most popular and most appreciated by the community since I came across it first, while searching for documentation on the web.

**Brownlee:** What research did you do into game engines?

**Ivasca:** At first I was searching for documentation using Google and blogs, but later after starting to develop the game and encountering issues I further searched AndEngine forum and StackOverflow in order to resolve the issues.

**Brownlee:** Which off-the-shelf game engine did you use?

**Ivasca:** AndEngine

**Brownlee:** Why did you choose this particular mobile game engine?

**Ivasca:** Mainly because I was new to Android development and it was the first engine I managed to come across while searching for documentation.

I was happy with the features it provided, the available documentation and community, thus I did not need to search for alternative engines to compare it with.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Ivasca:** Besides Java and Android, I think developers need to have some basic knowledge of using graphics, scenes, sprites and textures. But otherwise this engine is fairly easy to use.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Ivasca:** Most of the things went well, there were various small issues that I encountered but I was able to resolve them using the available documentation and forums.

**Brownlee:** What is the best thing about working with this game engine?

**Ivasca:** The best thing, I would say is the ease of use and that it has a ton of examples available. I used these examples a lot during development as a starting point for various parts of my game.

**Brownlee:** Would you ever consider writing your own game engine?

**Ivasca:** Perhaps, at some point in time, but at the moment I am not that much involved with Android development that I would consider writing my own engine.

**Brownlee:** What would you do differently if you were to develop your game again?

**Ivasca:** I am not sure since I have not used AndEngine to it's fullest, having developed a game which is not too complex.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Ivasca:** I guess the best solution would be for some kind of review and comparison of the features of the various game engines to be available somewhere (perhaps in this book) so that a new developer can see which engine better suits their needs. Personally I would recommend AndEngine for new developers.

**Brownlee:** Would you use this game engine again?

**Ivasca:** Yes, I would still use AndEngine since I haven't used it to the fullest yet, in my game. My next game would probably be more complex, using physics and maps. Also I understand that AndEngine is soon to support (or already supports) 3D. So in a nutshell since I haven't used it to its full capability, I will continue to use it for my potential future games.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Ivasca:** I made the game for a few reasons. First, to get the chance to learn Android development, get familiar with AndEngine, using global scores like Swarm, using Ads, SQLite and so forth. Then I was curious how hard it would be for a game to get popular, if it could be done without a lot of advertising or not. And last but not least, to see if it would be possible to make some money out of it.

What I've learned so far from this first game should allow me to develop other better and more successful games.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Ivasca:** It feels good to know that other people, from all over the world, have installed and played a game which you created. It is also nice that Google Play gives you some feedback and statistics on how the game is doing which is also interesting to check from time to time.

**Brownlee:** Would you go through it all again?

**Ivasca:** Sure, why not. I've learned some things in the process which will help me build better games in the future. It wasn't that hard to do and it was quite fun.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Ivasca:** I don't have any questions that weren't answered by the forum and available resources on the web. I just want to thank Nicolas for developing AndEngine and making it open-source and allowing others to use it.

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Ivasca:** I like Cut the Rope best, because, like Angry Birds, it has all of the right characteristics of being a fun, addictive and successful game.

**Brownlee:** What are you currently working on?

**Ivasca:** I am not sure at the moment what my next big project will be. I have some ideas in my head but I will have to think about it in more detail. I would like to release another, hopefully better, and more popular game.

**Brownlee:** Do you have any other comments on Game Development?

**Ivasca:** I think some of the most important things to keep in mind if you want your game to be successful are:

- \* Make sure you have an original idea, and if not try to make an existing idea better.
- \* Make sure your game looks good graphically and aesthetically.
- \* Make sure your game is well advertised and available to as many people as possible supporting as many Android version and devices as possible.
- \* Make sure your game is not boring, but fun and re-playable instead otherwise your users will uninstall it soon after playing it for a few minutes.

**Brownlee:** How can a reader or fan best get in contact with you?

**Ivasca:**

- \* Email: [ivascaflavius@gmail.com](mailto:ivascaflavius@gmail.com)
- \* Blog: <http://flaviusivascaandroid.blogspot.com>

## **Sergio Viudes Carbonell: Baviux using AndEngine**

### **Background**

**Brownlee:** What is your current job title or position?

**Carbonell:** In the morning I work for a company creating web applications. In the afternoon I develop apps and games for mobile devices at home as a hobby.

**Brownlee:** Where are you located?

**Carbonell:** Elche, Alicante, Spain.

**Brownlee:** Could you please introduce yourself?

**Carbonell:** My first contact with computers was a long time ago, I think I was 5 years old, or so. My parents bought a Spectrum for my brother, and I started playing some games on it, and I really enjoyed it! Since I was a child I've enjoyed computers and consoles, and I've never stopped playing and learning things about computers.

When I finished high school, I studied Computer Science at the University of Alicante. And then I got a job as software developer in a company where I develop web applications. In my free time, I've always liked to do whatever I could do with my computer: compose music (with the famous "fast tracker 2"), draw pictures, develop small apps, and, of course, play games!

My interest in mobile devices started with my first smart phone, ten years ago (2002), when I bought the first Symbian device from Nokia, the Nokia 7650. I really liked the idea that I could develop software that I could run everywhere, because it is in my pocket. So parallel to my studies and my job, I started creating some simple mobile apps for my phone.

About two years ago I decided to create my first video game for mobile devices. Why? Because I really enjoy developing for mobile devices, I like to compose music, I like to draw, and, of course, I like to play video games. So I decided to put all my hobbies together and develop my first video game.

Android is my favourite mobile platform, so I started developing my first video game using Android SDK, but I realized that there were some game engines for Android, and it could help me a lot with my new project. After I read some info about some Android game engines, I decided to start developing using AndEngine. So I spent some time learning AndEngine, coding, drawing, and composing music.

Now, I've released 3 games and I continue developing apps and games for Android as a hobby. But I wish someday it will be my job, not only a hobby.

**Brownlee:** What are some mobile games that you have released?

**Carbonell:** I've released three games in Google Play:

- \* "Baviux", which I will discuss in this interview.
- \* In September 2011 I released "Connect 4 Baviux" which has about 20,000 downloads.
- \* In January 2012 I released "Juggle The Doodle" which has about 4,500 downloads.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf

mobile game engine?

**Carbonell:** Baviux.

**Brownlee:** What platforms was your game designed to support?

**Carbonell:** Android.

**Brownlee:** Please describe your game?

**Carbonell:** Baviux are small blue creatures that were removed from their planet and taken as slaves. Now, with your help, they can go back to home. To play you must use the two buttons to create "air flows", and you can rotate your phone to change gravity.

**Brownlee:** What genre is your game?

**Carbonell:** Casual.

**Brownlee:** What date was it published?

**Carbonell:** February 7th 2011.

**Brownlee:** Who published the game?

**Carbonell:** Self-published.

**Brownlee:** What is its price?

**Carbonell:** The game is free, and has ads. Before I release my game, I read up on pricing, but I realized that in it is difficult to sell a game on Android and that offering for free with ads would be better.

**Brownlee:** How many downloads?

**Carbonell:** Today, it has 63,551, and counting.

**Brownlee:** How much revenue?

**Carbonell:** Not as much as I would like.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Carbonell:** I started searching for Cocos2D for Android. I've read that Cocos2D is a very good game engine for iPhone, so I thought that someone had ported it to Android. The project was not very active, so I decided to search a bit more.

I found Rokon, but it wasn't very active either, so I continued searching a bit more. Then I found AndEngine and libgdx. Both projects were very active, so I started reading more info about them. Finally, I decided to start using AndEngine, because it was relatively easy to learn. Libgdx is a bit harder to learn, and AndEngine had all I needed (and more).

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Carbonell:** This is the list of requirements:

- \* Easy to learn (I've never before developed a video game)
- \* Free and Open Source
- \* Physics engine (my game needed some physics)
- \* Frequent updates and improvements
- \* Documentation, examples and community

**Brownlee:** What is the most important feature a mobile game engine has to have for you

to consider it?

**Carbonell:** I think that the engine needs to be very active. If a game engine is abandoned, it means you wasted your time learning to use it.

**Brownlee:** What systematic process did you use to choose a game engine?

**Carbonell:** I was searching for a game engine that met the requirements I had for my new game. After I found some that met them, I compared pros and cons.

**Brownlee:** What research did you do into game engines?

**Carbonell:** Google was the main source. Using Google I found forums, blogs and webs talking about different mobile game engines.

**Brownlee:** Which off-the-shelf game engine did you use?

**Carbonell:** AndEngine

**Brownlee:** Why did you choose this particular mobile game engine?

**Carbonell:** When I visited the AndEngine forum, I noticed that it had a very active community, and the project got updates almost everyday. Then, when I saw the examples (there are a lot of examples) I noticed that was very easy to use, and very intuitive. It had everything I needed, and more! So it was the correct choice for me.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Carbonell:** Before you start using this engine, you need to know that there is no documentation. If you want to learn using it, you can find a lot of examples, and there is a lot of info in the forums, where you can ask everything you want to know.

There is a book that you can buy (there is no free version). But you don't need it to learn AndEngine. With forums, examples, and source code, it's enough.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Carbonell:** The only pitfall I found is that sometimes you need to spend a few hours reading source code and searching the forums to learn how to do something, or discover new things you didn't know before. But I think it is not really important, source code is easy enough to read, and the forum is very active.

**Brownlee:** What is the best thing about working with this game engine?

**Carbonell:** The integration with Box2D (physics engine) is very good. With a few lines of code you can create objects that obey the laws of physics. And Box2D is perfectly integrated with the other features of the engine.

**Brownlee:** Would you ever consider writing your own game engine?

**Carbonell:** If I didn't find the engine I needed, perhaps I'd have created my own. But I found it, so I don't need to 'reinvent the wheel'.

**Brownlee:** What would you do differently if you were to develop your game again?

**Carbonell:** Baviux was my first video game, and I developed it by the time I was learning AndEngine. Now, after I've developed two more games, I have learned a lot of things about AndEngine, and about video game programming. So if I were to develop my game again, I will apply more AndEngine features I didn't know before, and I will create code more structured and with better integration with AndEngine. I would apply some advice I've received from the AndEngine forum, like memory management,



optimizations, and others.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Carbonell:** A good thing to do to choose a game engine is to see other projects created with it. If you take a look at games that were developed using a game engine, you can get an idea of how good the engine is.

**Brownlee:** Would you use this game engine again?

**Carbonell:** At this time, I have created three games using AndEngine, and I will continue using it for future projects. Why? Well, it's easy to use, I've learned a lot about it, it gets updates everyday, has a very active forum, and it has everything I need.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Carbonell:** I enjoy developing for mobile devices, composing music, drawing, and playing video games. So, in developing a game I'm doing all the things I enjoy.

Do you remember that little water filled toy that was filled with small rings or balls that you had to get on certain places of its enclosed little playing field? Well, when I was a child I had some of those toys, and I enjoyed them. So I thought that could be fun to have a video game for Android that simulated these toys, adding some things to make it more funny.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Carbonell:** Publishing a game in the market is awesome. Thanks to on-line stores, like Google Play, you can develop a game at home, and distribute it over the world, and everyone can download it, and play it.

It's really a good feeling that everyone in the world can enjoy your creation. When someone put a good comment about my game in Google Play, it puts a smile on my face, and makes me think "the effort was worth it"

**Brownlee:** Would you go through it all again?

**Carbonell:** Creating a game is a hard work, and requires a lot of time. Nevertheless, I enjoy it, so I will continue creating new games. I do it as a hobby, but I would like it it could become my job.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Carbonell:** Well, I have no questions. The only thing I would say to him is: "Thanks!" and "Congratulations!"

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Carbonell:** My favourite game is "The Secret of Monkey Island". I played it for many years ago, and I still get excited each time I listen to Monkey Island main theme.

**Brownlee:** What are you currently working on?

**Carbonell:** Well, I created some friendly creatures, called Baviux, for my first game, and I used it too for my second one. I haven't started my next project, but I would like that the

Baviux were the main characters again. so I think you will see them in my future projects.

I'm thinking too about adding more features to my released games. My wife, Fani, is helping me with her ideas about new funny features :)

**Brownlee:** Do you have any other comments on Game Development?

**Carbonell:** There is a thing that I find really awesome about mobile game developing nowadays. It's a fact that you can develop a game at home, with a cheap computer, and when it's finished, in seconds it's available to all the world. A few years ago you needed a lot of resources to create a video game and distribute it all over the world. So, now, only you are the limit. If you want to do it, you can!

**Brownlee:** How can a reader or fan best get in contact with you?

**Carbonell:** E-mail is the best way to contact me: [djpep.dj@gmail.com](mailto:djpep.dj@gmail.com), or [info@baviux.com](mailto:info@baviux.com).

## **Marcio Andrey Oliveira: Even Or Odd using AndEngine**

### **Background**

**Brownlee:** What is your current job title or position?

**Oliveira:** I have a day job as a contractor and at night and on the weekends I develop my own games as Plicatibu Software Development

**Brownlee:** Where are you located?

**Oliveira:** São Paulo, São Paulo, Brazil.

**Brownlee:** Could you please introduce yourself?

**Oliveira:** I'm an Electronics Engineer by training and a programmer by vocation. I have an MBA in Industrial Automation. I've been an electronics hobbyist since I was 13 years old and I came into contact with programming (assembly / basic) in the late 80s, although it was not until my first year of university that I learned C and then I realized programming was so fun.

I worked professionally for 7 years developing software for in the telecommunication field, and I have spent 5 years developing software in the field of information security. I always loved games and wanted to develop my own. Last year I decided I would do it. The point is that I knew nothing about games other than I like them.

I decided I'd develop for Android and that I would share my experience. You can read in details why I chose Even Or Odd, Android and AndEngine on my blog<sup>1</sup>. I also share my ad revenues, solutions to some problems I came across, and other interesting notes on my blog. The most awesome projects I made were not games but I can't talk about them because of a NDA.

**Brownlee:** What are some mobile games that you have released?

**Oliveira:** I have developed 2 games: Even Or Odd and MatchSticks. They're published in 26 stores (Android Market, SlideME, GetJar and many others. For more information you can see my blog post<sup>2</sup>.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Oliveira:** Even Or Odd.

**Brownlee:** What platforms was your game designed to support?

**Oliveira:** Android.

**Brownlee:** Please describe your game?

**Oliveira:** Are you ready to take on those odds? Choose whether you are the designated, Even or Odd player. Select a hand showing zero to five fingers. The opponent will then reveal its hand. If the sum of all fingers is an even number, then the Even player wins. If it's Odd, then the Odd player wins. Do you like rock paper and scissors ? So you will like this game.

**Brownlee:** What genre is your game?

**Oliveira:** Casual.

**Brownlee:** What date was it published?

**Oliveira:** July 8th, 2011.

**Brownlee:** Who published the game?

**Oliveira:** Android Market, SlideME, GetJar and more 23 stores.

**Brownlee:** What is its price?

**Oliveira:** Free with ads.

**Brownlee:** How many downloads?

**Oliveira:** Summing up all 26 app stores to which it was submitted, I got around 20,000 downloads.

**Brownlee:** How much revenue?

**Oliveira:** From July 2011 to March 2012 I got around USD \$50.00. I share all information with my readers of my blog<sup>3</sup>.

## **Choosing an Engine**

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Oliveira:** My requirements at the time I made the game were:

- \* Generate games for Android platform.
- \* Easy to use. I mean, an Engine that handle boring and repetitive but important tasks like collision detection and scaling.
- \* Free to use for commercial games.
- \* Strong community support.
- \* Access to its source code.

Nowadays, I want to be able to port my games to other platforms than Android so I'm considering this ability as the most important feature.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Oliveira:** A strong community support. As I'm a complete beginner to game development I need to count on help from other users to move from my baby steps. There are many communities that are not very newbie friendly so I don't see the point to use their projects.

**Brownlee:** What systematic process did you use to choose a game engine?

**Oliveira:** In order to choose the engine I did the following:

- \* I downloaded its binary. Size matters when you're working with mobile phones.
- \* I set up the development environment to see whether it's too time or resource consuming.
- \* I developed a very simple game (the basic of Even Or Odd) without scores, error handling, without screen navigation, without splash screen.

In short: without any thing other than the bare minimum to see some images on screen, how to handle touches and how to put some text on screen. This gave me an idea about how easy the engine is to work.

- \* I posted some dummy questions I had to community to see what I got as answer (if any

at all). Remember: a strong community is a very important feature.

- \* I looked for tutorials on how to use the engine. The more tutorials the better because you can learn many techniques from them.

- \* I looked for games published that were built with the engine. The more games the better because it's a sign that the development community will remain active for many time.

What's the point of investing time to learn an engine that soon will be discontinued? I want to make games and not engines.

**Brownlee:** What research did you do into game engines?

**Oliveira:** I use Google to look for people talking on forums and blog posts about engines for game development for Android. I'm very interested to hear the opinion about existing engines from people that have experience using them. Both the pros and cons are important. In my opinion, the cons deserve a very special attention because people usually get excited about something and start saying wonderful things about it without giving it a real try. The cons usually are noticed by people that tried to do real stuff. Anyway, care is advised when taken in account other people considerations.

**Brownlee:** Which off-the-shelf game engine did you use?

**Oliveira:** AndEngine.

**Brownlee:** Why did you choose this particular mobile game engine?

**Oliveira:** For sure it's easy to use feature but most important and decisive point was it's community support.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Oliveira:** The most important advice is: You must know how to ask for help. Many people post on forums something like: "Please, Help me! My game is'n working. Urgent!". This way no one will be able to help you (nor will want to). Do your homework first. Try to learn the basics of how the framework work. Search for help on Google, read documentation and source code. If you still have problems, then ask in a smart way. For instance:

- \* The code that handles touchscreen doesn't get called when I touch the sprite.
- \* I did this and that (explain what you've done and the results).
- \* I searched for this and found this advice but it didn't work. I got the following results.
- \* Below is my source. Can anyone point me to documentation or a tutorial that I can read?
- \* My platform is. My SDK version is. etc.

This advice is not only for this engine but for any and everything.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Oliveira:** I found no problem other than the ones caused by the fact I didn't know the engine.

**Brownlee:** What is the best thing about working with this game engine?

**Oliveira:** It's easy to get started with it, and there are good tutorials that cover a large number of features. I like to develop with a browser open and pointing to the tutorials and

forum, so I could see how to do some stuff on my own games and ask for help in case of need.

**Brownlee:** Would you ever consider writing your own game engine?

**Oliveira:** No. There are already many engines out there. I think that instead of create my own engine it'd be much better for me and for the community to contribute to one of them by developing the engine, submitting patches and bug reports, writing tutorials, and helping other users in forums.

**Brownlee:** What would you do differently if you were to develop your game again?

**Oliveira:** I would have submitted it to beta testers. When you develop something (be it a game or not) it's clear in your mind how it works, but what is clear for you may not be to other people. After I've published the game I got many complaints saying the game is not intuitive. I tried to overcome it providing a link to the help page, but the damage had already been done. My next games definitely will have tons of beta testers.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Oliveira:**

- \* Decide which platform you want to develop for.
- \* Select engines written in the programming language you fell comfortable with.
- \* Do research on how supportive the user community.
- \* Do research to see how good the available documentation and tutorials are.
- \* Look for games made with the engine to figure out for how long the project will survive.

There is a saying I strongly believe: "Make the games you want to play!". It doesn't mean you will start with a MMORPG. You must start with the easiest and simplest project. Otherwise, you may never end you game and get frustrated. One more thing: never ever start a new project without finishing the current one.

**Brownlee:** Would you use this game engine again?

**Oliveira:** If I had to develop a game just for Android so AndEngine is framework I would use. I really love it. For multi-platform games I'll pick other engine.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Oliveira:** I always learn new things with the technique of baby steps. I choose to develop Even Or Odd because it is a very simple game. It just show some images, some text and handle some touches. There is no collision detection nor movements nor levels neither sound to complicate stuff. For each new game I'll add a new level of difficulty to make better games.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Oliveira:** Of course I'd like to make some money with my games and be able to do just it for a living, but the most satisfaction is to see the number of downloads rising and get 4 or 5 stars. Many people complain about your game, say it's a piece of rubbish, and so on. It will get you down. You don't like people being that rude because you love your creation. It's like a son. When you see a good review, when you get 4 or 5 stars you feel

really good and it's an incentive for your next game.

**Brownlee:** Would you go through it all again?

**Oliveira:** The 2 hardest parts are: to finish the game and to make the marketing. When you start a game you want to code it all the time. When you have 80% done you get bored. There are many details to polish the game and you want to start a new project. It's hard as hell to persevere and finish the current project.

Once you got the game finished you need to let people aware of its existence otherwise no one will download it. There are more than 400,000 apps on Android Market and more than 600,000 apps on App Store. So comes the big problem: how to stand from the crowd? I have a blog and I use twitter and facebook to talk about them. I also have a mailing list with all friends and parents. I write to them asking for help to spread the news on their twitter and facebook accounts. I never paid for advertising because my games are free to use and the money I'd expend on advertising them would be much greater than the revenue I'd receive from ads shown on them.

And yes, I definitely would go through it all again.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Oliveira:** Why don't you convert it to be multi-platform instead of Android specific?

## Final Questions

**Brownlee:** What is your favorite game in the world and why?

**Oliveira:** Megamania is the game I love most. It's one of the first games I played and it make me want to know how to develop games. Someday I'll make my own version of this game to honor him.

**Brownlee:** What are you currently working on?

**Oliveira:** I'm working in a project based in an ancient Atari game, but I don't like to talk about projects I'm still planning or developing. It may be a coincidence but I usually don't finish projects when I talk about them. This interview is a great way to promote my games. I hope people get curious about me and my games and give them a try.

**Brownlee:** Do you have any other comments on Game Development?

**Oliveira:** Just what I told before:

- \* You start with baby steps.
- \* Never start another project without finishing the current one.
- \* Make the games you want to play.
- \* As Steve Jobs said: "the journey is the reward".

**Brownlee:** How can a reader or fan best get in contact with you?

**Oliveira:** I love when people visit my blog: <http://blog.plicatibu.com> and leave comments. My e-mail is [plicatibu@plicatibu.com](mailto:plicatibu@plicatibu.com).

## Footnotes

[1]: Blog post on Android development experiences <http://blog.plicatibu.com/my-fisrt-game-introduction/>

[2]: List of projects blog post <http://blog.plicatibu.com/application-store-full->

[list/](#)

[3]: Financials blog posts <http://blog.plicatibu.com/tag/report/>



## **Vitaliy Kolesnikov: Lucky Box using AndEngine**

### **Background**

**Brownlee:** What is your current job title or position?

**Kolesnikov:** I'm a private entrepreneur.

**Brownlee:** Where are you located?

**Kolesnikov:** Russia.

**Brownlee:** Could you please introduce yourself?

**Kolesnikov:** Before making games I made websites. In February, 2010 I started to learn game development with Flash. I made a few games with Flash and in October, 2010 I made my first game for Android OS.

**Brownlee:** What are some mobile games that you have released?

**Kolesnikov:** I made Cheepers and Lucky Box for Android OS. I have few games in development now.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Kolesnikov:** Lucky Box.

**Brownlee:** What platforms was your game designed to support?

**Kolesnikov:** Android.

**Brownlee:** Please describe your game?

**Kolesnikov:** Test your luck in this very simple, but very addictive game with 20 levels and 18 achievements. Just start to play and you will find out how it easy.

Can you get the top score at the end of the game?

**Brownlee:** What genre is your game?

**Kolesnikov:** Casual.

**Brownlee:** What date was it published?

**Kolesnikov:** March 2012.

**Brownlee:** Who published the game?

**Kolesnikov:** Self-published.

**Brownlee:** What is its price?

**Kolesnikov:** Free.

**Brownlee:** How many downloads?

**Kolesnikov:** Over 13,000 in Google Play and over 1,000 on other markets.

### **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Kolesnikov:** I didn't look for any other game engines beside AndEngine. I like AndEngine and I use it in all my games. In 2010 I start to search for mobile game engine like Flixel for Flash. I tried to work with Rokon and a port of Flixel for Android. I then found AndEngine and realized, that it was all that I needed.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Kolesnikov:** I wanted that the engine have ability to work with Sprites very easy to create and animate from SpriteSheets. An engine must have good speed, simple to work with music and sound effects, and screen touches. After Flash I thought in terms of MovieClips. I wanted to group sprites and add them to another sprite or layer. AndEngine can do it now very easily.

After Flash I wanted that the engine could work with AnimationTweens (like Greensock or Caurina on Flash). Because I had never written code in Java and for Android OS before, it's was hard for me to understand how the Android OS works and how to write games on it.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Kolesnikov:** As I said before, I wanted to group sprites and add them to another sprite or layer like I did it on Flash with MovieClips.

**Brownlee:** What systematic process did you use to choose a game engine?

**Kolesnikov:** I didn't use any systematic process. I searched for an engine that was free, fast, simple and easy to use for me as beginner. Because I had never worked with 3D graphics and games, I looked for a 2D engine.

**Brownlee:** What research did you do into game engines?

**Kolesnikov:** I used Google.

**Brownlee:** Which off-the-shelf game engine did you use?

**Kolesnikov:** AndEngine.

**Brownlee:** Why did you choose this particular mobile game engine?

**Kolesnikov:** AndEngine was exactly what I needed.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Kolesnikov:** Don't write your basic game code in MainActivity class. Create different Scenes instead and write all game logic in them. Also, use Pools for caching objects and SpriteBatch and SpriteGroup for improving rate of screen drawing for fast paced games and games with many sprites on the screen.

**Brownlee:** What is the best thing about working with this game engine?

**Kolesnikov:** I think it's the ability to automatically resize a game for different screen sizes.

**Brownlee:** Would you ever consider writing your own game engine?

**Kolesnikov:** No, AndEngine fits all my needs. In one of my games, I created additional classes for realizing collision logic like in Flixel on Flash.

**Brownlee:** What would you do differently if you were to develop your game again?

**Kolesnikov:** After creating my first two games, I now have my own game architecture, so I don't want to change it in my future games.

**Brownlee:** With a released game, in hindsight, what process do you recommend for

choosing a mobile game engine?

**Kolesnikov:** If you want to make games for different mobile systems, you can choose libgdx library and build your own game engine on it. If you want to make 2D games only for Android, I recommend you to try the AndEngine.

**Brownlee:** Would you use this game engine again?

**Kolesnikov:** Yes, I will use it and I am using it already in my new project. AndEngine has all I need.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Kolesnikov:** I wanted to create a simple and fun game as quickly as possible. I made "Lucky Box" in one month.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Kolesnikov:** It is scary and prideful at the same time. I want players to have fun with my games and recommend them to others. But code bugs on different devices makes me sad.

**Brownlee:** Would you go through it all again?

**Kolesnikov:** Yes, I would. I like to make games and I will make them in any way.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Kolesnikov:** I have no questions, just a big thank-you.

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Kolesnikov:** Plants vs Zombies! It's fun and has many ways to play in it.

**Brownlee:** What are you currently working on?

**Kolesnikov:** I have one unfinished big project "Run, Grandpa!". It's so hard to work on a project for a long time. Now I'm working on a Match-3 online turn based game with working name "I Want Candy". The goal of this game is to get to the yummy candy faster than your opponent by matching tiles on a game field.

**Brownlee:** How can a reader or fan best get in contact with you?

**Kolesnikov:**

\* Website: <http://drderico.com>

\* Blog: <http://blog.drderico.com> (in Russian)

\* E-mail: [drderico@gmail.com](mailto:drderico@gmail.com)

## **Alex Mitin: Ballance using AndEngine**

### **Background**

**Brownlee:** What is your current job title or position?

**Mitin:** Game Developer

**Brownlee:** Where are you located?

**Mitin:** Minsk, Belarus.

**Brownlee:** Could you please introduce yourself?

**Mitin:** I'm a specialist in Artificial Intelligence. I have been working as programmer for more than 10 years, and now I'm game developer and founder of Kidga Games.

**Brownlee:** What are some mobile games that you have released?

**Mitin:** There are about 20 games released so far by Kidga Games so far. The best games we have released are: Ballance, Quadris, Pentas. Downloads count for them is around 100K each.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Mitin:** Ballance.

**Brownlee:** What platforms was your game designed to support?

**Mitin:** Android.

### **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Mitin:** I needed a 2D physics engine. I was reviewing Box2D, phys2D and AndEngine.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Mitin:** 2D, simplicity, and open source (free).

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Mitin:** Free and an open source model.

**Brownlee:** What systematic process did you use to choose a game engine?

**Mitin:** Community of engine development.

**Brownlee:** What research did you do into game engines?

**Mitin:** I reviewed sample applications.

**Brownlee:** Which off-the-shelf game engine did you use?

**Mitin:** AndEngine.

**Brownlee:** Why did you choose this particular mobile game engine?

**Mitin:** It is simple and has a powerful sample application. It also uses an open source model.

### **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Mitin:** I think the best feature of AndEngine is that it is very powerful, simple and has an easy to understand sample application that reveals all the features of the physics engine.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Mitin:** It's requires a lot of resources. Performance is so perfect on emulators, but less so on some devices.

**Brownlee:** What is the best thing about working with this game engine?

**Mitin:** Easy to study and start using.

**Brownlee:** Would you ever consider writing your own game engine?

**Mitin:** No, for sure. It's a huge job to build own physics engine.

**Brownlee:** What would you do differently if you were to develop your game again?

**Mitin:** Detailed design of core classes to make it more reusable and easy to maintain.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Mitin:** Review sample application and research it for the needs of your games core features.

**Brownlee:** Would you use this game engine again?

**Mitin:** Definitely yes for new 2D physics games.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Mitin:** To get experience in a 2d physics game. It is the first steps in game development.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Mitin:** It was a very emotional moment, for each new game. I was full of interest as how it would go. I was checking statistics, records, etc, it was all very interesting.

**Brownlee:** Would you go through it all again?

**Mitin:** It's my own business, so I have fun making games again and again.

## **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Mitin:**

**Brownlee:** What are you currently working on?

**Mitin:** Puzzle Collection. The best Kidga games all in number one. In the collection of puzzle games for anytime and anywhere. Unique gameplays, bonuses, OpenFeint leaderboards and all the best puzzle games features.

**Brownlee:** Do you have any other comments on Game Development?

**Mitin:** It really takes a lot of time, but having it as your own business makes it a time full of fun.

## **Milan Mancel: Frenzy Fugu Fish using AndEngine**

### **Background**

**Brownlee:** What is your current job title or position?

**Mancel:** Project coordinator at Sygic.

**Brownlee:** Where are you located?

**Mancel:** Bratislava, Slovakia.

**Brownlee:** Could you please introduce yourself?

**Mancel:** Well I am old fart, in a month will be 43 and I started with development on punch cards computers. I went through ZX Spectrum, Atari ST and then PCs. I have a Masters in Computer Science at technical university and Bachelor degree in economics.

I started as bank clerk, then office director, internet service provider, web designer and developer (first webshops in our country), Java developer etc etc. Before starting on my game I spent 7 years at Accenture as project lead of various helpdesk and EAI/B2B development projects. I recently started at Sygic (you know the great navigation apps for mobiles) as project coordinator.

**Brownlee:** What are some mobile games that you have released?

**Mancel:** So far only one game released, Frenzy Fugu Fish for Android. The game is free with included ads (AdMob). Current state is 10,797 downloads in 3 months since release, with 2,950 active users.

### **Your Game**

**Brownlee:** What is one mobile game that you built and released using an off-the-shelf mobile game engine?

**Mancel:** Frenzy Fugu Fish.

**Brownlee:** What platforms was your game designed to support?

**Mancel:** Android.

**Brownlee:** Please describe your game?

**Mancel:** Crazy casual/action game where you swim around with little Fugu, the puffer fish, collect pearls and avoid other fish.

Your goal is to collect all pearls in the level within the time limit. Tilt the phone to swim around, collect pearls and avoid other fish, jellyfish, anemones and other enemies. There are many enemies and obstacles waiting for you. In some levels you can use puff poison to inflate yourself to become invincible for short period of time and to eat some smaller fish. If you are fast enough, try to collect also all bonus coins in the level.

**Brownlee:** What genre is your game?

**Mancel:** Casual, Action.

**Brownlee:** What date was it published?

**Mancel:** February 6th, 2012.

**Brownlee:** Who published the game?

**Mancel:** Self-published.

**Brownlee:** What is its price?

**Mancel:** Free, with included AdMob ads. In Slovakia, Google does not allow to sell apps yet. Regarding income from ads, it is minimal from various places in the world, relevant numbers of clicks and income per clicks are from US users. For me, it is clear I need to focus on the US market, other markets are irrelevant from an ad point of view.

**Brownlee:** How many downloads?

**Mancel:** More than 12,000.

**Brownlee:** How much revenue?

**Mancel:** Tens of dollars.

## **Choosing an Engine**

**Brownlee:** What game engines were you looking at before you started the project?

**Mancel:** At first I tried to implement a simple game with pure Android SDK, which actually is nonsense. It was clear that dealing with various screen resolutions or implementing my own sprites, timers, etc. would take most of the game development effort. That's why I searched for game engine that would suite my needs. The first one I found was AndEngine. It had everything I needed, so I stopped searching and started to work on the game.

**Brownlee:** What features were on your list of requirements when selecting a game engine?

**Mancel:** Features needed were perfect sprite support, physics, screen resolution independence, stability and of course it had to be free for commercial purposes.

**Brownlee:** What is the most important feature a mobile game engine has to have for you to consider it?

**Mancel:** Device/screen resolution independence. In the Android world it is a must.

**Brownlee:** What systematic process did you use to choose a game engine?

**Mancel:** None. I had list of features, I found AndEngine, it was perfect and I did not want to spent days and days agonizing about various features. It is great to evaluate various engines, play with them, but it is a common problem with developers. They play with the tools instead of delivering the game. I know myself, so I forced myself to focus on game, not on tools.

**Brownlee:** What research did you do into game engines?

**Mancel:** Google. Found AndEngine forums, browsed through them, installed various games implemented with AndEngine, examples.

**Brownlee:** Which off-the-shelf game engine did you use?

**Mancel:** AndEngine

**Brownlee:** Why did you choose this particular mobile game engine?

**Mancel:** Lots of games already implemented, stability, screen resolution independence.

## **Working with the Game Engine**

**Brownlee:** What is the one thing that developers using this game engine have to know?

**Mancel:** Follow the installation instructions on AndEngine forums (there is a great video tutorial), install examples, dig in to the source code of the examples and use them as basis for your own experiments. Search in the forums if your are stuck, but most of all, play

with the engine. Don't post dummy questions to the forum, like "how I do I implement a game that will do this and this". Use your brain. I never had to post a question to the forum, all questions were already there answered or already in the examples source code.

**Brownlee:** What is something that didn't go well or as expected with this game engine?

**Mancel:** I did not have problem with the engine. I picked up a stable version of engine and never updated in 6 months of development. All features I needed were already there and I did not need to break my code with new version of library.

**Brownlee:** What is the best thing about working with this game engine?

**Mancel:** Simplicity. Perfect for 2D sprite games (which I love). It is pretty complex regarding features. I created a pretty good game and used only a very small subset of the engine. When I needed special sprite behavior (for fish specific movement and turns) it was very easy to enhance the objects.

**Brownlee:** Would you ever consider writing your own game engine?

**Mancel:** Never. I've been a developer for 27 years (yup, that long) and many times I have gotten stuck playing with the tools, libraries, implementing them or enhancing instead of focusing on final product. There are loads of engines and tools. If your final product is the game engine, then OK work on it. But your final product is game, then work on the game, not on the engine. Deliver!

**Brownlee:** What would you do differently if you were to develop your game again?

**Mancel:** Better time management and focus on marketing even before game release. Regarding development, only a few details as now I know the engine better and I know some flaws in my game architecture, I know how to do it better next time. But it has nothing to do with the engine, only with the fact that the game was implemented in a very evolutionary way.

**Brownlee:** With a released game, in hindsight, what process do you recommend for choosing a mobile game engine?

**Mancel:** Factors to evaluate: Do you want to focus only on one platform or more (iOS, Android)? Do you need 3D or 2D? Physics? Should it work on slower phones? Prepare list of features you need, find an engine and stick with it.

**Brownlee:** Would you use this game engine again?

**Mancel:** Yes, definitely yes. It is a good engine and it works. I have a good code base to build on now, to reuse in my next game and a bunch of tools that will help me to finish the next game sooner. I estimate that for next game I will use 80% of code from Frenzy Fugu.

## **Having a Finished Game**

**Brownlee:** Why did you make this game?

**Mancel:** I loved games all my life and in high school developed a bunch for myself and friends (for the ZX Spectrum). In the last 7 years I have been working for a large global company as a project lead of development and helpdesk projects, having tens of people under me. I had been getting more and more away from technical type of work. Instead of delivering real work, I had to deal with processes, QA, meetings, useless reports that nobody cared for. Exactly like in the world of Dilbert.



So I decided to stop. I left the company, decided to do what I always dreamed to do: become a game developer and prove to myself that I am not a brainwashed manager. So I spent one year learning Android, AndEngine, working on the game and trying to maybe perfect game I would like to play. It was like dream come true. Of course, I had to spend my savings as I did not have income, but I decided not to search for new job before the game will be released.

**Brownlee:** How does it feel to have a finished game and have it available in the market?

**Mancel:** It is an incredible feeling in delivering a finished and good quality product. Not just dreaming of doing a game but actually delivering. Perfect feedback from users (I love Android Market 5 star ratings and user comments). I get a surge of pride with each great review on internet, and the warm feeling when I can say proudly I that am a game developer.

**Brownlee:** Would you go through it all again?

**Mancel:** Yes. Of course I would optimize a lot of things (not technical) if I could go back in time, but yes I would do it, and I am going to do it again. I am already working on new levels for Frenzy Fugu and on a new game.

**Brownlee:** What is one question you would put to the developer of the game engine you used?

**Mancel:** How you achieved high number of downloads?

### **Final Questions**

**Brownlee:** What is your favorite game in the world and why?

**Mancel:** Knight Lore on ZX Spectrum.

**Brownlee:** What are you currently working on?

**Mancel:** Currently I'm adding features new levels to my new game. I'm focusing on my new job, and deciding what game to implement next, but it is secret.

**Brownlee:** Do you have any other comments on Game Development?

**Mancel:** Sure. Just tell all aspiring game developers: "go for it!". But, be prepared that it is hard work, it will require strong focus and there will be days you will hate the game and want to quit. Just try harder at that moment.

**Brownlee:** How can a reader or fan best get in contact with you?

**Mancel:** E-mail: [milan.mancel@gmail.com](mailto:milan.mancel@gmail.com)

## **Acknowledgments**

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## **The Author**

Jason Brownlee studied Applied Science at Swinburne University in Melbourne, Australia, going on to complete a Masters in Information Technology focusing on Niching Genetic Algorithms, and a PhD in the field of Artificial Immune Systems. Jason has worked for a number of years as a Consultant and Software Engineer for a range of Corporate and Government organizations. He has written about Artificial Intelligence algorithms which you can learn more about at <http://www.CleverAlgorithms.com>

In 2009 Jason started his first iPhone game project and before he could start he decided he had to choose an off-the-shelf game engine. This turned into a research project and he was required to manually gather the information from across the web. Not only did this take days - days he would much rather have been working on his game idea, but the results were limited. He created a list of candidate game engines, but had no idea which engine was good and which framework he should stay away from.

Years later, born of the frustration from his first and failed mobile game project, Jason built a website to address this problem both for himself and for any other developer who just wants to get on with developing their game. The site is <http://MobileGameEngines.com>

Jason is always trying to think of new ideas to solve this problem better. If you have any ideas or just want to chat about mobile game engines, reach out to Jason via [jasonb@MobileGameEngines.com](mailto:jasonb@MobileGameEngines.com)

## More from the Author

### Review this Book

If you found the interviews interesting or useful I would really appreciate it if you could take a minute to write a quick review of this book. You should be able to leave a review of the book on the site or store where you purchased it.

### Mobile Game Engines

I'm always looking to explore new and better ways to help indie developers assess, choose, and use mobile game engines. I run a website dedicated to this cause and I'm keen for feedback on how to make it more useful. You can visit the website the URL <http://MobileGameEngines.com>

If you would like to discuss this book or mobile game engines in general, please reach out to me via E-mail at [jasonb@MobileGameEngines.com](mailto:jasonb@MobileGameEngines.com)

### More Books

I am currently working on a companion book of interviews with mobile game engine developers called: *Mobile Game Engines: Interviews with Mobile Game Engine Developers*.

I am finding it fascinating and I hope you will too. The book will be available soon and you can find out more at <http://MobileGameEngines.com>

I have also written a book on nature-inspired artificial intelligence algorithms called: *Clever Algorithms: Nature-Inspired Programming Recipes*. You can learn more about it at <http://www.CleverAlgorithms.com>

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