

FREE TOOLS GUIDE!

AUGUST 2014

GAME DEVELOPER MAGAZINE



# GAME CAREER GUIDE

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Career tips  
from the pros!





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AUGUST 2014

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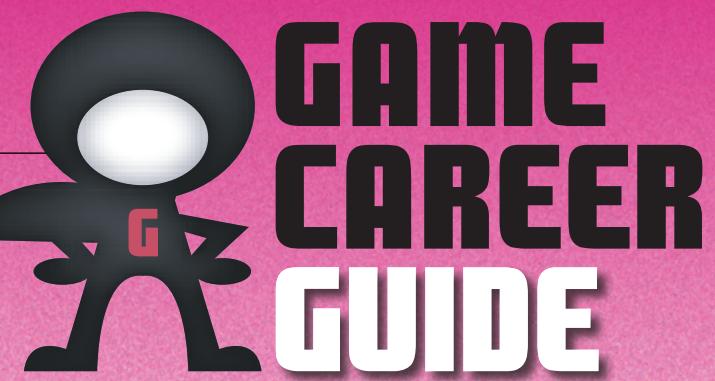
Including me, including you

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# BUILDING AN INDIE BUSINESS

## SOME TIPS TO GET YOU STARTED

**W**ELOCOME ALL, TO THE 2015 GAME CAREER GUIDE, YOUR GATEWAY

to improving or launching a career in game development! This issue is meant to help not only industry neophytes, but also those who have a job in games and would like a leg-up, as well as people in other industries who may want to transition into a career in game making.

From our unity tutorial, to our postmortem of a student-made game, to our feature about making the leap from film to games, our authors should have you pretty well covered. But what if you decide you want to start your own company? Let's talk about that a bit.

### Breaking in on your own terms

In the past several years, it has become more and more viable to make a go of things as an independent game developer. In fact, I'm one of those myself, having recently released Gunhouse for PlayStation Mobile.

The indie life is by no means for everybody - it can be very difficult to make money early on in the process, and the first games you make will be huge learning experiences. But it can also be very rewarding to make your own schedule, own everything you create, and potentially reap the benefits of making a good game on the cheap.

If you do decide to go the indie route, just getting started can be daunting - but it's actually not quite as difficult as you think. Once you get some logistics out of the way, you're going to find it relatively

smooth sailing - aside from making the actual game, that is.

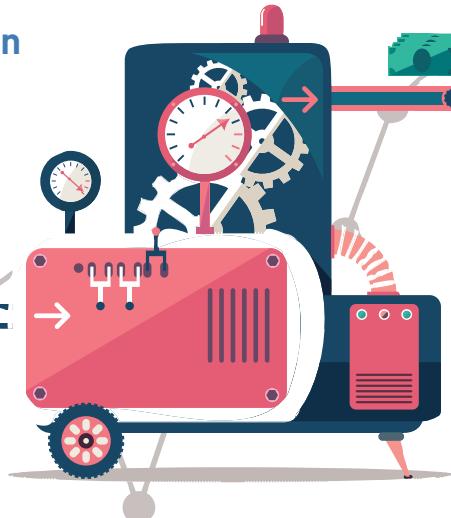
### Starting a business

If you're going to eventually sell your games, more likely than not you'll need to create a game

also have protection if your business faltered. As an added bonus, it's also one of the easiest kinds of company to set up. Definitely consult a specialist if you want to know more, since I'm by no means an authority in this regard!

Where should you register your business, then? I'll only be covering the US in this section, since it's all I have experience with - but in brief, if you live in a state with low registration fees, just register your business there. It's actually ideal to set your business up in the state where you live, because you can use your own address, and all correspondence will come to you directly. But if you live somewhere like California, where the registration fees are high, and businesses have a minimum tax every year, you may consider other options.

If you don't have a static office, that is to say a brick and mortar place your company is going to rent out for office space, or if your employees are distributed, it's much easier for you to register your business in another state. In this case, you can have your company registered in any location, like Oregon or Delaware, where the registration fees are cheap, and there's no annual tax



company. Having a company set up will be useful when talking to publishers, when trying to get on app stores, when getting paid, and in all sorts of other ways.

Registering your company is actually not very difficult these days. Most indies opt for an LLC, because with this corporate configuration, your assets and your company's assets are basically tied, but you

# Get Creative.

Go from playing games to designing them.

Artwork Credit: Kristian Howald

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Sheridan

or income minimum. If you want to do this, you'll want to use a legal registered agent like INCORP, or any other, which can maintain a PO box for you in your state of choice. Even if your business is officially registered out of state, you can still have your home address as your business address for correspondence with publishers, taxes, and bank accounts. It's crazy, but that's how it works!

After you're registered, you'll need to get a *tax ID from the IRS*. This is simple as well, once you've registered your business. It's also a good idea to set up a separate bank account for this company, so that your personal and business accounts are separate. I just used the bank with which I already had a personal account, but if you look around, you can find banks that have some very agreeable terms for businesses, like free checking, lower transaction fees, and so forth. The whole process of setting up your business will usually cost you about \$200, and take a few days, most of that waiting for people to reply to your submissions. After that, you'll be all set up!

## Funding?

Getting funding for your first project is ideal, but can be difficult. Many people do their game development work on the side, while working another full time job to pay the bills. Others live at home to save money, or get support from a spouse. As for me, I went the funding route.

I'm a bit lucky, because I already knew a lot of the people I needed to talk to, but you can do it even if you don't already have the connections. Essentially, if you're starting out, look for opportunities

on smaller platforms. Companies like Sony and Microsoft have smaller fledgling platforms or devices that they need to shift more content to, which is how I got funding for Gunhouse on PlayStation Mobile, and why I am now porting it to Windows Phone.

You may have to dig for these programs, but they're out there. When a company announces or releases a new platform, that's generally the time to strike.



Maybe Blackberry has a coding competition. Maybe Nvidia needs graphical showcases for the new Shield Android-based handheld. The opportunities are out there, if you look for them. Do your research, find the new platforms, then reach out to whatever contacts you can find and ask if they're accepting pitches to fund smaller games.

There are also funds out there - many parts of the world, including Canada, Poland, Finland, and others have tax breaks, or straight up funding if you are local to the region and able to prove you can make something. Combining all this, if you've got a solid pitch ready, you might wind up getting a funded game right out of the gate!

## Structure

Unless you're a great all-rounder, and capable of making games entirely by yourself, it might be a good idea to work with some other folks on your first game. They needn't live near you, but it certainly helps if they do. For my current projects, development is distributed across the three continents. My programmer and lead artist lives in Poland, another artist is in Sweden, and one of my composers is in Tokyo. But for past projects, I've had everyone local, and being face-to-face with the people you're working with can help with not only productivity, but communication and collaborative design.

A good place to meet potential teammates is at game jams, which we cover later in the issue, but if there's nothing local to you, reaching out on twitter and other social media platforms can work as well. Local colleges may also have programs you can poach from. If you're leading the team, it'll be on you to motivate everyone, give them clear tasks, and make sure things are moving.

If you're working with people that aren't in your area, it's very helpful to try to have not only your design nailed down, but also your art and sound asset specs. At Necrosoft, we make big google docs at the start of any project that describe all the assets we need to create, with reference photos, and space for people to reserve the tasks and mark them as completed. This gives us a good picture of how far along the game is, at least in terms of assets, and also gives our distributed team a better idea of progress and teamwork.

On another project, the programmer will create a task list in a program like *BitBucket* or *Trello*, which will help me see what he's

working on at any given time, but will also allow me to add tasks I think are not being addressed, and also change the priority of certain tasks.

It's also helpful to have a hub of conversation, on a platform like *Slack* or *Campfire* or a wiki, where the whole team can talk to each other, and conversations are logged. I check in with my team on chat programs, but sometimes getting everyone talking together can be helpful.

## Be aggressive!

Whether you're pitching to publishers, hoping to get featured in festivals, or trying to kickstart your project, you've got to put yourself out there as much as possible. Make friends with other developers, maintain a strong online presence, and communicate what you and

your game are all about.

Unfortunately most indie developers forget how important a marketing component is, and will toil away in obscurity until their game is released, then wonder why nobody noticed. I'm fairly guilty of this myself, given how often other developers ask what I'm working on! If I were doing my job, they'd already know. So get out there and make some noise. Show concept art, show vines of interesting elements of your game, write a narrative about your team coming together - anything to show you're working, and that your work is worth paying attention to.

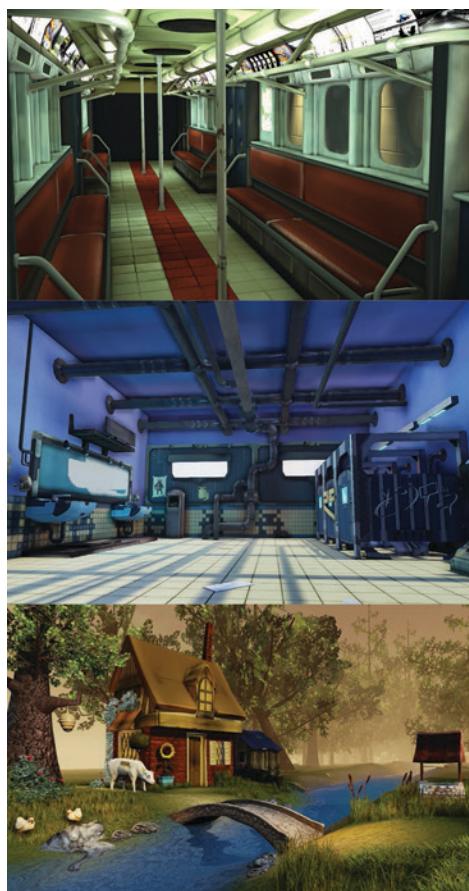
## Do what you love, love what you do

If you go the indie route, I wish you the best of luck. It's a hard road,

and sometimes it simply doesn't work out. But if it doesn't, don't despair! You will learn a lot of marketable skills along the way, and that may just be what helps you get a job at a company, if that's what you go after next.

So get some free tools, carve out a few hours of your day, and get to making. Remember to scale small on your earlier projects, and try to actually finish what you start. If you can manage those two things, you'll be ahead of the rest. Now get out there and make some games!

*Brandon Sheffield is director of Necrosoft Games, and senior contributing editor to Gamasutra.com. He also runs the Career Seminar at GDC, and sits on the jury of a number of game competitions. Find him on twitter at @necrosofty.*



# BECOME A GAME CHANGER

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Dangerfield's current company, Xavient, makes the first person action RPG *Lichdom: Battlemage*.

# BATTLE YOUR WAY INTO GAMES

TIPS FOR GETTING AN INTERVIEW, AND NAILING IT ONCE YOU GET THERE

Scarlet Dangerfield

As a recruiter, I am quite often asked how to get a job in the game industry. Game development is a vastly expanding industry that hires programmers, artists, designers, admin, IT specialists, marketers, sound designers, HR, finance, lawyers, and even chefs. Truly anyone with a passion for games can find their place in the game industry.

When I give someone advice about how to break in, I tend to compartmentalize it in terms of interview stages.

## BEFORE THE INTERVIEW

Research your desired profession.

How do you know your dream job is right for you? Start with researching job postings for the position. Learn what that role entails to ensure it is really what you want to be doing. Be mindful that not all companies will task positions the same way, so check out a few of your top companies to see if the roles differ.

You will also want to check job postings to see what qualifications are needed for your desired position. Some positions will require higher-education degrees or certifications. Knowing this in advance will help you plan ahead.

Proofread your work and make your portfolio clear. This is an issue that gets oh-so-many candidates thrown out. Cover letters that are incoherent, resumes with typos, and portfolios for inapplicable positions come across

my computer every day. Unfortunately they never make it past my 30 second screening. Make sure to always have someone else (colleague, best friend, significant other, whoever) look over your work prior to submitting it to a company. If you are applying for a position that's not in your native language, find a native speaker to review it. Local universities are a great resource for this.

Create a unique cover letter. This is a personal way to make yourself stand out from the crowd. And if this is your first job, or if you are making a career change, take the time to write a letter to really explain why you are interested in this position and company, and how you are the best fit for the role. Candidates wanting to populate a generic cover letter they found on Google need not even apply.

For those looking to make a career change, this is where you need to sell your previous experience and how it will fit in this new role and industry. You will also want to use this letter as a way to explain why you want to make this change.

If you want to step it up a bit and really impress the company, try making a video cover letter. This is a great way to sell yourself in person, and differentiate yourself from the written submissions. You can find some amazing examples and tutorials on YouTube.

Do the work yourself. Hiring managers love to see candidates that are ambitious and willing to work hard to get noticed! A special note for those trying to get their first job -- it's understandable that parents really want to help you be successful, but most hiring managers will pass over candidates that did not take the initiative to apply themselves. If a parent decides to send in an application for you, make sure you follow up on the email to show the company you really are interested.

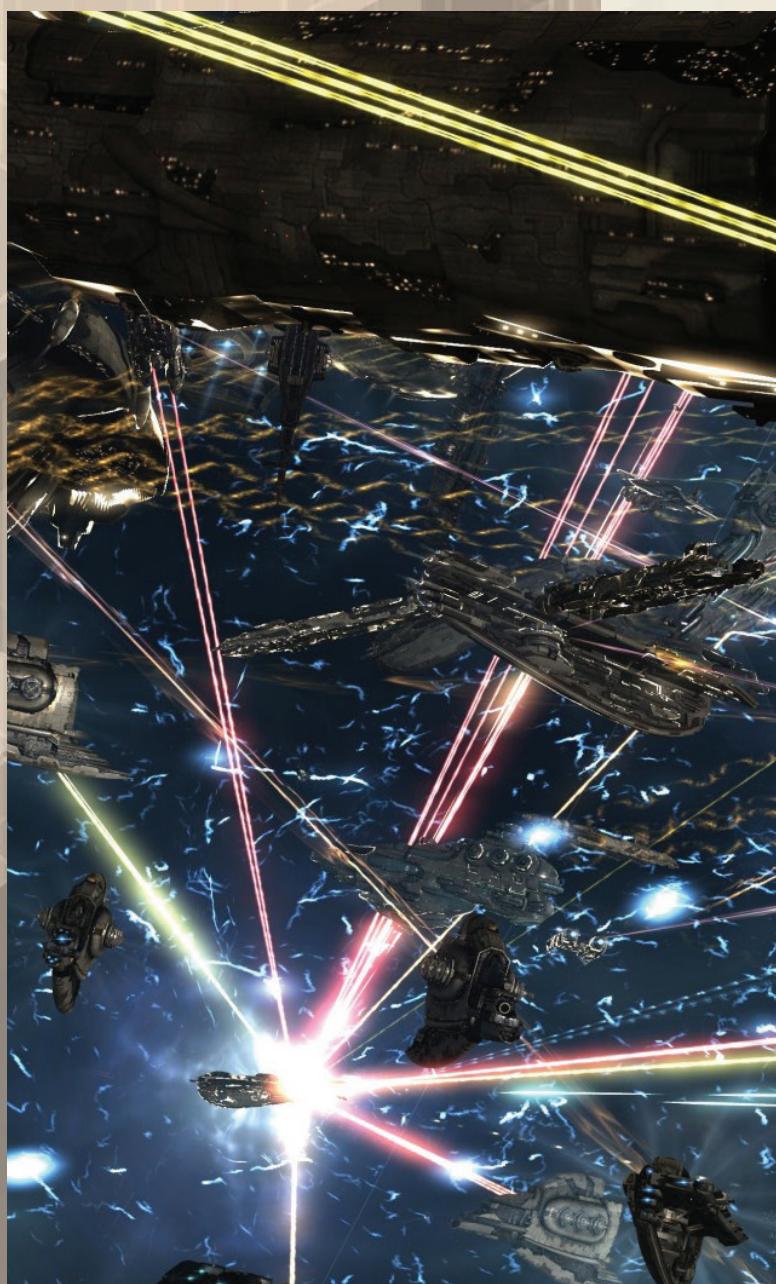
Remember your digital presence. Most likely you are on Facebook, Twitter, LinkedIn, or something similar. Make sure your profiles and comments reflect the image you want companies to see. Some companies in the game industry will do some cyber stalking to see if you will be a culture fit. Make sure you remove any posts or pictures of anything you do not stand behind.

Know as much as possible about the company you are applying to. This goes along with reading the job description prior to applying for the job. Research the company and its games fully before applying to a company. I've unfortunately received many applications from candidates stating that they would love to work on games we do not make, or even for other companies. In most cases recruiters and hiring managers love their company and/or the project they are working on. If they see that you

have researched the company and are excited about it they will get more excited about you.

### DON'T SHOW UP AT MY DOOR.

All studios are different; some love giving tours of their studios, while others leave their name off the building so they cannot be found. Tours are a great way to find out about a studio's culture and to start networking with potential future colleagues. But please do not show up at your dream studio with the impression that you can check things out



right there instantaneously.

So how do you get in to see the goods? Start by calling the studio and speaking to someone in admin or HR to see if tours are an option. They will be able to set you up with the right people. If not, many studios will host local game developer community events that you should attend to learn, make friends, and network.

Update your portfolio. For artist and animators, along with your resume and cover letter make sure your portfolio is prepped for your job search.

You will want to make sure of a few things prior to submitting your portfolio.

- 1. Carefully choose the art** you are displaying for quality and consistency.
- 2. Provide background info to your work.** This could be the history of why you made it, or even a video of the production process.
- 3. Make your portfolio** easy to follow.
- 4. Make sure your contact information** is updated and easy to find.



Scarlet Dangerfield's former employer CCP is known for its massively multiplayer space battle simulator *Eve Online*.

Practice a lot! Remember those people you had help review your resume? You should buy them a pizza and beer to say thanks! Then see if they are willing to help you practice for your interview. Do some research on interview questions; you can find hundreds of them online or in interview prep books. Give the questions to your roommate, your friends, and practice, practice, practice.

I've personally had a interview where I took this for granted. Since I interview others for a living I assumed I'd be set, but instead I froze and bombed it. So take every opportunity to tell others about yourself, your strengths, your weakness, and why they should hire you.

## THE INTERVIEW STAGE

Be excited!!! Congrats, you've been invited in for an interview! You've made the cut and beat out the majority of candidates that have applied. You will now get the opportunity to go in, meet the team, see the studio, and to sell yourself. Only a very small group of people gets to do this. Normally it's only the candidates that the company is excited about. While it's normal

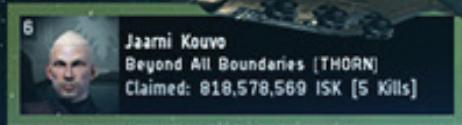
to be a little nervous, just remember the tip above, practice, practice, practice, and you will be stellar.

You should expect a test. For a majority of companies expect a test for any development position. Whether you have 10 years in the games industry or just graduated from MIT, if the company has a testing process you will need to take it to be considered. Do not take it personally or get offended when they request it from you. Discrimination issues can pop up for the company if they were to waive the test just for you.

## SWEET!

So you've passed the actual test, you're in the clear. Not so fast my little grasshopper, every stage in the recruitment process is a test. From how you spoke to the receptionist when you arrived for the interview, to how you treated the recruiter while they were waiting for a response. Companies are studying and determining if you would be a good fit for their culture and their position. Bring your A-Game every time you engage anyone in the company.

Ask Questions. Advice from recruiter to recruiter will always differ a little, but this tip is echoed by us





all: Be prepared to ask questions. This is the best way to show that you are truly interested in learning more about the company and your potential boss/co-workers. Come armed with an array of questions and jot down more during the actual interview.

If you are having issues coming up with questions, I usually like the following:

- Questions about company's history,
  - Company's finances,
  - Company's vision,
  - Company's processes and policies,
- Questions about your potential boss
  - Their management style
  - Their expectations from this role
- Questions about the interviewer;
  - How long they have been there,
  - What do they like about the company.

It's also completely acceptable to ask the same questions to all interviewers. It is a good way to see if their responses are consistent across the interview team.



## AFTER THE INTERVIEW

Always follow up or say "thank you." After your interview, now what? Once you get home, take about 20 minutes and put together a "thank you" email to send to the interview team. (You can obtain their contact info from your recruiter or by requesting business cards during the interview.) This is a great way to follow up and let the company know how excited you are about the position. This may include how great you would be for the role and how you appreciate the time they took to interview you.

You can also use the thank you letter as a way to save a bad interview. I've seen a candidate that bombed his interview and pitched in his thank you letter a new game idea good enough to get another round of interviews.

Take it constructively. Rejection is unfortunately a part of the interview process. Sometimes you will be selected for a position, and sometimes you will not. If not, try your best to not take it personally. This is not necessarily a reflection on you -- many factors go into the candidate selection, such as professional background, type of diploma, years of experience, and so forth. Don't burn any bridges, or do something that might give you a bad reputation in the industry. Instead use the experience as an opportunity to improve your interviewing skills or your professional background. Take some time to really reflect on why you were not selected and seek help to improve.

Never give up! Don't fret if you weren't selected, that's ok, there will be plenty more opportunities out there. Just keep looking, networking, practicing, and trying to grow professionally. Sooner or later it will pay off!

Your dream job is not easy. Following a few simple tips like the ones above will help make you into a much stronger candidate. Even more so, having the enthusiasm and determination to get out there and find the right opportunity will maximize your chances. Job searches are all about timing, and patience is essential, but if you are taking the right steps and have the talent, then you can make it to where you want to go!

**Scarlet Dangerfield** is the HR and talent acquisition director at Xaviant, makers of *Lichdom: Battlemage*. Prior to Xaviant she entered the game industry through CCP Games, where she worked as the HR Manager and recruiter from 2010 to 2014. She brings to Xaviant nine years of human resources and recruiting experience from games, science, and technology giants such as SAIC, Booz Allen & Hamilton, and Comtech.

If you have additional questions on getting into the industry you can connect with Ms. Dangerfield on Twitter @ScarletPHR or LinkedIn at [www.linkedin.com/pub/scarlet-dangerfield-phr/7/316/78a/](http://www.linkedin.com/pub/scarlet-dangerfield-phr/7/316/78a/).

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MDM Student

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**Ryan Wong**  
MDM Alumni  
Product Manager, Wooga GmbH

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# FINISH YOUR JAM GAME!!

AND MAKE SURE YOU GET THE MOST OUT OF RAPID PROTOTYPING

Jim Crawford

**O**ne of the hardest skills to come by in any creative field is the ability to finish the thing you're working on. The game jam can provide an inexperienced developer with a low-investment opportunity to practice finishing. For the uninitiated, a game jam is a short event, quite often a weekend, in which a bunch of developers will get together and make games around a common theme. People just show up, find teams, and start making games.

This is very much worth doing for people of all levels as well, because the experience you gain in a game jam context can also serve you on larger projects. You won't encounter every pitfall that you'd face on a big game, but you will meet and learn to overcome many of them, and it's better to learn as much as you can in a safe space, rather than when time and money are on the line. All the screenshots in this article represent different jam games I worked on, tackling different ideas.

To get you started on finishing, here is some advice on finishing your first jam game.



JUST MURDERERS: HAVANA NIGHTS

## Choose a small design

The too-big idea is the most common obstacle to finishing. Everybody's first idea will be way too big. Think carefully about what you and your team are actually capable of doing in the timeframe allowed.

If you've done jams before, you will be able to better trust your sense of what your team can do, but in the meantime, you'll need to aim low. It will hopefully be obvious to you that the majestic space combat/trading sim you've been dreaming of is too ambitious to complete in a weekend. But it may not be obvious that a bullet hell shooter is probably too ambitious as well. Like all hand-crafted content, bullet patterns take time to design!

You will be cutting features throughout the project, as it turns out to be necessary. Knowing this, try to come up with a design that is modular enough to still feel complete even after multiple cuts.

Try to cut as early as possible in the lifetime of a feature. Saying no to an idea when it's still just an idea is much less costly than saying no when it's halfway implemented and partly integrated into the other game systems. I know you're worried about hurting Bob's morale by saying no to the feature he's excited about, but it's going to hurt morale much more when you cut the feature after having wasted half a day of programmer time on it. (Pro-tip: tell Bob you're saving his idea for the sequel.)

## Choose a familiar design

Everyone has crazy game ideas, and game jams are a great opportunity to prototype them. But when measuring the size of your design, remember that the cost of an innovative feature is much greater than the cost of a feature that has prior art. This is because when you run into design problems, you won't be able to turn to the common wisdom to solve them; you'll



### SKIRT QUEST

be entirely on your own.

If your priority is finishing a game, you should be making a game that is already familiar to you. The canonical example of this is the arena shooter. There are a dozen excellent examples of this genre to work from, and probably everybody on your team has played one or two. (And probably made one or two, to be frank.) This genre also has the advantage that it will be fun to play almost immediately.

Other examples of genres that are familiar, easy to implement, and instantly fun: endless runners, falling block puzzle games, and any game you can remember the name of from before 1982.

### Work with tools You know

Choose a set of tools you're already comfortable working with. Ideally your whole team will have made a game with these tools before. If you are making a game in Unity for the first time, the time you spend at this jam will be primarily about learning Unity. That's fine, if it's your

**Did you see the story in the paper about that new restaurant? I heard they serve animals they don't even have names for yet!**

Sounds gross.

I'm hungry already!

&lt;3

priority, but it will not be conducive to finishing your game.

If you don't have a tool set you are already comfortable with, you'll have better luck learning a tool like Twine, Puzzlescript, Scratch, or Game Maker than trying to build a game with the C++ skills you got from that one course you took in college.

Make sure everything is installed and configured before the jam begins -- the last thing you want to do during a jam is spend half a day getting Git configured on everybody's machine.

### Work with people you know

Part of the fun of game jams is working with new people, but if your first priority is to finish a game, you want a team you've worked with before. You will better know what everyone is capable of, and you will have a much clearer sense of exactly what you need to communicate to your teammates and what can remain implicit.

If you don't have such a team available, talk to people at the jam and try to find a team full of people you can get along with. If your team blows up in the middle of the jam, all the raw talent in the world won't save your game.

### Small, efficient teams

Communication is one of the biggest sources of inefficiency, and it scales exponentially with the number of people on the team. If you look at jam results, you will often find that a one- or two-person team produces better results than a five person team. This is because the additional need to communicate to an additional team member, especially early in a project -- i.e. the entirety of a game jam project -- rapidly overwhelms the additional ability to get work done. In addition, the more people on a team, the more likely it is that there will be a major personality conflict between two of them.

You want your jam team to be as small as possible, which means is that everybody needs to be able to do as many jobs as possible. Your artist is also your map designer? Great! Saves you the effort of coordinating how environment art integrates into a map. The programmer does audio too? Then nobody needs to

explain the nuances of the audio engine to the audio guy.

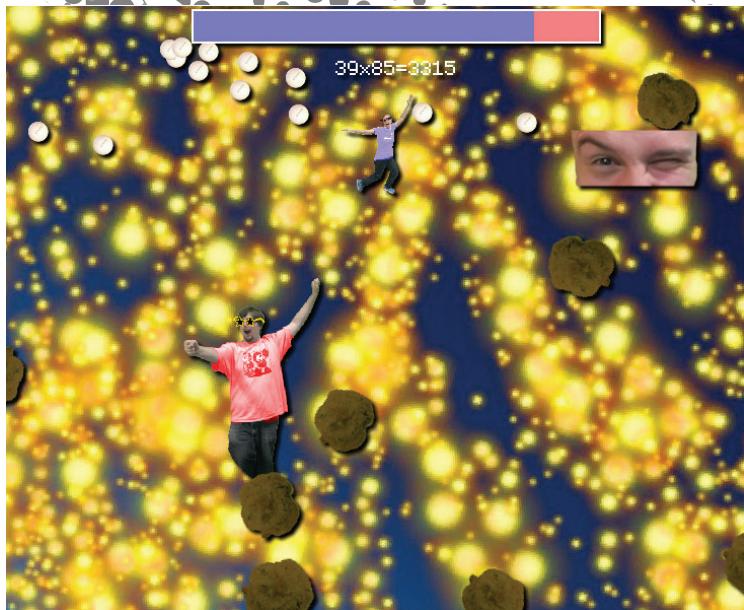
An exception to this rule is that solo jammers often run out of motivation before finishing their project. Unless you are extremely self-motivated, you should find at least one partner to work with. You will motivate each other.

### **Everybody is the idea person**

A corollary of the small teams rule is that there is no room at a jam for the “idea person,” whose sole job is to tell everyone else what to make. Big teams have this role by necessity, because making the work of a hundred people feel cohesive is a full-time job. Your jam game gets to feel cohesive automatically, because it comes from the minds of just two or three humans, and chances are both of these human minds are brimming with game design ideas in addition to bringing technical skills to the table.

### **Programming is design**

The most important pairing of two roles in the same



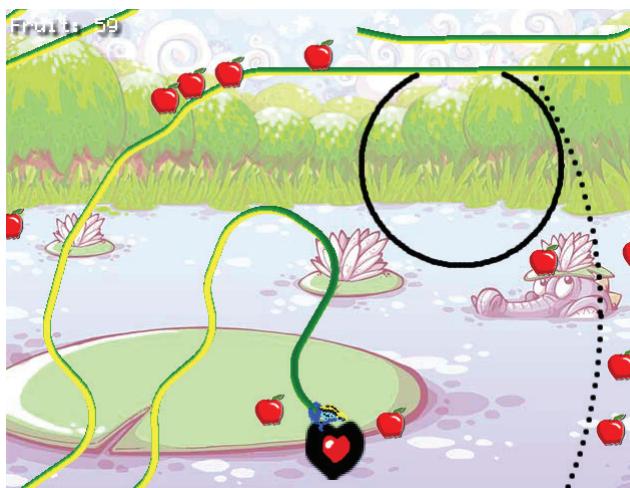
KID AND KID ORIGINS

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person is that the programmer should also be the systems designer. The programmer needs to understand the design well enough to make all the design micro-decisions that the designer doesn't specify. If the programmer doesn't understand the design, and the designer needs to step in and individually manage all these tiny decisions, that's a big cost.

The bigger cost, though, is in the speed of design iteration. You will find yourself understanding your design better as you implement it. Chances are good that you will make at least one major



FROG INFARCTIONS

course correction based on new information. If the programmer is also the designer, this can happen very rapidly, and you can hone in on a good design as quickly as you can code and test the ideas. If this process requires that the designer and the programmer communicate what is going on to each other, this process becomes much slower.

## Chase the fun

Course correction can take the form of fixing a problem that's getting in the way of fun, or revising a system that is less fun than expected, but nearly as often, it means stumbling on unexpected fun and chasing it down.

When you find that your half-implemented design is fun already, the universe is presenting you with a grand opportunity, and you need to make a choice: do you continue following your

premeditated design and hope that the future hypothetical fun is better, or do you polish and refine the fun that you already know exists?

In a larger scale game, you almost always want to do both, because you want multiple layers of fun, but in a jam game, taking the opportunity to throw away unnecessary complication and chase the known, simpler fun is usually the smart decision.

## Define your roles and the interface between them

You need to figure out the development role of each team member, as early as you can. You also need to figure out how each role touches other roles. (This is the where you begin to pay the cost of your team size.)

For example, the programmer and the artist need to figure out how the art pipeline works before either one can start on development in earnest. The artist and the level designer need to figure out how the art is going to get into the level editor. If you're all already on the same page, you might be able to just get away with dumping assets into Dropbox and hoping they eventually make their way to the right place, but chances are you're going to need to hash out some technical details.



Defining roles gets especially tricky when you have more than one programmer. If you're starting with an engine that's already big enough that you can give each programmer a domain to work in without stepping on each others' toes, then you can probably each just choose a domain and go work in it. If your engine is not big enough to do that already, you should both sit at the same computer and do some pair programming until you've defined a space for each programmer to own.

Depending on your design, it's sometimes possible for each programmer to start individually on a section of the design, and stitch them together once they're complete enough. This can work, but it drastically increases the chances that the whole project will tank. Even when everybody delivers, they almost always deliver only at the very last minute, which doesn't allow for any course-correction of the overarching design.

### Take care of yourself

You may be tempted to stay up all night to spend more time on your game. Don't. Game development

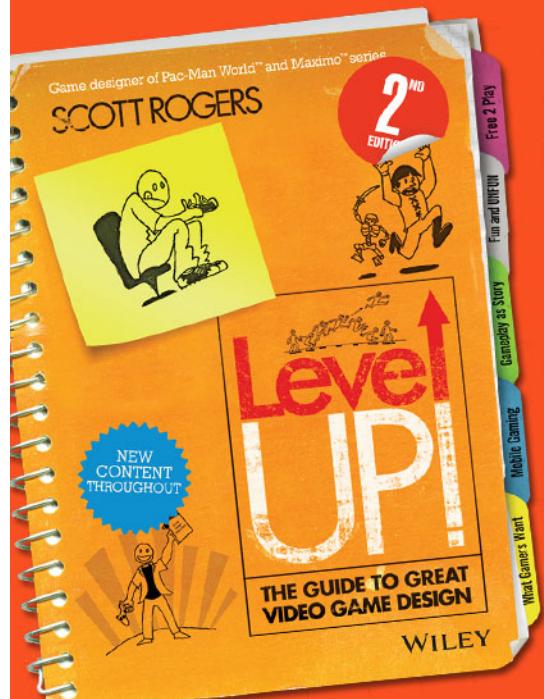
requires clear thinking, which in turn requires a good night's sleep.

Sitting all day staring at a screen will take its toll on you, physically and mentally. Take any excuse you can to get away from your development machine and do something that gets your blood pumping. If you don't already get regular exercise, you may be shocked at how refreshed you feel after a twenty minute jog.

Go get dinner with your team and talk about anything but the project you've spent all weekend focusing on. If the jam space provides on-site meals, eat them anywhere but at your computer.

You are an ape who evolved to forage for fruit and nuts on the plains of East Africa. Start acting like it.

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## Study up

If you have time, read some jam post-mortems before you start on your own jam. They will contain much of the advice I'm already giving you here, but with the concrete detail of a real-life example.

If you know what kind of game you plan to make, seek out post-mortems of jam games within that genre. Reading up on pitfalls other people have encountered while making their platformer can give you advance warning for when your own platformer is about to be in trouble.

## Longer-term projects

Believe it or not, most of these recommendations still apply when you're trying to finish your game in a year rather than a weekend. Small teams are still more efficient, familiar designs are still easier to make, time away from work is still crucial to the ability to do good work, and you will still need to cut your pet feature in order to ship before you run out of time.

Other externally-applicable lessons you will learn from game jams include but are not limited to: how to

work  
under time  
pressure; how to  
communicate with your team;  
which of your teammates you mesh with  
and want work more with in the future; how to love  
video games again.

After you've done five or six jams you'll probably be full up on most of these lessons and will begin to see diminishing returns. But the act of jamming itself will remain incredibly fun, and isn't that what game development is about?

*Jim Crawford has been making video games for over twenty years, but nobody noticed until he moved to the Bay Area and started making friends with game journalists. Since making Frog Fractions, he's told day jobs to screw off and is riding the making games train until the conductor realizes that he forgot to buy a ticket.*



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# KILLER PORTFOLIO TIPS

## THE DOS AND DON'TS OF ONLINE GAME ART PORTFOLIOS

Greg Foertsch

### **W**HETHER YOU ARE LOOKING TO GET INTO THE GAME INDUSTRY OR

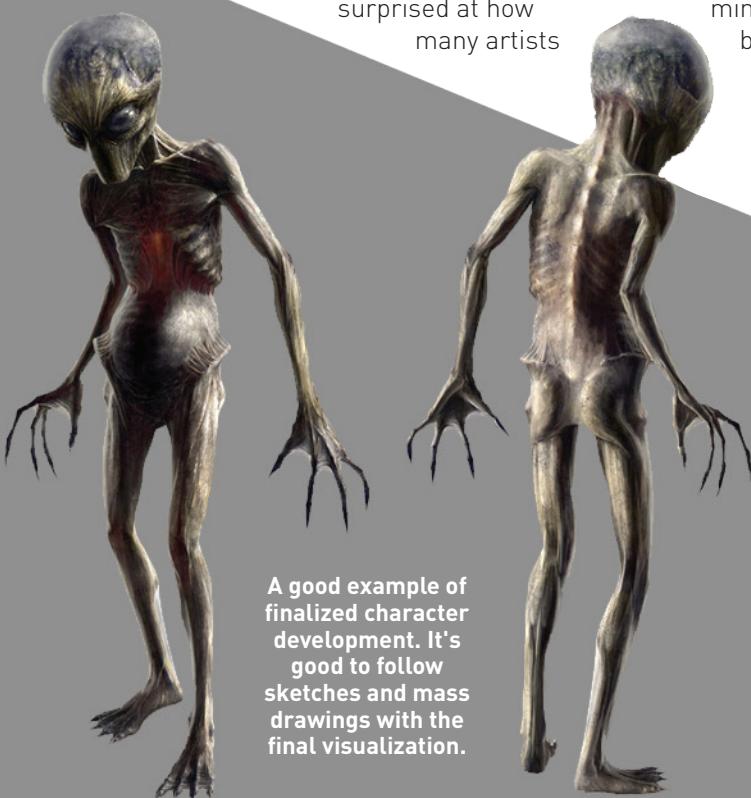
are trying to change jobs within the industry, getting a job as an artist has never been more competitive. In order to achieve your goal you need any advantage possible to stand out from the crowd. For the past several years, myself and several art directors from other studios have been a part of a panel at the Game Developers Conference on the subject of portfolio advice, titled "Killer Portfolio or Portfolio Killer." This article comprises a list of dos and don'ts that identifies some of the most common online portfolio issues we have all seen, and continue to see.

While most portfolio advice may seem like common sense, you would be surprised at how many artists

make these mistakes when creating a portfolio. The first thing an art director is going to do is look at your work. The second thing an art director is going to do is look at your resume and cover letter. In the end all that matters is the work. It is up to you to make sure that people see it.

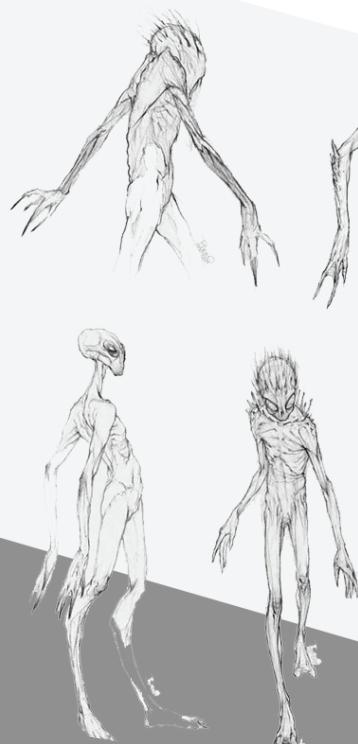
## CONTENTS OF THE PORTFOLIO

**DO:** know some of the basics for creating a killer portfolio for the common disciplines. To help, I have provided some suggestions for constructing your portfolio and common things companies look for in a candidate. Many jobs may vary slightly from company to company, so keep in mind that the information below is a general assessment.



A good example of finalized character development. It's good to follow sketches and mass drawings with the final visualization.

A great sketch book example of ideation/silhouette development and shows some thought process. This is cleanly presented and is not just a straight scan of analog media.



## Concept Artist

- This portfolio often has a mixture of figure drawing, character concepts, and environment paintings. It is extremely important that the portfolio displays an understanding of a difference between pretty pictures and useful concepts. Mood paintings are great for lighting reference and marketing purposes, but can be difficult to model from. It is often difficult for young concept artists that are influenced by this type of concept to understand the difference between loose painting and simply being sloppy. Be sure to include images that have call outs and clear descriptions that can be handed to a modeler, especially with mechanical concepts.
- Awe-inspiring creative ideation (your epic, mind-blowing, never before seen ideas) and technical execution should exist in the portfolio (your ability to sketch and illustrate so you can communicate your amazing ideas quickly and clearly).
- The portfolio should be job related. 80-90% professional subject matter (sci-fi, fantasy, et cetera), and 10-20% personal/fine art (and only if

you feel your figure drawings and plein air paintings are awesome).

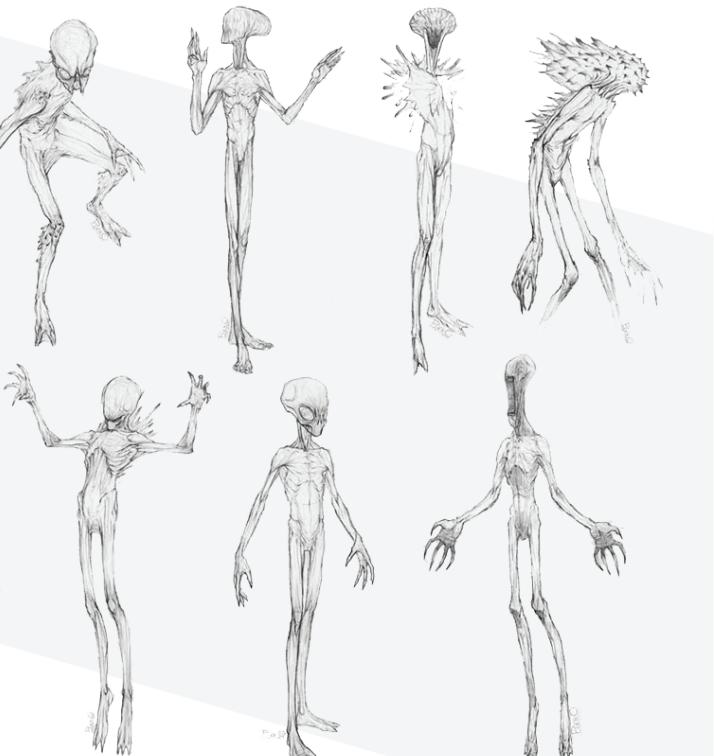
- If possible, show a stylistic range, but focus on the style you're best at (hopefully it's applicable to the studio you're applying for).
- Sketchbooks and thumbnails that demonstrate your thought process and the evolution of your ideas are great to see.

## Environment Modeler/Prop Artist

- With every aspect of environments, try to imbue them with "maximum character." Unless you can make a crate epic and interesting, there's no sense in trying to make a statue, building, or shrine.
- Hi-res and Low-res images are very helpful because they demonstrate process and technique. UV layouts are extremely important, so it helps to see texture sheets for objects.
- Include some environment renders from whatever engine or 3D package you may be working with, that show a good understanding of how all the objects in an environment harmonize together through color, value, and lighting. It is also helpful if the scene references a concept image, so it is clear that you can translate 2D to 3D.
- Provide scenes like a corner of a room that contains a few objects. This shows your models are cohesive and you understand the context in which the model is being used.
- Include images that display the ability to work off concept and adapt. There are situations when concepts may not be ready; so find a photo of a grainy and out of focus image and make a portfolio piece from it.
- Show your work in a few different ways (i.e. as a lit money shot, orthographic view, and an un-textured model to show off the modeling)

## Level Builder

- Many studios do not make a distinction between level builder, world builder and environment artist.
- The level builder is a bridge between design and art.



Most of the level builder's time is spent in the game engine, but they will also have the chops to crank out some models when the need arises. Show game engine knowledge -- any game current engine is fine.

- Tell a story within the space.
- Display an understanding of how to make a building feel like a real space, and not like a bunch of random shapes that have been dumped down to create a paintball field.
- Display an understanding of playable space. How do you make a player move around your space in an interesting fashion?
- Look up! Use that third dimension everyone is going on about all the time.

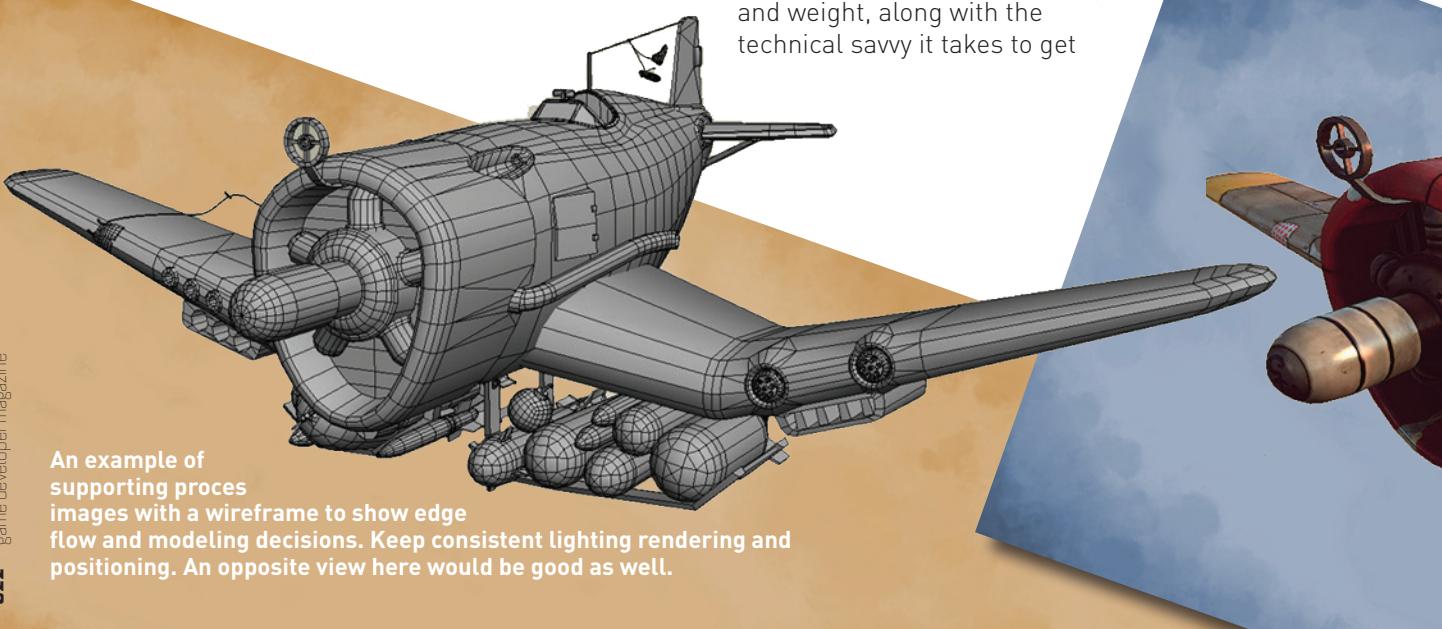
## Character Modeler

- Figure drawing is important, to be able to show a clear understanding of weight, gesture, and proportion. Knowing how to express anatomy in 3D is also essential.
- Show the side view of a character model. It is almost always neglected in lieu of the front or back view, but this immediately shows if the applicant understands weight and form.
- UV layouts and texture sheets are important to see here as well. These texture sheets should show painting skill, as well as a good understanding of color theory, physically-based rendering and modern shader knowledge.

- It is also helpful to see the concept image for the character, so it is clear that you can translate 2D to 3D.
- Demonstrate awe-inspiring creativity with the character work and a solid understanding of anatomy, construction, gesture, and the like.
- Show something unique that hasn't been seen in a game before. Display not only technical chops, but a unique vision.
- Many studios look for character modelers with strong traditional (drawing and painting) character art and illustration backgrounds, and a strong understanding of digital modeling/sculpting pipelines.
- Show a range of work that includes both stylized and realistic pieces, humanoids, creatures, robots, monsters, aliens, and so on.
- Pose and light your models. Gesture is important, and T-Poses never look as awesome.
- Show how you translate a concept to sculpt; show your clean low poly models, texture pages, efficient UV layouts, and final mapped asset.

## Animator

- This position requires a strong sense of character, timing, and weight, along with the technical savvy it takes to get



An example of supporting process images with a wireframe to show edge flow and modeling decisions. Keep consistent lighting rendering and positioning. An opposite view here would be good as well.

your animation working in a real time environment.

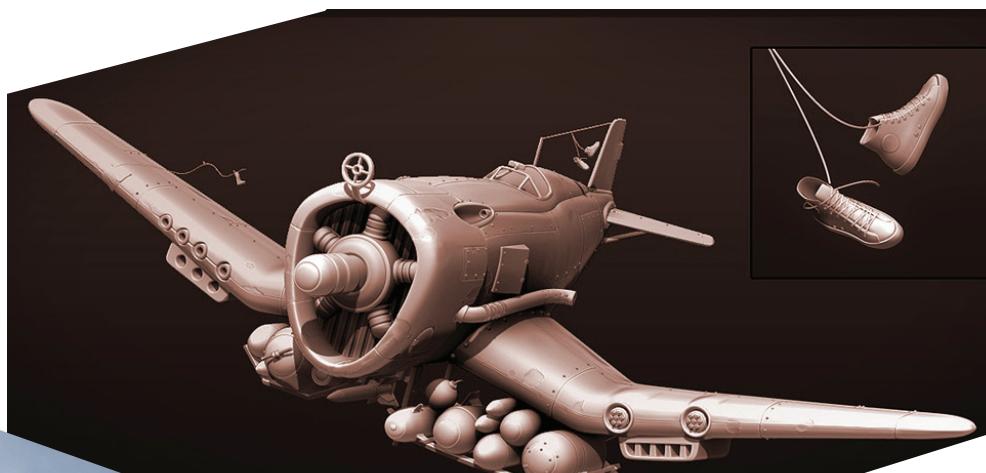
- For a junior position, previous experience isn't so important, but your reel really needs to stand out. Animation Mentor portfolios provide a good base-line of the competition.
- The ideal reel shows both action and acting.
- Show strong and expressive character acting that includes dialogue and lip syncing work.
- 11 second club reels are great because they show your ability to make dialogue interesting.
- Don't worry about trying to be a character modeler with a complex model. Keep it simple and potentially use a free model off the internet. On the other hand, poorly modeled character can distract from your animation.
- Use a good free rig. There is no need to make your own, a poorly made rig can cause your animation to suffer.
- Show strong gameplay animation samples within reasonable time frames (creative runs and walk cycles, deaths, attacks, transitions, fidgets, and so forth).

## Effects Artist

- Effects artists need a strong understanding of modern game engines and how to efficiently achieve a wide range of effects efficiently.
- Show a lot of range; realistic fire, smoke, and sparks along with creative stylized magical effects, epic explosions, and

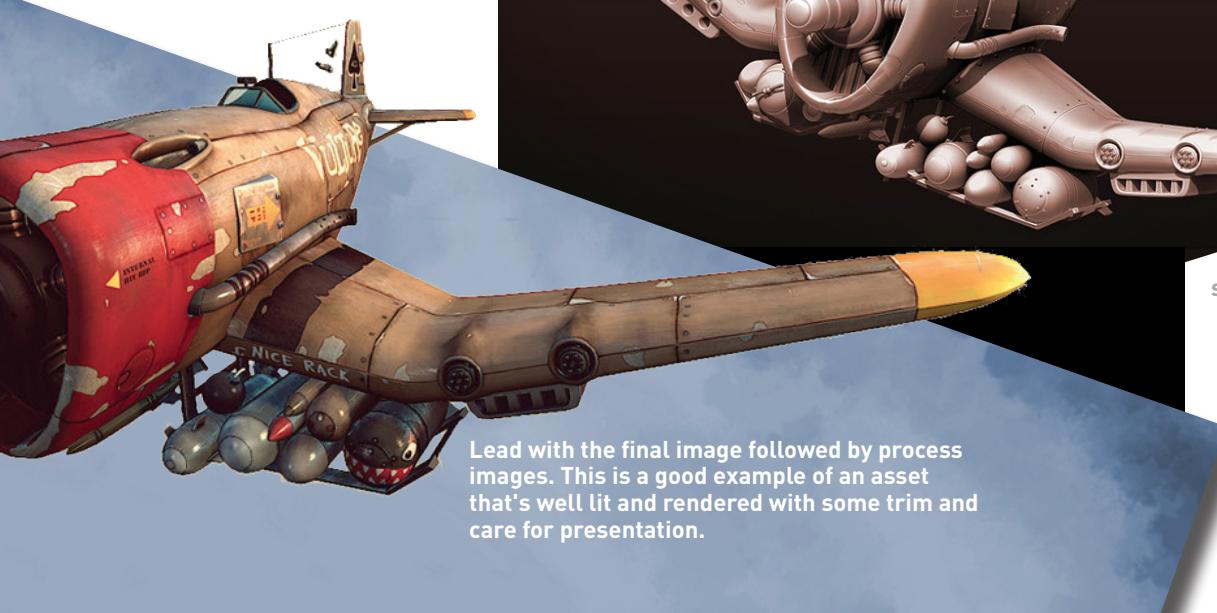
really over-the-top never-before-seen stuff with an eye toward keeping it within a performance budget.

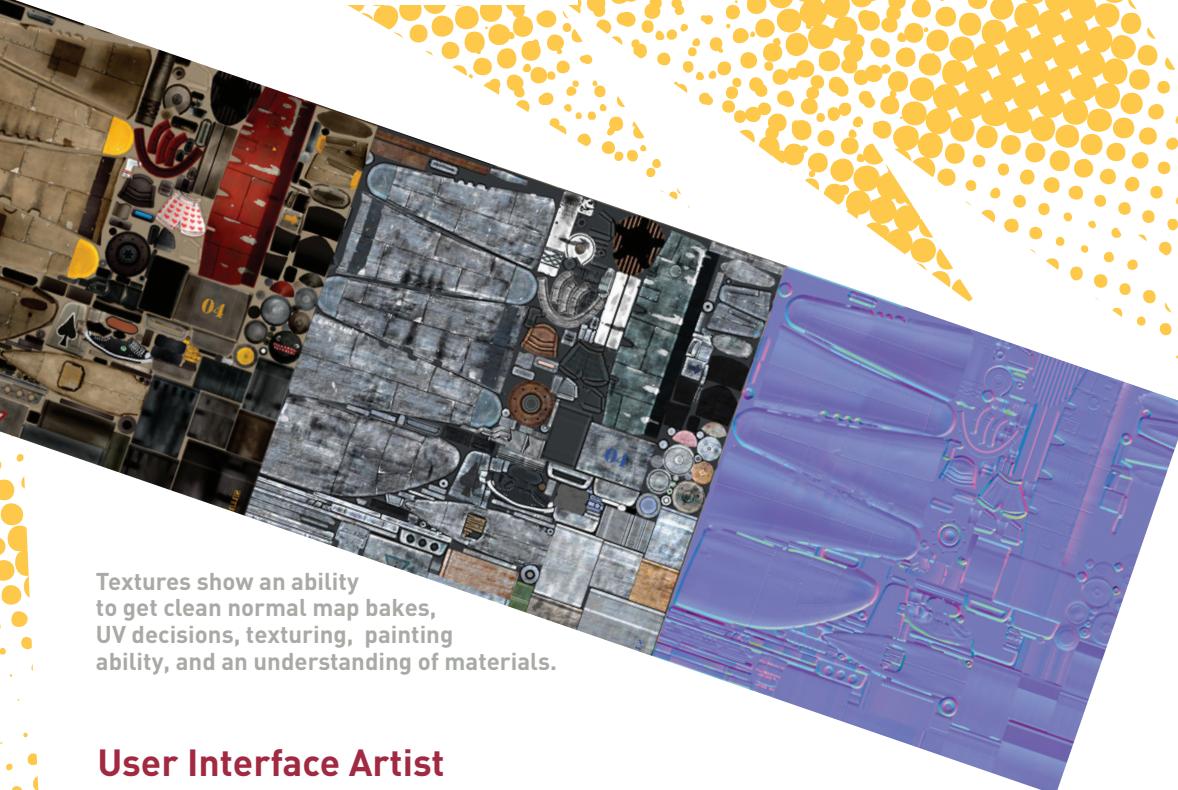
- Put your effects in context with a character and/or in an environment.
- Effects artists are like musicians, with an amazing eye towards the visual tempo, rhythm, and timing, of their effects. Make sure even your simple campfire effect shows this.
- Show flip book sheets or texture pages.
- Include your effect rendered at 1/10 speed so people can see how the effect is constructed.



Lead with the final image followed by process images. This is a good example of an asset that's well lit and rendered with some trim and care for presentation.

An example of supporting process images with a high poly model. Keep consistent lighting rendering and positioning. An opposite view here would be good as well.



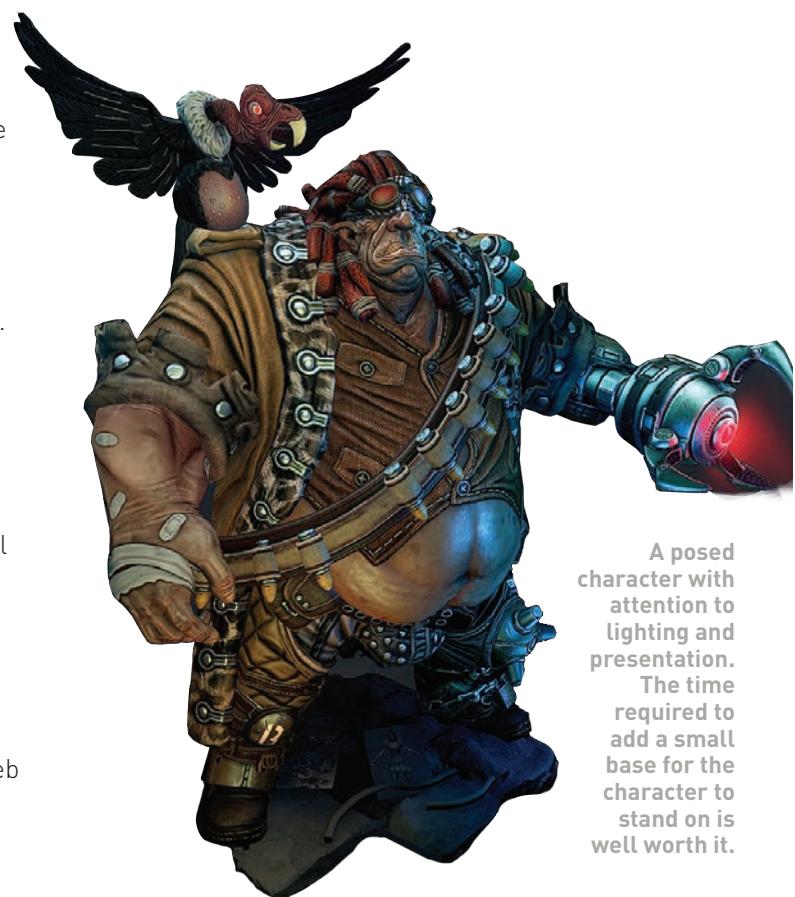


## User Interface Artist

- Most UI candidates display a graphic design background with experience in traditional illustration, typography, user experience, and web design.
- Motion graphics have become an important part of this portfolio. Static icons and layouts alone are not enough. Motion is a big part of UI.
- Add sound effects to your UI. Audio cues are extremely important to UI and can help reinforce your art.
- Process images in this portfolio are a good idea. Seeing how a layout developed can be very useful. Consider putting it in its own section of your site.

## Tech Artist

- Tech art positions are probably the jobs that vary most between studios, and are therefore a little more difficult to define.
- These portfolios need to display a sound technical understanding as well as a fundamental art background.
- Tech artists generally break into a few different categories, and can fall under the art or engineering departments, depending on the studio. They include things like; Rigging, Maya tools (python), Max Script, Custom tools (C++), Web development tools, and Shader development.
- The ideal portfolio should display the tech and mechanics with the artistic result.



## EDIT THE PORTFOLIO

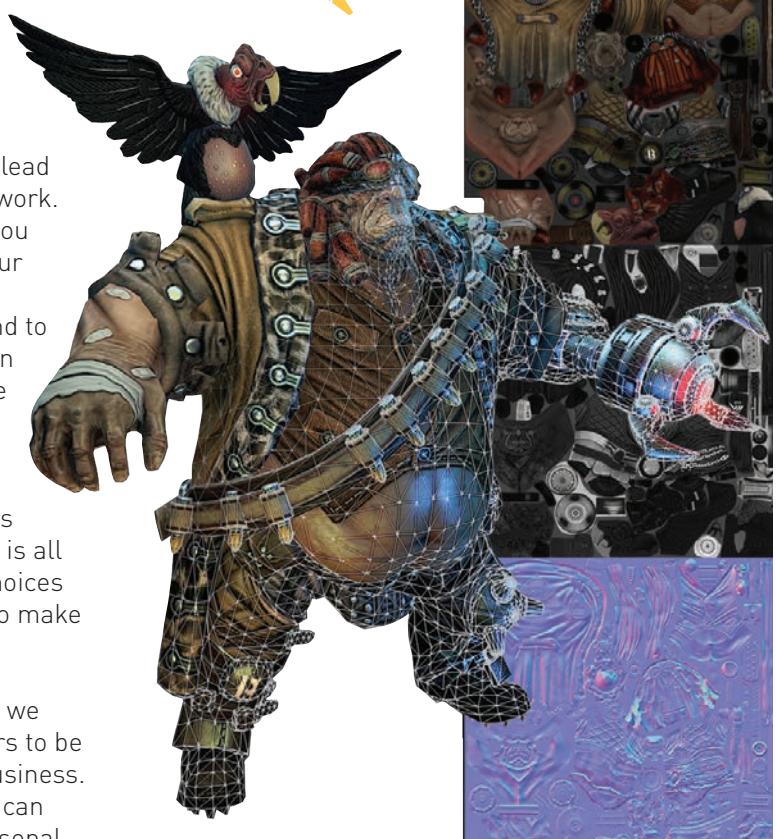
**DO:** edit your portfolio. This is the single biggest mistake made by nearly all artists. The saying that “less is more” is absolutely true. Regardless of experience level, most artists have a difficult time removing something they have poured blood, sweat, and tears into. If you are just trying to break into the industry, there is pressure to show everything you have to prove you have the chops.

The desire to get your foot in the door can lead to poor decisions regarding how to cull your work. By leaving a sub-par piece in your portfolio, you can introduce doubts and questions about your abilities and your capability to judge quality. Veteran artists have the same issue. They tend to feel the need to include work that is five to ten years old, if not older. Quantity does not prove proficiency. Make sure that the tech reflected in your portfolio is relevant to the job you are looking for. The ability to self-edit is one of the most important qualities that art directors look for when hiring an artist. Being an artist is all about making aesthetic decisions, and the choices you make in your portfolio show your ability to make those decisions.

**DON'T:** use inappropriate subject matter. Yes we are artists, and yes the game industry appears to be pretty liberal, but don't be fooled, we are a business. Including erotic or overly sexualized imagery can cost you a job opportunity. Your work and personal work should always be relevant to the job you are trying to get. You don't know who is going to see your work, but there is a good chance the first person reviewing your portfolio is not an artist. It simply isn't worth offending someone, especially if the work isn't even relevant to the position.

**DO:** consider including process, but not necessarily iteration. For many disciplines, process images are helpful. These are the images that help someone understand your creative decision making. Iteration typically shows tweaks or variation, and can clutter your site, so be sure to know the difference. A good example would be showing character silhouettes, to rough drawing, to final color pass in a concept portfolio.

**DON'T:** spread your focus too thin. Despite what you may have heard, larger development studios don't



A nice example of displaying your texture sheets with your model, while also displaying your wireframe in a well-lit and well-presented format.

initially look for entry level candidates that are okay at a lot of stuff, but not great at anything. They will typically look for people to fill specific roles. In school, you try many different aspect of game development, which you should. That does not mean that you should include all of those areas in your professional portfolio. Figure out what you love to do and tailor your portfolio around that. For example, if you are a character modeler, don't show your character that isn't skinned very well or poorly animated. All this will do is distract the viewer from your awesome character. Just show your character and the things that are relevant to it, such as the high poly, low poly, and texture sheets.

## PRESENTATION OF THE PORTFOLIO

**DO:** put a lot of thought and effort into the presentation of your portfolio. There are tons of great professional portfolios out there on the internet. Find other portfolio sites like that you like, and consider what they have done when creating your own. You should also clearly make the distinction between your student portfolio and your professional portfolio. Now is the time to remove old school projects that aren't relevant to the job you are seeking. If you are using scanned images from a sketch book, straighten them up and level out the values. Consider using a consistent background color for your images or a standard trim around them. A well-presented portfolio can make a good portfolio look great, just as a poorly-presented portfolio can make great work look average.

**DON'T:** make your portfolio difficult to navigate and access. In most cases you will have seconds to grab an art director's attention. Slow load times, strange

codecs, complicated layouts, and large file sizes can keep great work from being seen. Also minimize the number of clicks it takes to get to the art. Nesting things too deep can take more time from the reviewer, which they may not have. To that end, be considerate when using flash to build your site. Unless you are looking for a job that requires flash, maybe UI, all it does is keep an art director from getting to your work faster. If you need to password protect confidential imagery, just do it for a particular gallery and not the entire site. It is also a good idea to test your site on multiple browsers (Firefox, Chrome, IE, and Safari). Finally, ensure your website works on a smart phone. More and more frequently, this is where people are going to view your work.

**DO:** include your contact info and name on all of your



A great presentation of a sculpt from multiple angles. This is much better for viewing than a turntable reel. Additionally, it shows the profile view, which is where you can see how the weight is distributed through the character.



images. This is a relatively simple thing but is frequently overlooked. You may not even be looking for work, but your image may be seen by someone looking for you.

**DON'T:** choose a reel to showcase your work when stills are more appropriate. If your work involves motion, then a reel is appropriate. If you are displaying a character, object, or environment, stills are the best way for someone else to evaluate your work. Turntables and flythroughs can look flashy, but make it very difficult for someone to evaluate your asset and the choices you made when creating it. If you are an animator or effects artist, keep your reel to ninety seconds, and don't forget to consider the pacing of your shots.

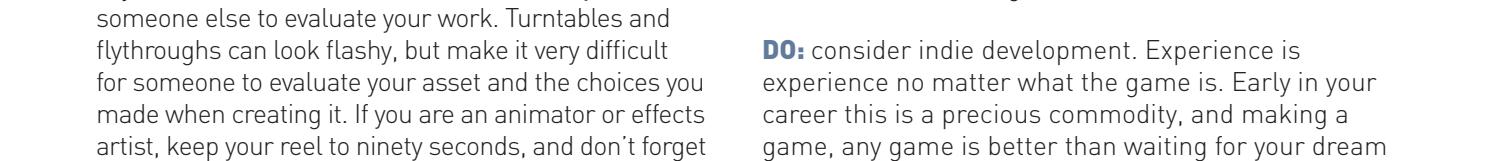
**DO:** keep your credits professional. This is another important step in making the change from a student portfolio to that of a professional. While it is great that your girlfriend/boyfriend and your parents have supported your art, this just isn't appropriate to be in your professional reel. You should, however, be very conscious of crediting others that have had a hand in your final art and specifically listing what you did (concept, modeling, texturing, lighting, animation, or effects).

**DON'T:** choose distracting music. Music that doesn't match the mood or tempo of your reel can be a distraction from the most important stuff; your work. This also applies to web sites. Be sure that the audio choices you make enhance the experience and don't take away from it.

## PRESENTING THE ARTIST

**DO:** use social networking to your advantage. Twitter is a fantastic way to connect with the industry and other professionals. I know many art directors that use Twitter, Polycount, and other professional forums to find and follow other artists. There are many Twitter accounts that post job listings before anyone else hears of them. Online competitions are also a great way to raise your visibility.

**DON'T:** assume that your thoughts and comments are private. The things you say on professional forums live forever, and can either negatively or positively affect your reputation. Always conduct



yourself professionally in critiques and other online interactions, including Twitter and Facebook.

**DO:** consider indie development. Experience is experience no matter what the game is. Early in your career this is a precious commodity, and making a game, any game is better than waiting for your dream job and not making a game. Making games has never been more accessible, so take advantage of it.

**DON'T:** list that you are an expert in every software package available. If you are lucky enough to get an interview you will more than likely be questioned on it, so be honest.

**DO:** an art test if it is asked of you. These are very common and should not be taken as a slight of your artistic prowess. The company is not only assessing the results of your test, but how you process critique and your ability to solve problems. Most reputable companies will set reasonable time constraints on any given test.

## Onward, to victory!

In closing, keep in mind that many artists that have worked on some of the most influential games ever made were turned down for jobs. DON'T get discouraged. We have all gotten rejection letters, but don't let that stop you. Look at what is out there and understand the quality bar. Then keep trying to get better, because that doesn't stop once you get the job.

*Greg Foertsch is a veteran of the game industry with more than 19 years of experience. He is one of the original members of the Firaxis Games team and has directed and created visual content for more than eighteen games, including the Sid Meier's Civilization series, Pirates! and Railroads! As the driving force behind Firaxis's internship program, as well as teaching college level courses, Greg has been responsible for the education, training, and advancement of young game developers. Most recently, Greg was the art director on the critically acclaimed XCOM: Enemy Unknown and is currently working on an unannounced game.*

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# 2D

# ANIMATION BASICS

ANIMATION IS TOUGH. NO MATTER WHAT IT IS YOU'RE ANIMATING, WHETHER IT'S A FILM, MUSIC VIDEO, OR A GAME, THERE'S NO GETTING AROUND THAT ANIMATION IS A SLOW, LABORIOUS TASK. BUT HOW DOES IT DIFFER FOR GAMES?

Mariel Cartwright

Animating for a game requires a certain understanding of game mechanics and how games work. You would think that goes without saying, but a surprising number of fantastic, traditionally trained animators have a hard time working within the restrictions that game animations require. And to be fair, it's certainly not easy to suddenly have technical restrictions to an already difficult art!



Skullgirls



Figure 1, silhouettes from *Skullgirls*.

*Skullgirls* is the game I've been lead animator on for five years now, and in those years of animating it and many other games, I've learned a thing or two about game animation that I think can help someone approaching game animation for the first time.

#### SILHOUETTE AND KEYS

Every artist should know the importance of silhouette, but in games, silhouette is especially important because your characters need to be readable in an instant. Keep in mind the kind of game you're creating; a top-down game is going to require different posing than a sidescrolling game, so make sure that however your characters are being viewed, the silhouette is clear. When starting to animate, your keys should be strong and your animation should be understandable even from a very rough stage. If your character is delivering a punch, you need to see her fist, and if she's blocking, it needs to read immediately as a defensive stance.

Remember to push your poses as much as possible. You want iconic, easy to read keys no matter what your character is doing. A lot of times games will have to move fast, and you don't want your player to misunderstand anything that's happening.

Here are a few examples from *Skullgirls* that I'd consider good silhouettes. You can see in these examples that even though they're not doing straightforward punches or kicks, their posing and motion is very clear at a glance, so there's going to be no trouble understanding what they're doing.

When you're inbetweening your animation, remember to emphasize your keys as much as possible. I typically don't have enough frames to make my animations as smooth as I like, so instead I have to focus on making the animation read, which means focusing on the keys. Try spacing your inbetweens closer to your keys to help them read more. The resulting animation will also read as snappier.

#### ANTICIPATION

Anticipation isn't just one of the 12 principles of animation, it actually serves a specific purpose in games: good anticipation telegraphs the movement someone is about to do, which is gonna be necessary if you want to dodge the punch an enemy is about to throw at you. Alternatively, when you're playing a game, your character may need to have very little anticipation so you can get that jab in before the enemy does. Knowing how your game works and what each character requires is going to change how you approach her animations. And

without having any anticipation at all, you basically have no idea what movement a character is about to make! Anticipation is what gives your move contrast, which helps make the animation read. Even if it's short, I think having something to indicate winding up before throwing your punch helps give it impact.

In general, you want your player characters to respond fast and your enemies to have more anticipation so the player can react. For players, this can mean that in order for your animation to feel responsive to a button press, you may need to animate the move executed faster than you'd normally assume. Enemies, on the other hand, need very distinct anticipation and longer windup. The specific timing of each, of course, depends on your game, and as always having distinct poses and silhouettes is the key to making it work, but in general, knowing this can give you a pretty good idea of how to start approaching game animations.

This move featuring the Skullgirls character Squigly is only six frames, not including the idle frame (see Figure 2). Even though she's a weird

“

*In general, you want your player characters to respond fast and your enemies to have more anticipation so the player can react.”*

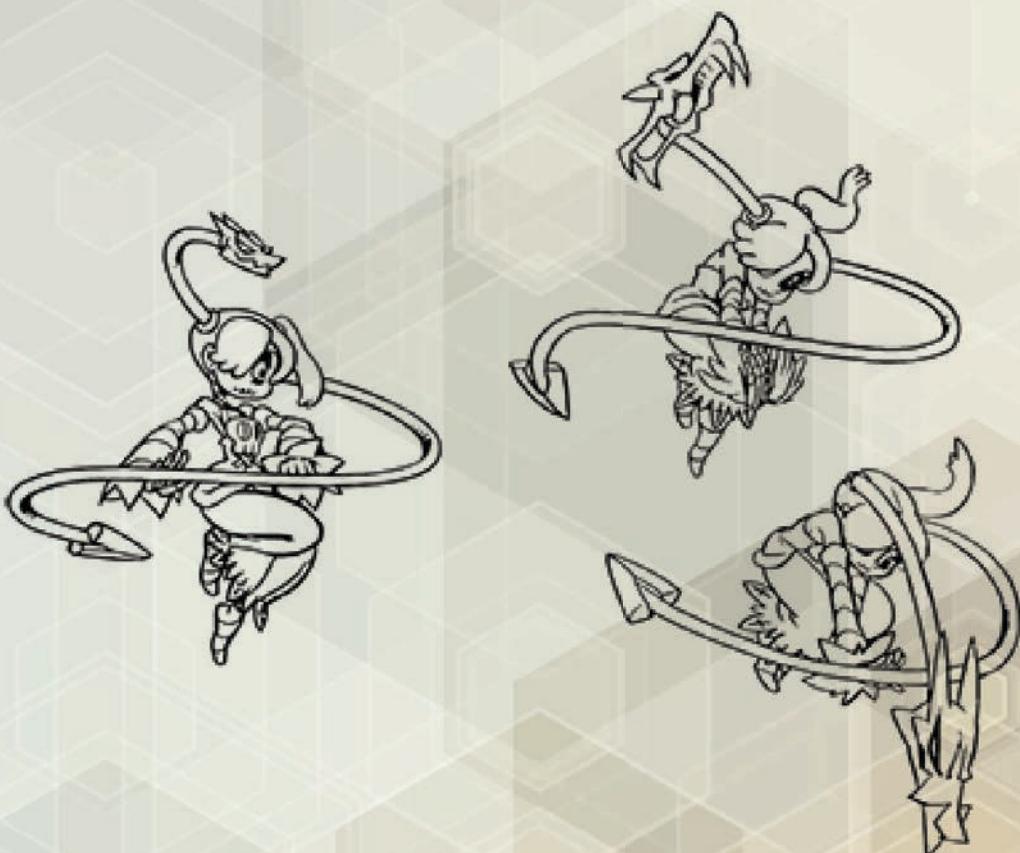


Figure 2, anticipation with Squigly.



**Figure 4, smears.**

looking character, I think just having that one frame of her dragon-snake Leviathan opening his mouth real wide before smearing and snapping shut helps make the move read. You don't necessarily see him opening his mouth, because it is only one frame, but I think you feel it, which is what's important.

#### FOLLOWTHROUGH AND SMEARS

So let's say you have strong keys and your designer said you have only so many frames to execute an animation. You can use followthrough--

that is, stuff like hair, clothes, a big billowing cape--to fill in the gaps created by widely spaced keys. Even if you're looking at a single frame of animation, seeing where your character's clothes and hair are flowing from gives an indication of the movement she just made (see Figure 3).

It's also very effective in a case where your player character has to go to the active key of her animation immediately. You can have her go straight into the key, and having her hair and clothes catch up afterward will help smooth over the entire motion.

Smears are another fundamental part of animation but are incredibly useful in games. Smears will also help you close gaps if your keys are widely spaced, and can help fill in missing information. We're all used to seeing a smear follow a huge sword swing in games, but we can also utilize them in our character animation to good effect. I know in the games I've animated where framecounts are limited, they've been absolutely necessary.

Like followthrough, with a good smear there is actually a lot of information in a single frame: there is the current pose, where they came from, and where they're going. Smears can also be rendered in a number of different ways, with a few examples in Figure 4. You can definitely have fun



**Figure 3, followthrough.**



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**Figure 5, overshoot.**

with smears, as there's no one way to make them "right," as long as the overall motion reads.

#### Overshoot

Overshoot is something I've found really amps up your animations if you're animating a straight move, like a punch. It doesn't quite work in swings though; that's what we have smears for. An overshoot is a frame of the animation that reaches past your main keyframe to give it a bit more snappiness. I think it should be obvious that when you animate an attack, you don't want to ease into the attack frame, otherwise the hit will look weak. Having the motion reach a bit further for a split second before settling into the main key will help give it a bit more strength.

You can see in Makoto's animations in Figure 5 that right before hitting her attack key, she has one frame where she overreaches and then pulls back, and it helps it read as a stronger impact. What they've done with the sleeves is also helpful, as the delay of the sleeve and the

overreach of her arm provides an interesting contrast before getting to the main key.

#### TIMING

Work with your designer. Get used to hearing things like, "I need the player character's fist to hit here on this frame." That may sound daunting, but if you have strong keys and focus on building toward and emphasizing them, it's actually not so bad. If possible, it can help to make sure your game is playable with just the key or rough animations so your designer can hammer out making the game feel good and responsive before filling out the animations with inbetweens. Whatever your method though, remember that good gameplay comes first, and as a game animator, your job is to create animations that best serve that gameplay. Even if you can create animations that are fluid and beautiful, it's not going to make your game any better if they don't work with your game.

A thing I hear a lot with animators starting out in games is that they don't know how to get to a key without the appropriate about of anticipation-- say, jumping without throwing your weight down first. That's simply something you're going to have to work around in games, and there are certainly ways to still make your animation look good without it. Try focusing on your followthrough animation-- that is, stuff like hair and clothes-- and let it sell the motion you're trying to make. For example, if you're creating a jump and need to be in the air pretty immediately, animate your character's body going into that key as fast as it needs to and have her hair and clothes catch up to her as she hits the apex of the jump in order to "fill in" the rest of the motion. You can also use smears effectively to close the gaps between widely spaced keys. Game animation doesn't have to be restrictive if you know how to work within the limits.

Learning how to animate effectively for games is something that simply has to come from practice, and as animators it can be a little frustrating to have some of what we know thrown out the window for the sake of gameplay. Despite that, I've always



Skullgirls

found it incredibly rewarding to see my animations working well with a game, and there's nothing quite like seeing other people enjoy it too.

*Mariel Cartwright is lead animator at Lab Zero Games and their fighting game Skullgirls. She has also worked on titles from companies like Ubisoft and WayForward. Contact her on twitter at @kinucakes.*

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# A PLATFORMER IN UNITY

**A TUTORIAL TO MAKING YOUR FIRST SIMPLE UNITY GAME**

Byron Atkinson-Jones

Are you ready to make a game in Unity? I'm going to show you how to create a very basic platform game using only what's available in the free version of Unity – you won't need anything else.

If you don't already have Unity installed, now might be a good time to get it. You can find it here. <http://unity3d.com/unity/download>

We'll go through this game step-by-step, with pictures along the way, so you can see what's going on at each stage. I recommend you save at every step, so if you make a mistake you can go back to a previous point and carry on.

I'm using a Mac version of Unity, but even if you're using the Windows version, you should be able to follow along without any real difficulties.

## **Step 1 – create a new project for our game.**

We need to create a new Unity project. Unity should start up with the option to load a project or create one. Select the option to create one and set the path and name to something you will be able to find.

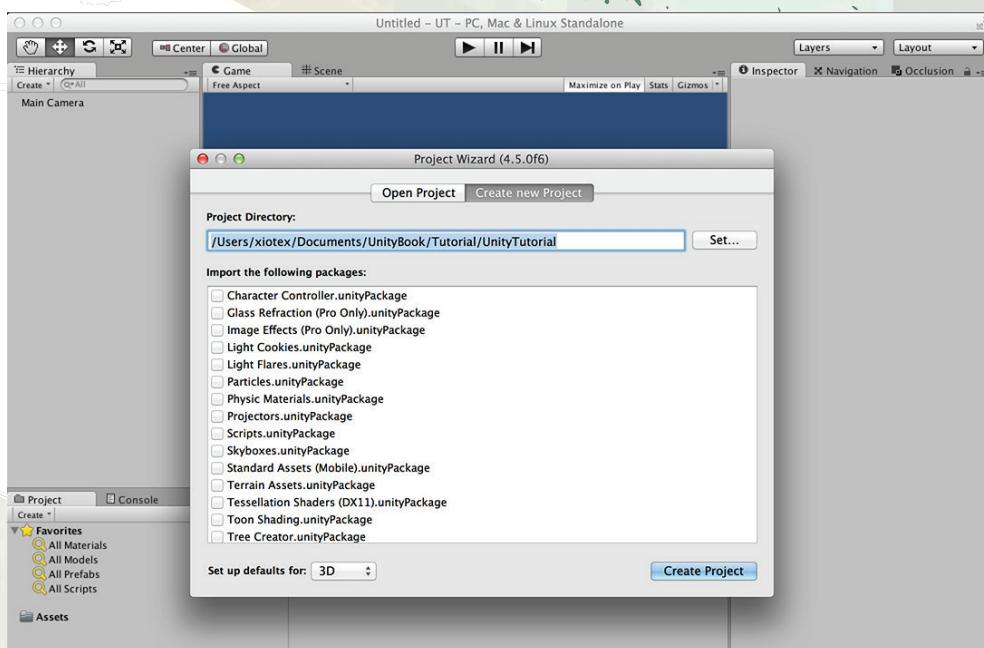


Figure 1

## Step 2 – create the first thing in our world, the floor.

The first thing we are going to create is a floor that the rest of our game will take place on. Create a cube by going to the menu and selecting the GameObject option. In the sub-menu that pops up select “Create Other,” and then in the next sub-menu, select Cube.

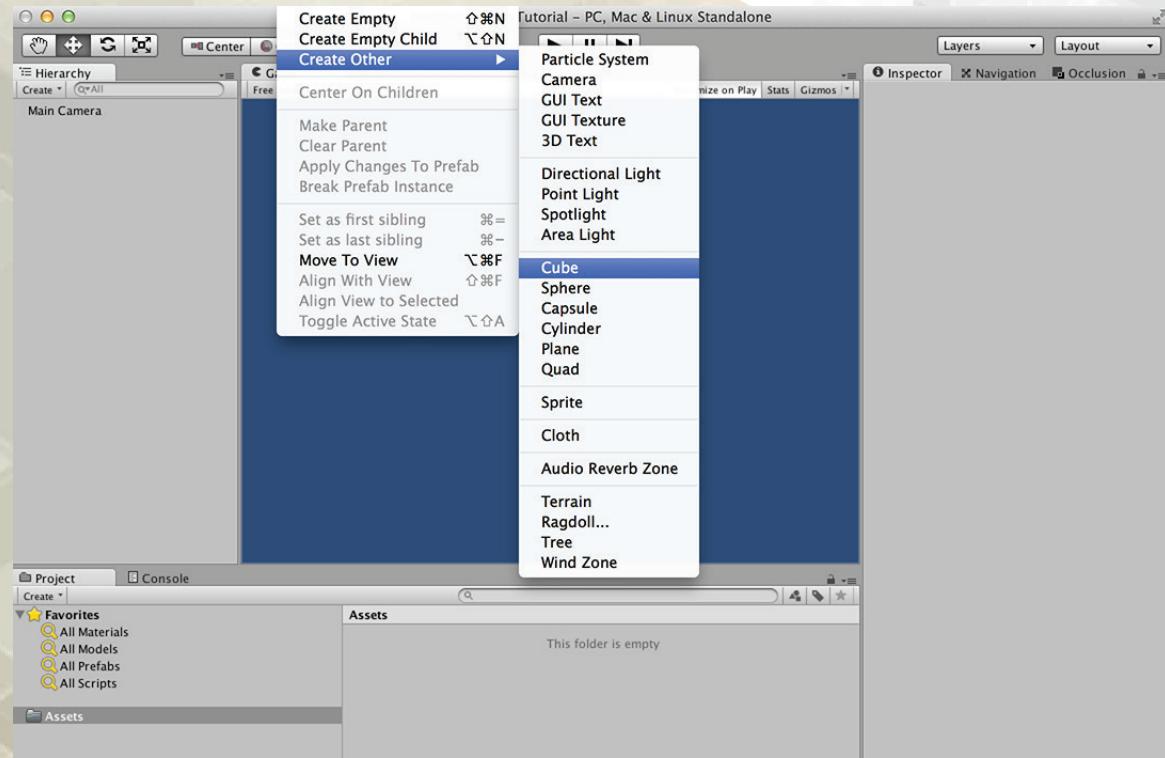


Figure 2

You should now have something that looks like image 3.

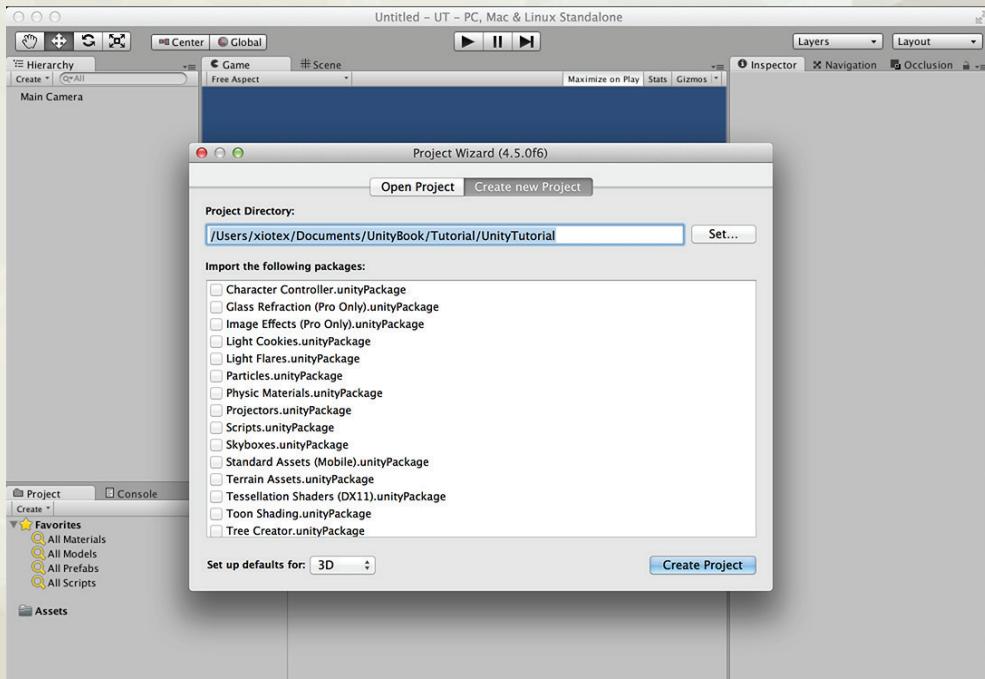


Figure 3

You'll see that the two tabs above the central window are labeled "Scene" and "Game." Let's take a look at these.

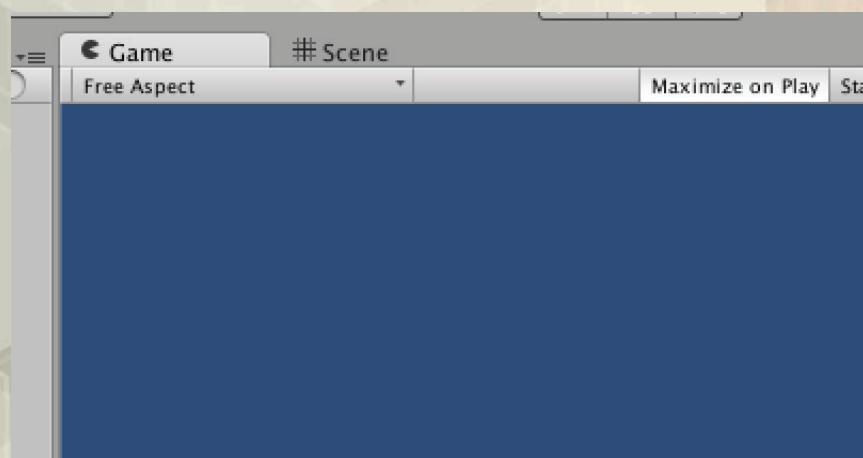


Figure 4

Using the scene view is a bit like being a director of a film; you can walk around the stage our game is set in and take a look at everything. The game view is the view through the camera, and what the player will see when playing our game. Have a go at clicking on both to see what's there, and when you're ready to continue, click on the scene view tab.

### Step 3 – making the floor a bit larger

See the word “Cube” in the “Hierarchy” view on the left?

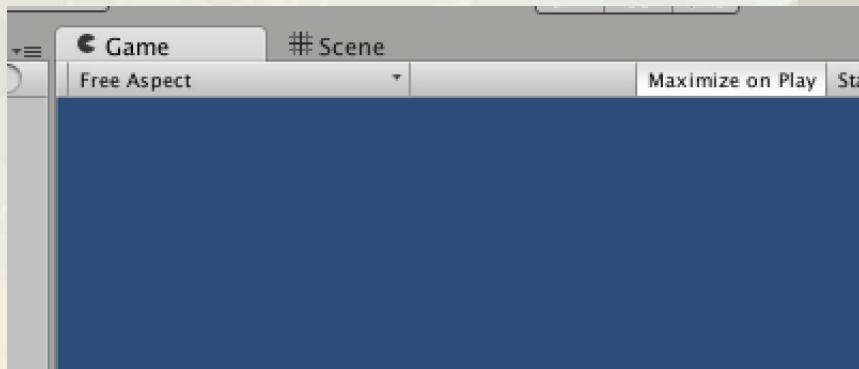


Figure 5

Click on “Cube.” It should become highlighted in blue. That cube is the one we just created and we need to do some things with it. Before you can do that you need to select it. Just like the Scene and Game view, the Hierarchy view is a representation of everything in our game – just in an easier to access list form.

We need to change the name of the cube to something a bit more meaningful. See the view all the way over to the right called “Inspector?” That’s where all the properties of our cube can be seen and changed.

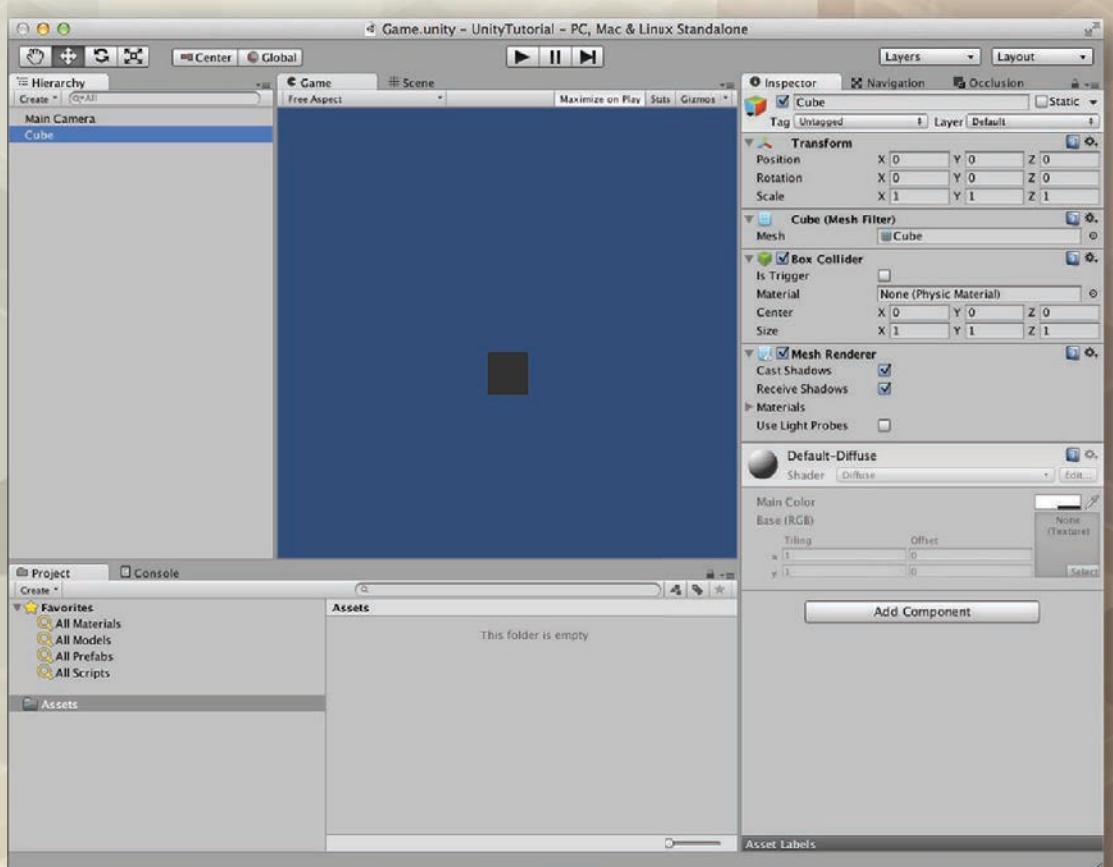


Figure 6

There's a whole bunch of useful stuff in there. Starting from the top, we have the name.

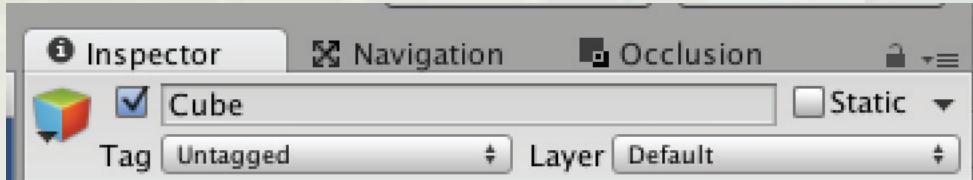


Figure 7

In fact, while we are looking at the name, click on the word "Cube" in that small box, which should highlight blue, and when it does, hit the delete key on your keyboard and type in "Floor" – but without the quotes! Press the enter key on your keyboard once you've done that to get Unity to accept it.

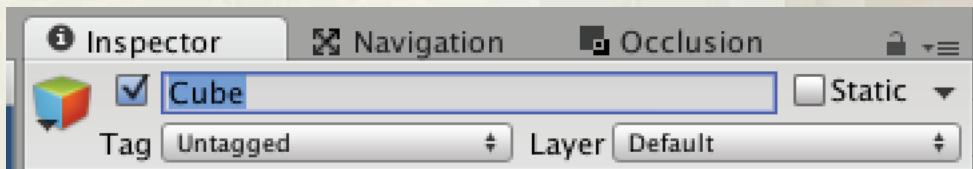


Figure 8

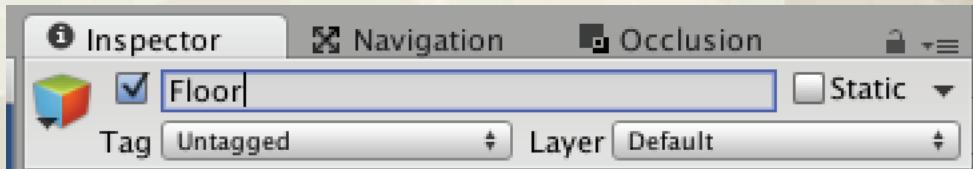


Figure 9

If everything went okay your screen should look like Image 1. Notice how the "Cube" in the Hierarchy is now called "Floor" – you just renamed the object to something a bit more meaningful to our game and created the start of the floor.

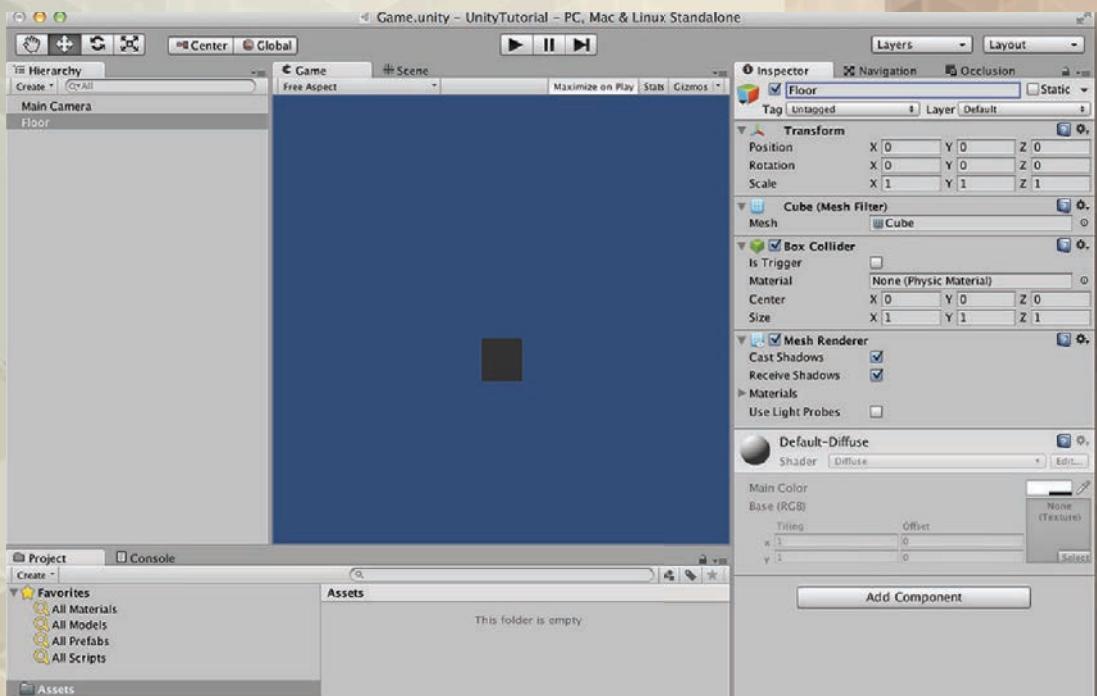


Figure 10

Our floor isn't finished yet though; we need to give it some size. Making sure the Floor is still selected, go back to the Inspector and look at the bit marked "Transform."

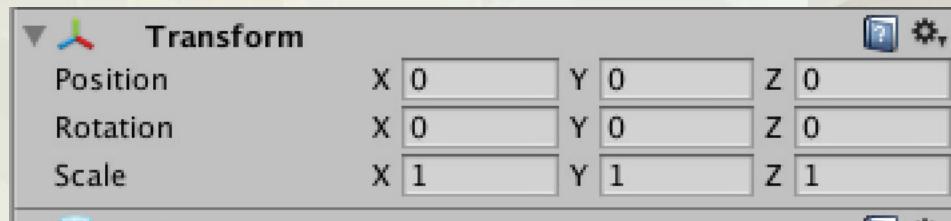


Figure 11

Your screen should look like Image 11. If it doesn't, click into each of those boxes and replace what's there with what you see in the image above.

See how the Scale numbers are 1,1 and 1? Change them to 10,1 and 10.

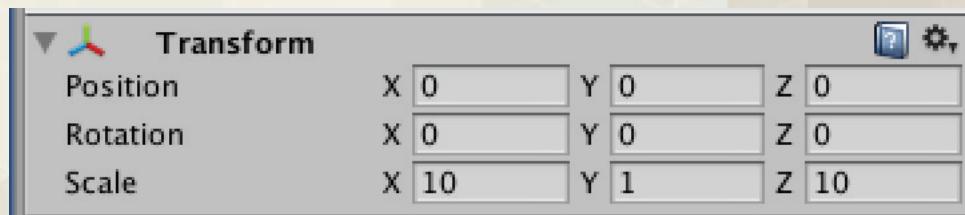


Figure 12

You should notice that our floor has suddenly grown in size!

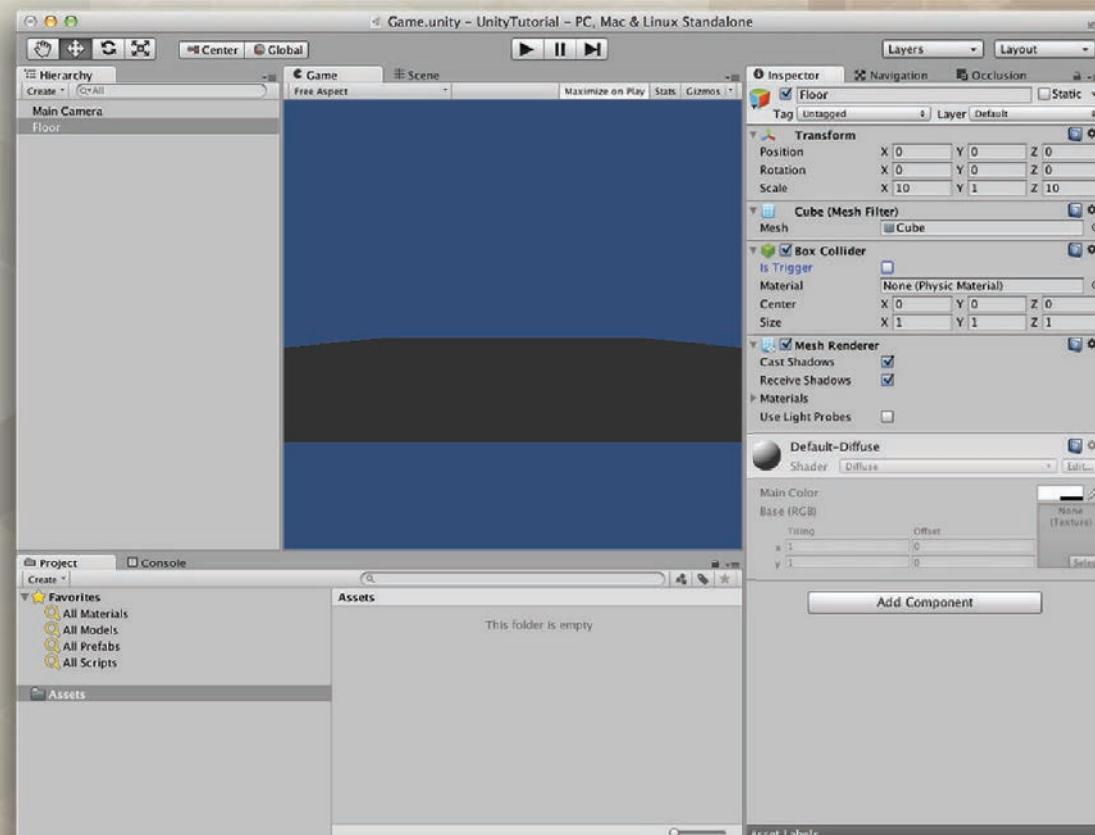


Figure 13

So what does the “Transform” do?

To start, the “Position” is the location in the scene where our Floor is, well, positioned. It has three numbers that make up this location – X, Y, and Z. If you have a go at changing X you should see that the floor moves left and right. If you change Y it will go up and down, and if you change Z it will appear to get larger or smaller – what it’s actually doing is getting closer and further away from the camera. We call X, Y, and Z a three-dimensional axis, or 3D for short. So “Position” is our object’s 3D position in space.

The second line in the transform is “Rotation,” and just like position, there are X, Y, and Z values. This time if you play around with these by inputting different numbers, you should see the floor rotate around its center point. Change X while leaving Y and Z as 0, see what effect it has, then do the same for Y, and then for Z. What did you notice?

You’ll find that changing X, Y, or Z makes the object rotate around that particular axis. So changing X will make the object rotate around X, changing Y will make it rotate around Z, and so on. You can combine all three to make the object rotate into a particular angle.

The last element of the transform is Scale. Just like position and rotation, this has X, Y, and Z, and in this case changing each of those values will make the object grow in a particular axis. So if you change X you make it grow horizontally, if you change Y it should grow in height and if you change Z it will grow into and away from the screen.

Before we move onto the next step make sure you reset the values to what you see in Image 12.

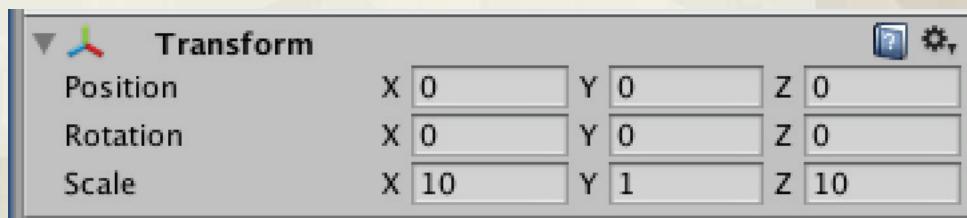


Figure 13

#### Step 4 – Adding some light and color to the world.

Now we’ve got a floor, but it’s looking a bit dull. We need to brighten it up and give it some color. Let’s brighten it up first.

Go to the GameObject menu, select Create Other, and then Directional Light.

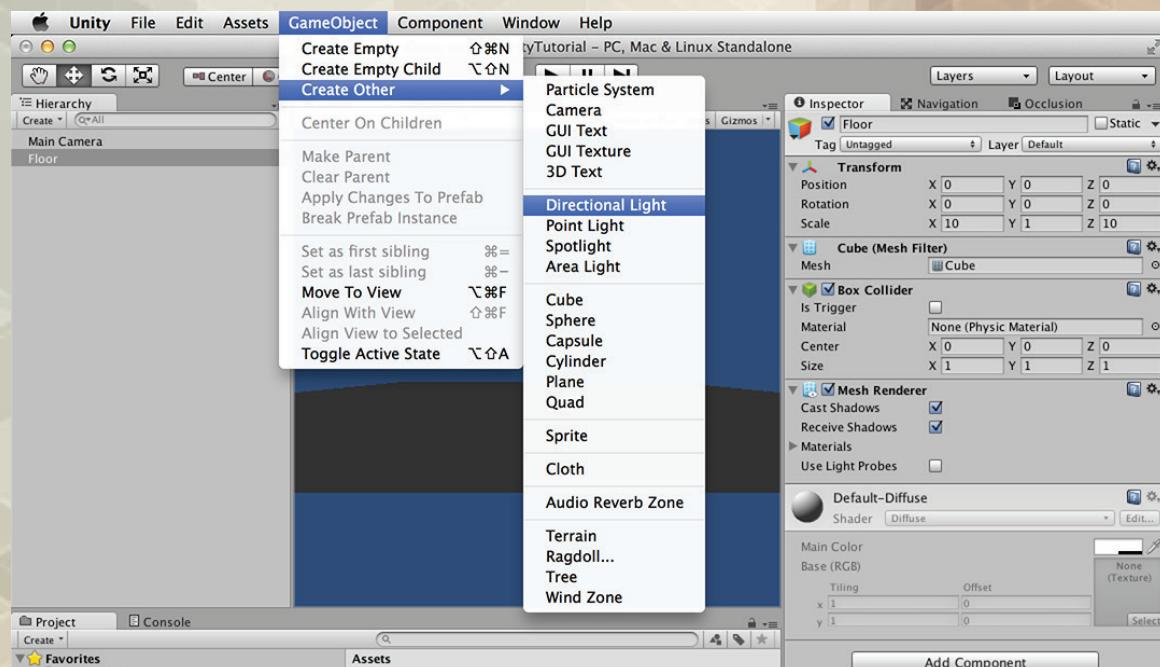


Figure 14

That's a lot better, and if you look in the Hierarchy you should see that a "Directional Light" entry has appeared. Leave it alone for now, as we don't need to do anything else with it.

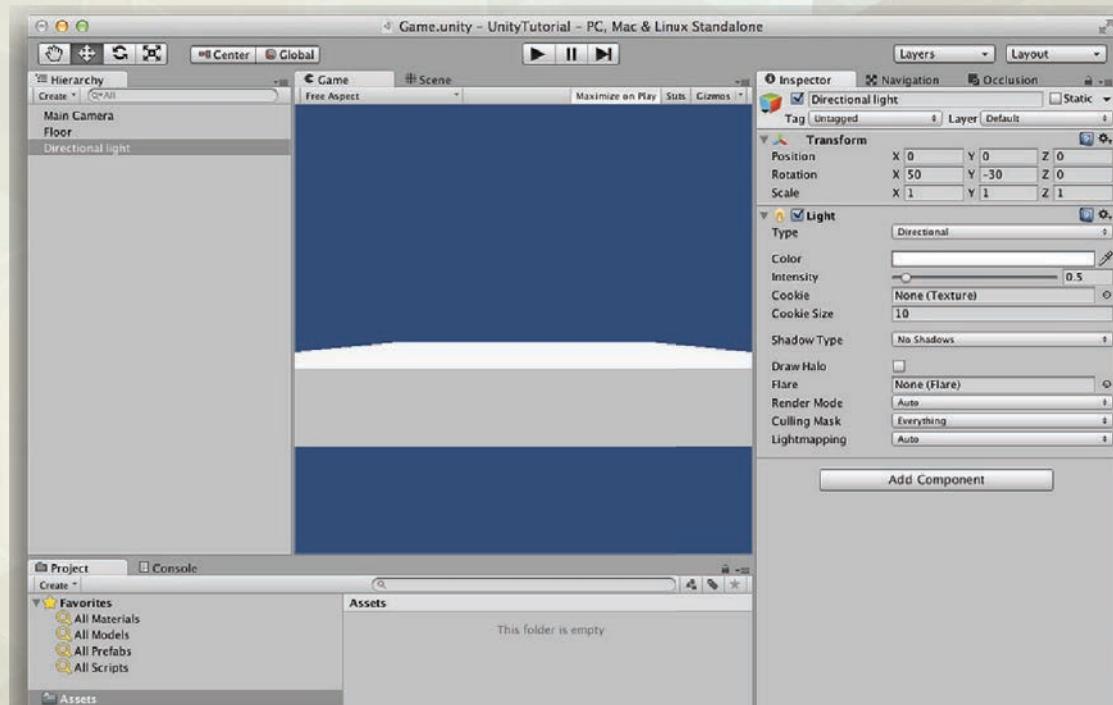


Figure 15

We need to give our floor more of an interesting color though. This time select the Assets menu item, then Create, and then Material.

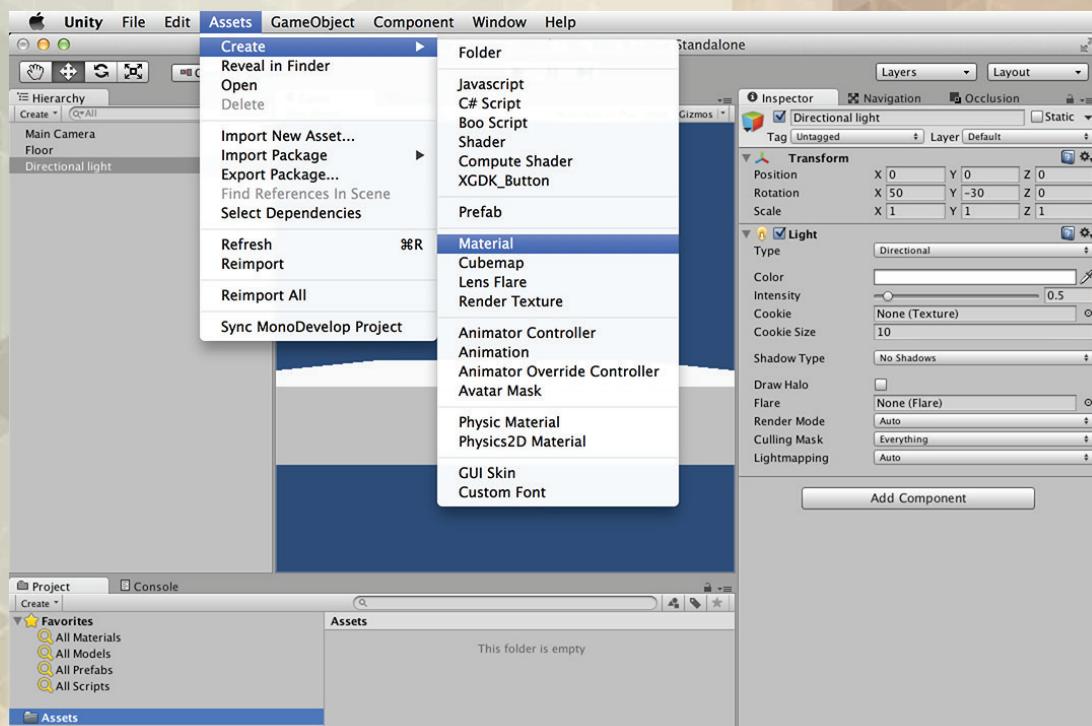


Figure 16

If you look at the bottom of Unity in the Assets view it will have created a small ball with the name "New Material" highlighted.

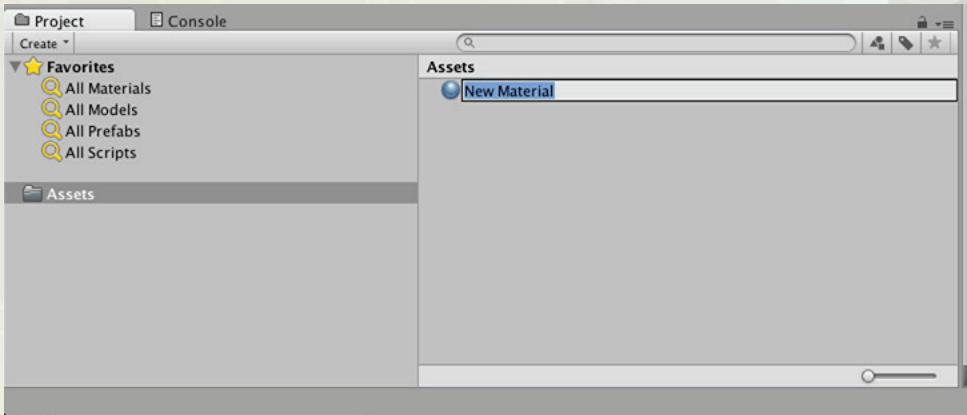


Figure 16

Click on the highlighted name and change it to Floor.

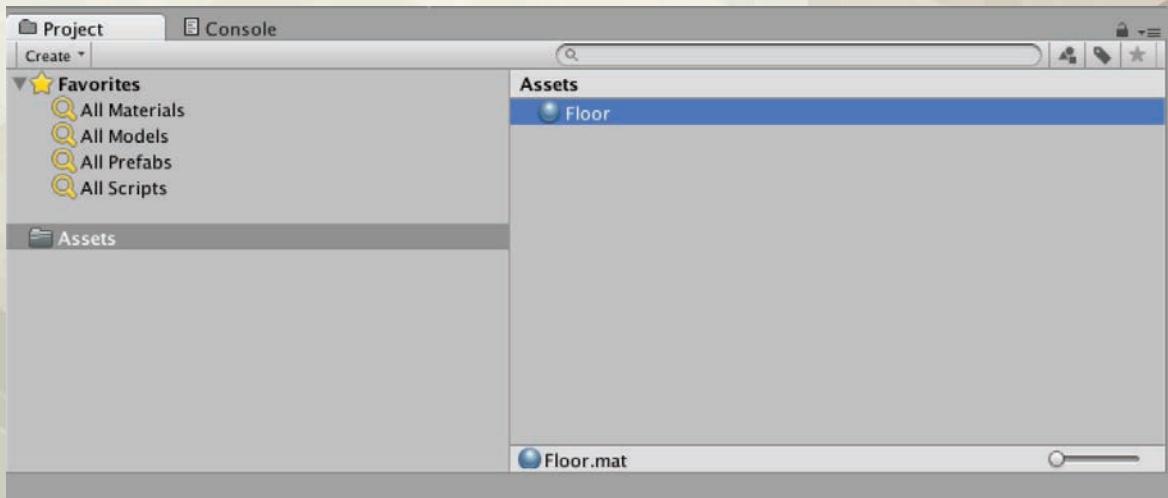


Figure 18

Congratulations, you've just created a new asset that's a material that we can use in game.

But what are assets and materials? Assets are things that we can use over and over again in different parts of our Unity game. They live in the assets folder of our project, and Unity gives us a list of them in the assets view. There are many different types of assets we can create but for now we've just made one, which is a material.

Click on the material we just created. If you look at the inspector you should see the view in Image 19.

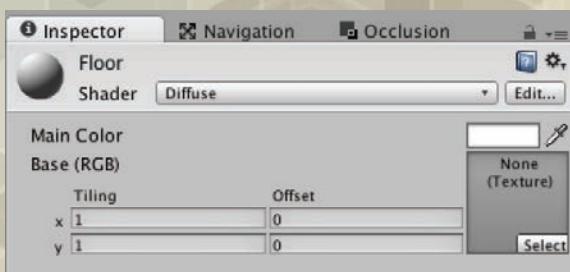
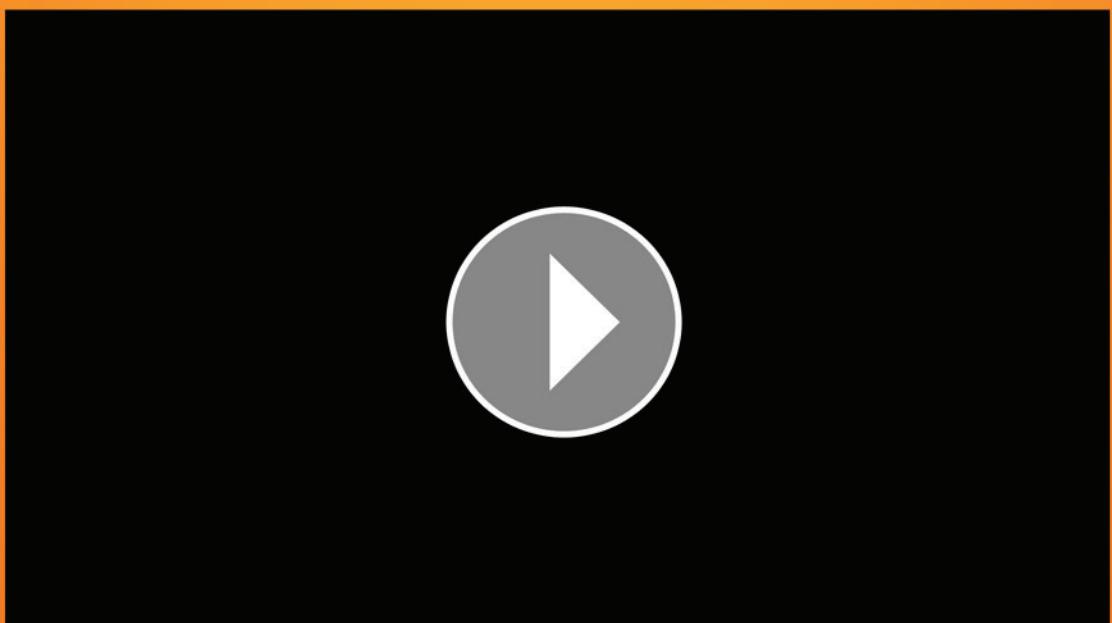


Figure 19

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A material is something we can use to give objects a more interesting look. They don't change the shape of objects, but it's a bit like giving them a coat of paint – which is what we are about to do. You should see the white box on the "Main color" line as in Image 20.

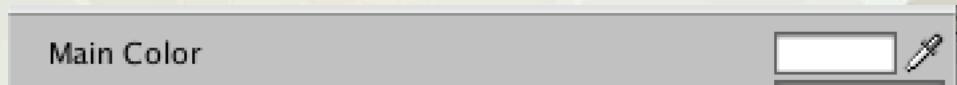


Figure 20

Click into that white box. You should get a color picker. Change the values in the boxes at the end of R, G, B and A to 0,255,0,255.



Figure 21

You should see a nice green color now. Have a play around with the R, G and B values (they go between 0 and 255) and see what colors you can come up with. If you put 255 in R and 0 in both G and B you should get red. What happens if you put 255 in B and 0 in both R and G?

As you have no doubt surmised, R stands for red, G stands for green and B stands for Blue. But what does A stand for, and why did it not really have that much affect on the color? A means alpha, and it's used to make objects transparent. If you have a 0 in A it means the object is invisible, and 255 means it's completely opaque – anything between those values makes it translucent. You can set A to be anything because with our current material it doesn't have an effect.

By putting values into R, G and B you should be able to mix any color you imagine. You can also set these values by clicking into the big color boxes in the color picker window. Play around a bit.

Once you are ready to continue, make sure that R is 0, G is 255 and B is 0 and close the color picker window by clicking on its close button.

Now we need to apply this material to the floor. To do this, re-select our floor as you did earlier in the Hierarchy. See the bit in the inspector marked "Mesh Renderer" – click on the little arrow in front of "Materials."

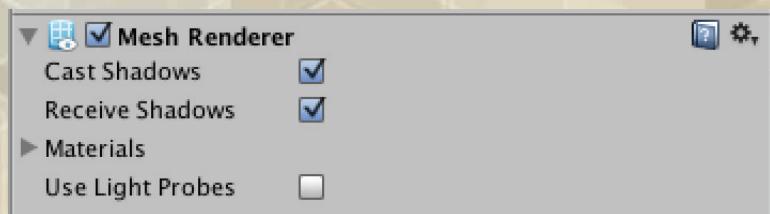


Figure 22

You should see the little circle on the far right of the line that starts with “Element 0” – click on it. That should bring up a list of materials.

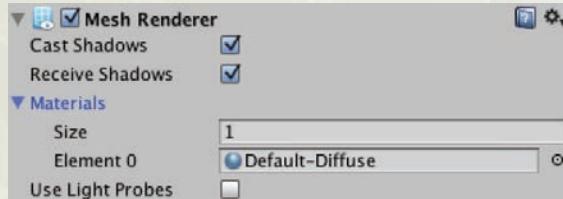


Figure 23

Click on the Floor material to select it and close the material list by clicking on the close button on that window. The floor should now be green!

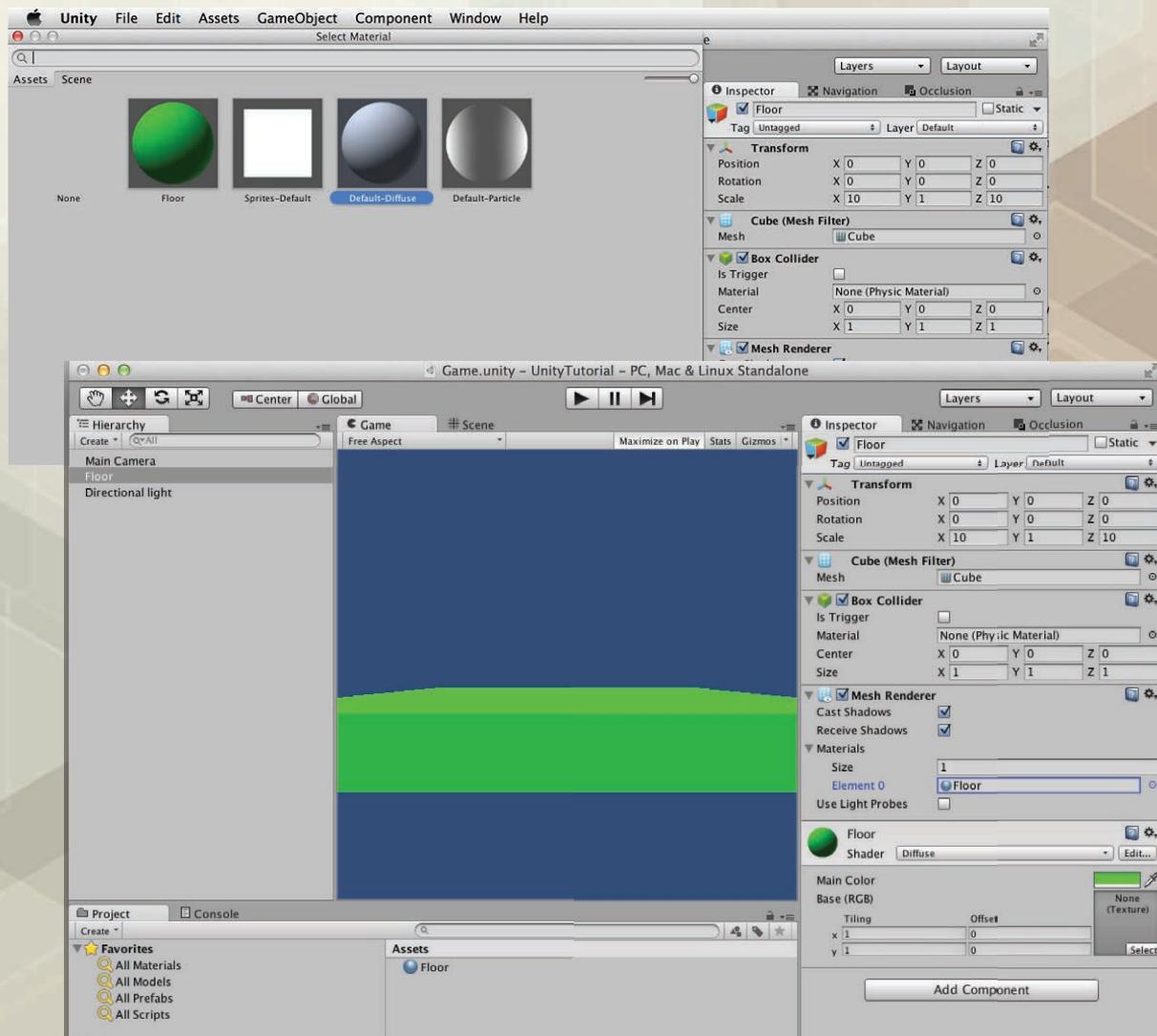


Figure 24, 25

Here's a quick re-cap: So far you've learned how to create a cube inside Unity, how to give it a name, and how to change its size by altering values in the Inspector. You've also learned how to create a material, change its color, and apply that to the cube you created. We are going to make use of those skills to create the rest of the game now.

### Step 5 – creating the player!

So, go ahead and create a new cube like we did for the floor, only this time don't change its size, leave the scale to 1,1,1. Rename the cube to Player. Create a new Material called player and make it red this time. Assign that material to our newly created Player cube. If you did everything you should get a screen like we see in Image 26.

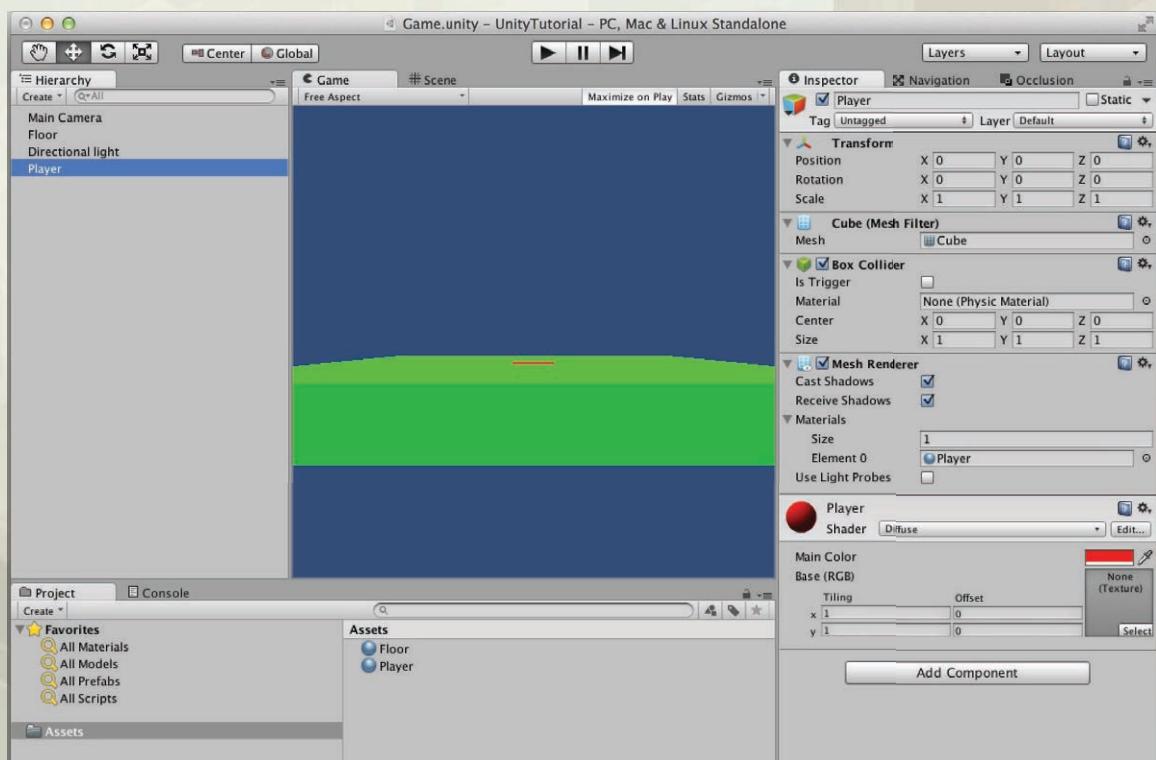


Figure 26

Notice how the player is just a bit of red showing through the floor? We need to change that. Select the Floor in the Hierarchy and set the Y in its position to -1.

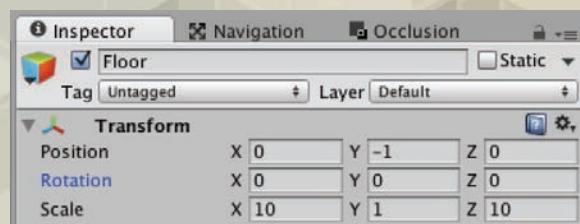


Figure 27

Now we've moved the floor down and the player is happily standing on top of it.

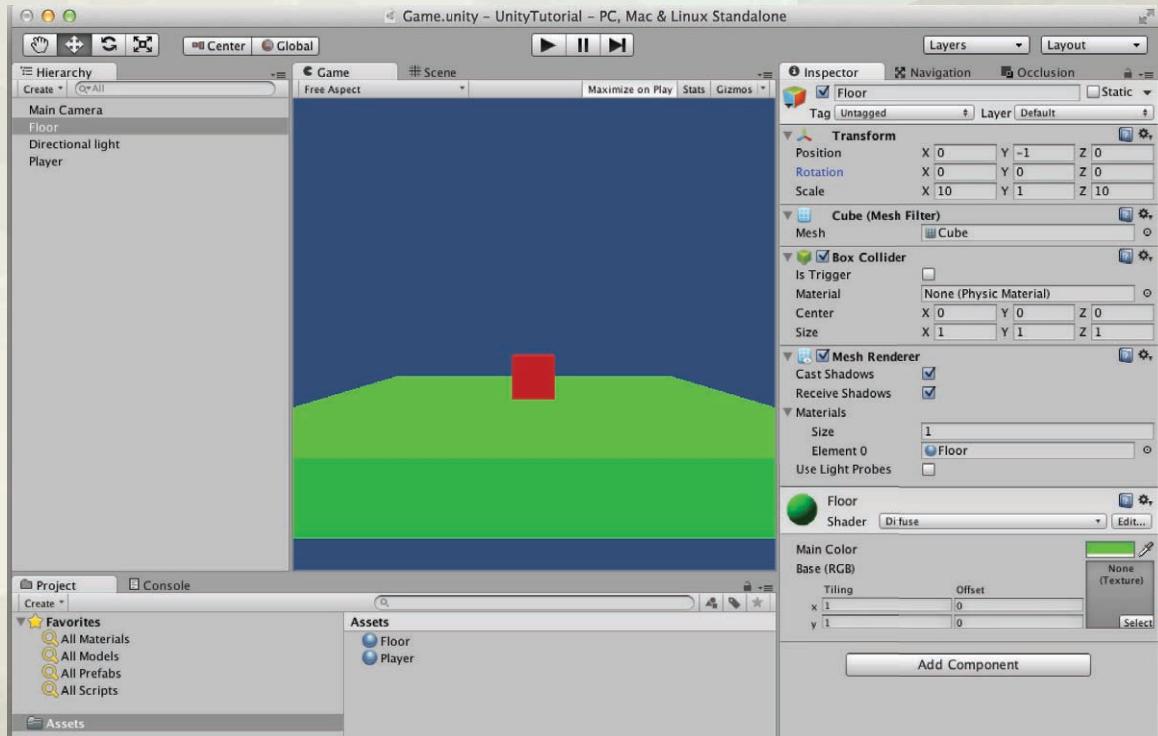


Figure 28

### Step 6 – Making this look more like a platform game.

So far, even though we've got two objects in a scene called Floor and Player, they look like just a red cube sitting on top of a green cube. As we are trying to make a platform game we need to start doing some things that bring it closer to that. The first step is to change the camera so it looks more like a 2D game.

So, select the Main Camera in the Hierarchy. Where you see a drop down selection box in the "Camera" part of the inspector, click it and select "Orthographic projection" – this will change the way the camera sees the world and make it look 2D.

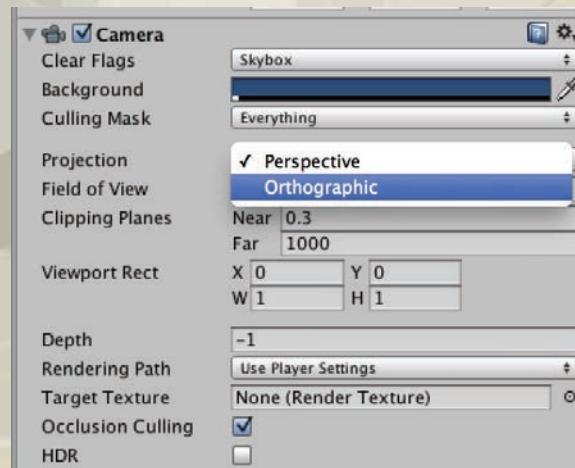


Figure 29

## Step 7 – Add some physics

Now that we have a more 2D looking world and something that's starting to look a bit more like a platform game, we need to take it that one step further and make it behave like a platform game. There are a lot of ways we can do that, but this is Unity, and Unity provides us with a very powerful and elegant way to achieve it – a physics engine.

We are going to make use of Unity's built-in physics engine to move our player around and make it react the right way with the rest of the world.

First thing to do is to select the Player in the Hierarchy. In the Inspector at the bottom of the view there's a button marked "Add Component." Click it and select "Physics."

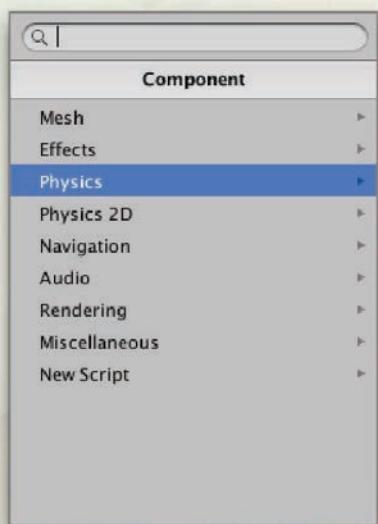


Figure 30

Once inside the Physics sub-menu, select Rigidbody to add it to the player.

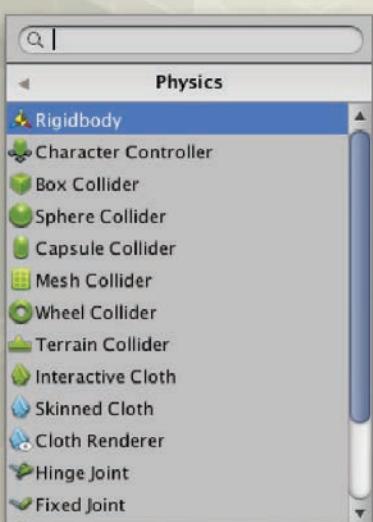


Figure 31

You should end up with the Rigidbody component added to the Player object – you can see it in the Player's Inspector.

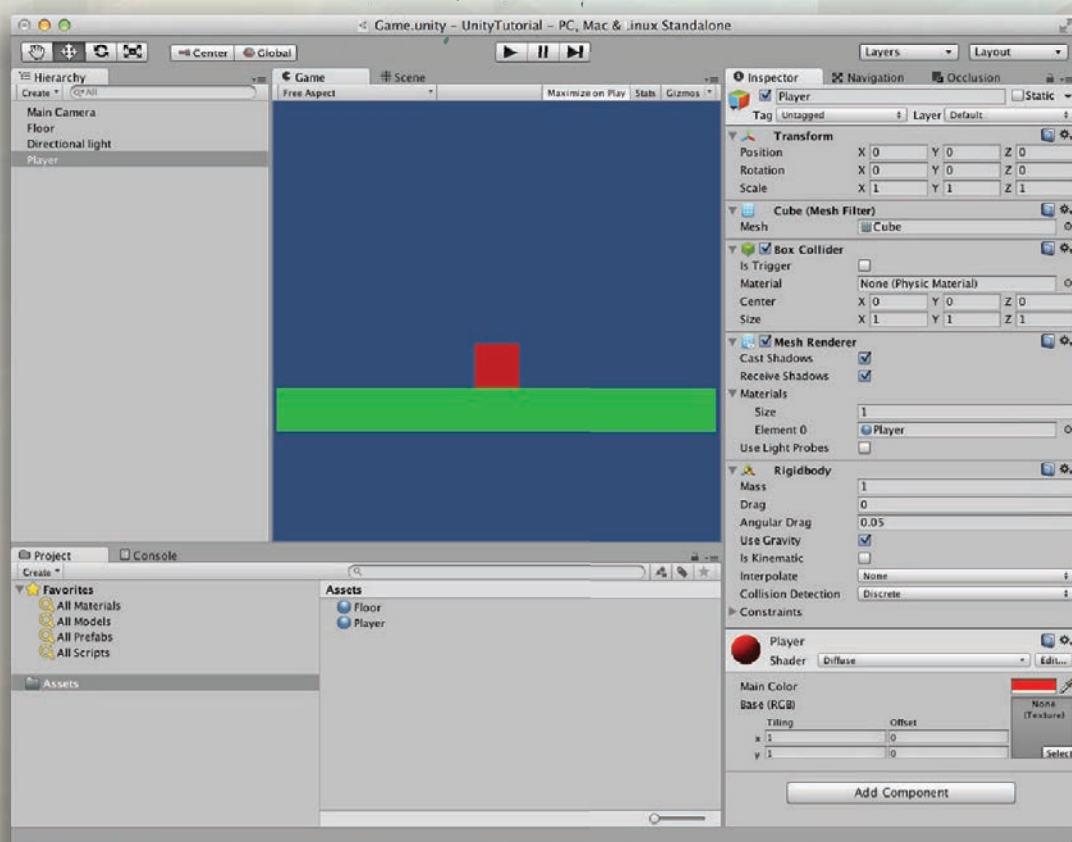


Figure 32

How about seeing this in action? Making sure the player is selected, change the Y part of the position to 4 and the z part of rotation to 30.

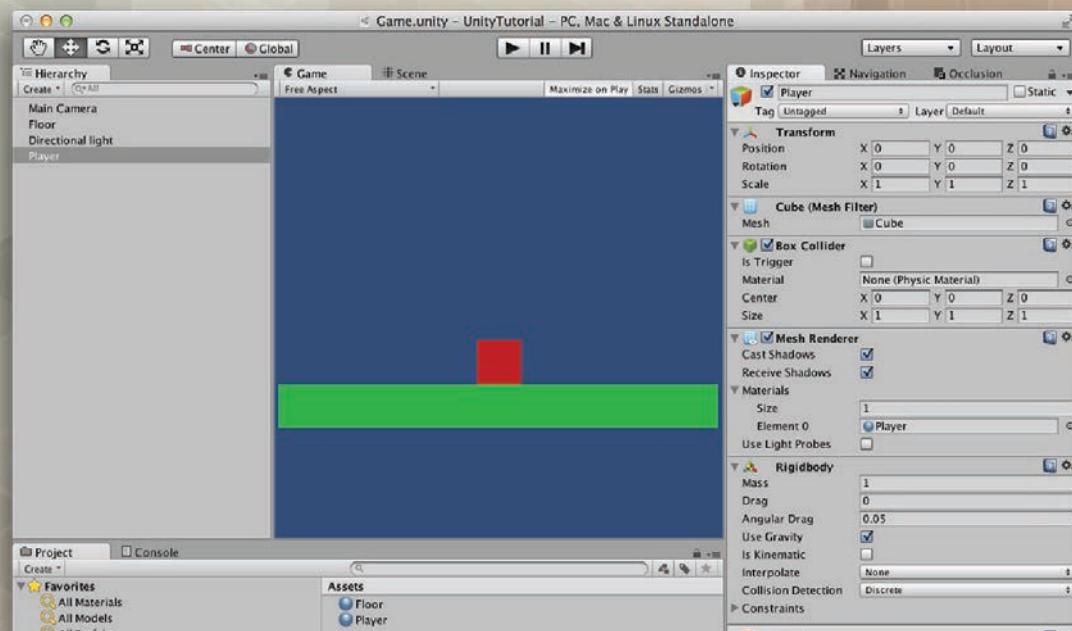


Figure 33

Press the button that looks like an arrow above the scene and game views – the play button – to see what happens.



Figure 34

Click the play button again to go back into Unity editor mode. If you make any changes while the game is playing they will be lost as soon as you deactivate the play mode (by clicking on the play button), so make sure to check which mode you are in. If it's in play mode the button will look like what we see in Image 35.

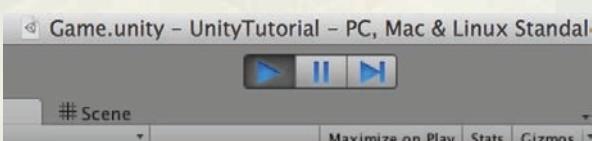


Figure 35

If it is, click it again to take it out of play mode.

Now you've had a play around with the physics system and our player, it's time to make it move by using the keyboard. Before we do that, select the player and make sure that the X, Y, and Z parts of the position are 0 and that all the rotation components are 0.

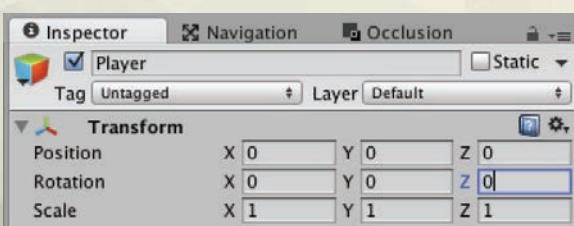


Figure 36

The first thing we need to do is make sure the player doesn't move in ways we don't want it to. We want it to jump, move left and right – we don't want it to spin or move in the Z direction. Thankfully the physics engine gives us an easy way to ensure this.

With the Player selected, find the Rigidbody component in the Inspector and click the little arrow next to "Constraints."

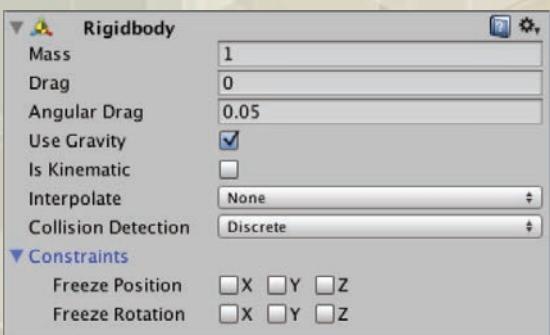


Figure 37

Click the Z part of "Freeze Position" and all of the parts of "Freeze Rotation"



Figure 38

What this does is to say to the physics engine that when it applies physics to our object we don't want it to move in the Z direction, or do any kind of rotation. We only want it to move in the X and Y directions – keeping it in the 2D look.

### Step 8 – Code!

We've added a rigidbody component to our player object to allow us to make use of Unity's built-in physics engine to handle the movement of our player, but this is only the first step in getting it to move.

To be a game, the player character needs to react to input from us to tell it when to jump and when to move left and right. This means we need to add code that watches the keyboard. We are going to do that now.

Go back to the Unity menu and choose Assets followed by the Create sub-menu and then select "C# Script"

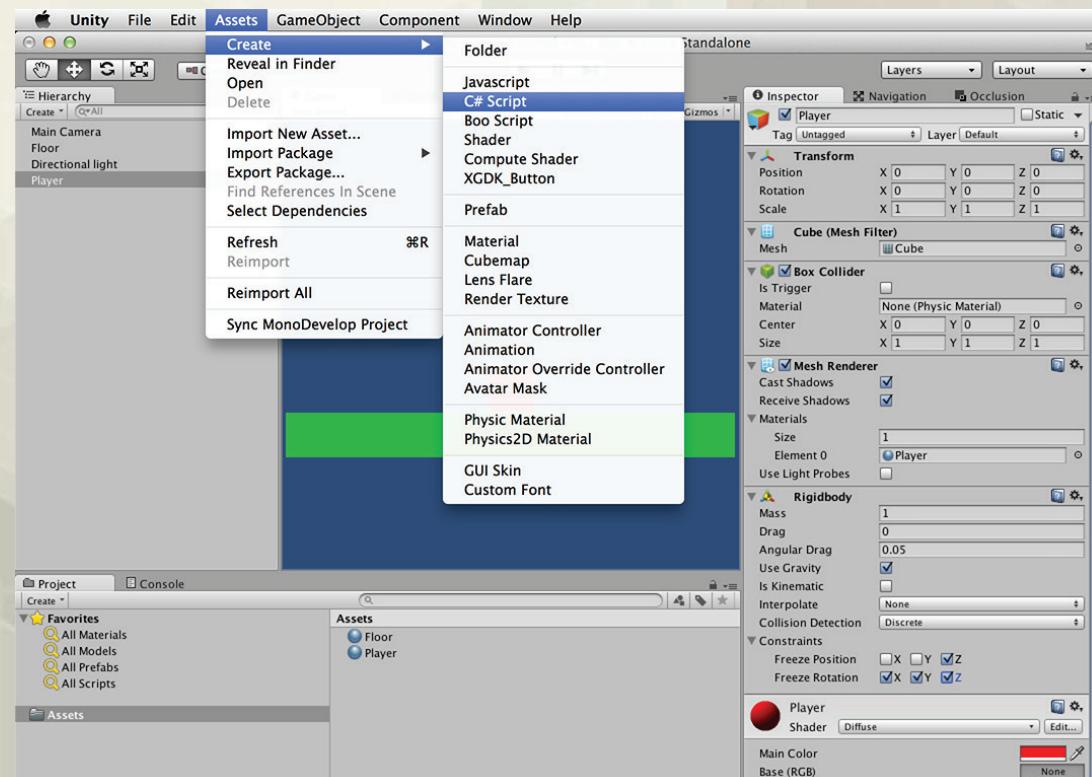


Figure 39

This will create a new script with the name "NewBehaviourScript" which should be highlighted.

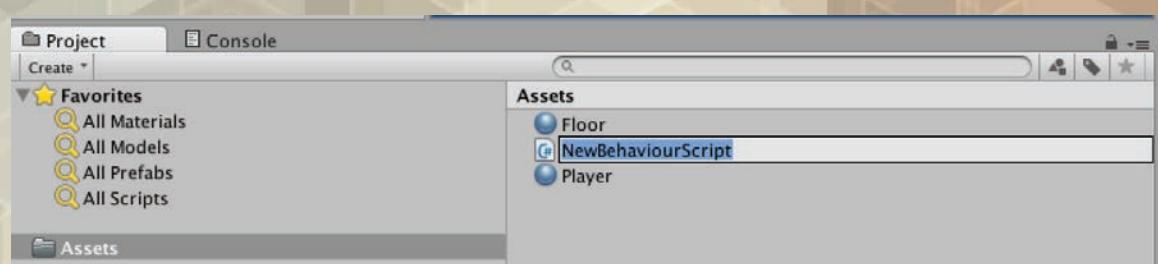


Figure 40

Rename this script to Player.



Figure 41

If you double-click the newly created C# script icon it will open up Monodevelop, which is the free script editor supplied with Unity. You should now be looking at some C# code. Don't run away just yet, it's not as scary as it looks.

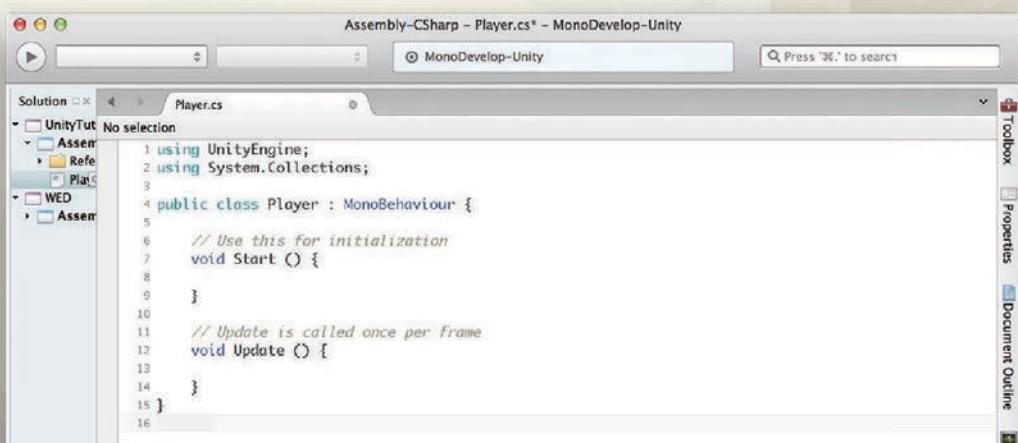


Figure 42

One thing to note is that the name of the C# file has to match the name highlighted in the next image. If they don't match, then Unity will just report an error and everything from now on won't work.

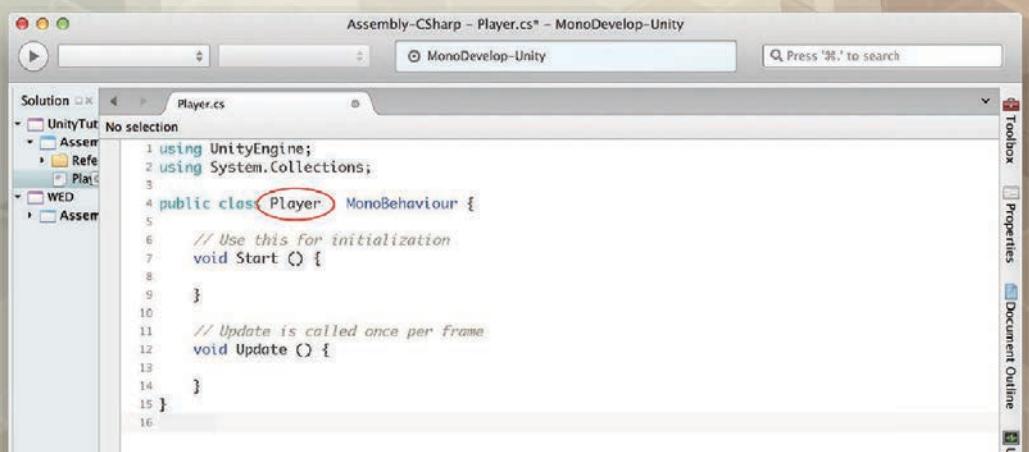


Figure 43

So if they don't match, highlight it and type in the same name as it appears in the asset view.

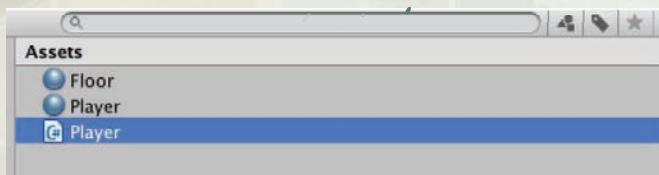


Figure 44

Save the file in Monodevelop and head back to Unity, as it is time to attach this script to our player object. Until they are attached the script won't actually do anything.

Select our player cube again in the Hierarchy, and this time in the Inspector go to Add Component, select Scripts, and inside that should be our newly-created Player script – click on it to add it to the player.

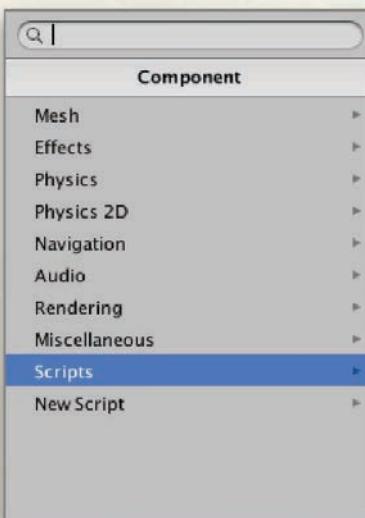


Figure 46

Figure 45

You should now see the newly-added script at the bottom of the inspector, just before the material shader.

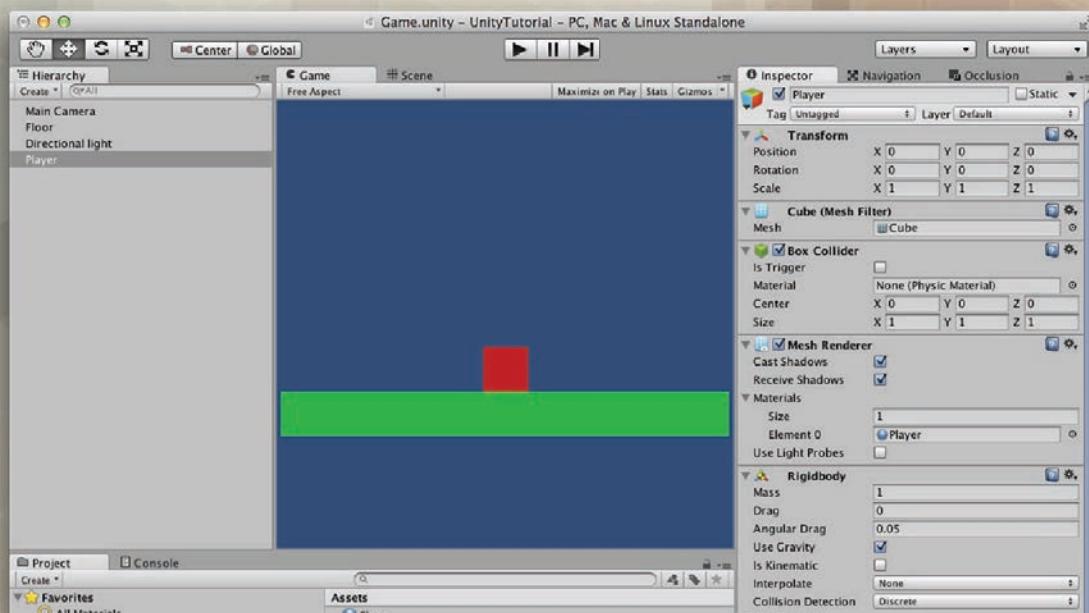


Figure 47

If you hit play now not much will happen. Even though the script has a couple of functions in it (Start and Update), both of those are empty which means they won't do anything other than exist. We need to fill them with code.

If you look inside the included file *Player.txt* you'll see all the code needed to get the player to move based on keyboard input. Replace everything in our Player.cs file with everything inside Player.txt and save it.

At first code can look daunting, but the truth is most code is designed to be read, mainly because us coders need to go back into them at later dates to update or fix something, and if we can't read what we wrote we are in a lot of trouble. The same goes for teams of coders – each of us needs to be able to read what the other has written.

It's too big a task to teach you C# here – the language that our player code is written in – but I will attempt to show you what each part of the code is doing.

The first place to start is to work out what the objective of the code is. All we want to do is to make the player jump when the space bar is pressed and make it move left and right when the left and right cursor keys are pressed. There's some other stuff we need to do as well – such as stopping the player from jumping too many times and to make sure that it doesn't stick to walls when left and right is pressed.

There are three functions in the code called Start, Update and FixedUpdate. Each of these is called by Unity at specific times. Take a look at Start first.

```
VOID START()
{
    _SPACEDOWN = FALSE;
    _LEFTDOWN = FALSE;
    _RIGHTDOWN = FALSE;

    _LEFTKILL = FALSE;
    _RIGHTKILL = FALSE;

    _JUMPCOUNT = 0;
    _JUMPSCALE = 1.0F;
}
```

Start is called when you start to play the game, and is only called once. We make use of this to initialize the code to a state that we can use. So, for example, we make sure that all the variables we use to track the keyboard state are correct before we use them – in this case they are set to reflect that none of the keys have been pressed yet.

We are using three variables to reflect the key press states, and they are called \_SpaceDown, which tracks the space bar, \_LeftDown, which tracks the left cursor key and \_RightDown which tracks the right cursor key. Each of them is set to false, which in our case means they haven't been pressed. Remember how I said that most code is designed to be easy to read? Look at those variables names and try to consider what you would have named them. Remember that \_SpaceDown is designed to track if the space bar is down or not – how would you have named it to make it more descriptive?

The next two variables are \_LeftKill and \_RightKill. They sound odd and perhaps they could have been named a bit better, but they are used by the code to stop the player sticking to left and right walls – so they effectively kill off right and left movement.

The last two variables track the number of times the player has jumped, and the \_JumpScale variable scales the power by which the player jumps to stop jumps becoming too fast and high.

That's just the Start function, and it doesn't actually do that much. The next function is Update, and this is where we read the keyboard and store its state to be used later.

Update is another special function that Unity calls every frame. So if your game runs at 60 frames per second, Update will be called 60 times a second.

So, take a look at the function.

```
VOID UPDATE()
{
    IF(INPUT.GETKEYDOWN("SPACE") && _JUMPCOUNT < 2)
    {
        _SPACEDOWN = TRUE;
        ++_JUMPCOUNT;
        _JUMPSCALE = 1.0F / (FLOAT)(_JUMPCOUNT+1);
    }

    _LEFTDOWN = INPUT.GETKEY ("LEFT");
    _RIGHTDOWN = INPUT.GETKEY ("RIGHT");
}
```

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VFS student work by Benjamin Erdt

The first big line starting with an “if” is what we call a conditional statement. The code between the { and } only gets run if the statement in between the ( and ) on the “if” line is true. In this case the code only gets run if the space bar is down and the number of jumps is less than 2. Going back to how code is meant to be read you can read this line as:

“If the space bar is down and the number of jumps is less than 2, then run this code.”

The code in question sets the \_SpaceDown to be true – reflecting that the space bar has indeed been pressed. It also adds one to the variable \_JumpCount (++ means increment or “add one”). The Code then sets the \_JumpScale variable based on the value of \_JumpCount. Again, read from left to right as: “Set the value of \_JumpScale to 1 divided by the value of \_JumpCount plus 1.”

Have a go at working out what that value could be for different values like 1, 2, 3, 4, et cetera.

The next two lines set \_LeftDown and \_RightDown to reflect the state of the cursor keys by using a Unity-provided function which can tell us the state of a key. So why are we using “GetKey” rather than “GetKeyDown” as we did before? “GetKeyDown” waits till the player releases the key being tested before triggering again. That means if the space bar is held down it will only return true if the space bar is released and pressed again. “GetKey,” however, will return true as long as the key is held down. If you think about it, we don’t want the player to just jump into space because the space bar is held down, but we do want the player to move left and right continuously, and these two functions allow us to do that.

FixedUpdate is like Update in that it’s a function that Unity will call automatically for you – the difference is the number of times it’s called per second. The clue is in the name FixedUpdate; Unity calls it a fixed number of times per second. This is needed because the built-in physics engine needs some things to happen in a predicted manner. Unity will always attempt to call the FixedUpdate function at a fixed frequency per second, but Update is allowed to fluctuate in frequency. All that’s really important to remember is if you have any code that interacts with the physics system, that code should take place in FixedUpdate and not Update. In our case we are applying forces based on the keyboard presses we detected in the Update function.

#### LISTING 1, PLAYER MOVEMENT.

```
VOID FIXEDUPDATE ()
{
    IF(_SPACEDOWN)
    {
        RIGIDBODY.ADDEXPLOSIONFORCE(_JUMPSTRENGTH * _JUMPSCALE,
TRANSFORM.POSITION,0.0F);
        _SPACEDOWN = FALSE;
    }

    IF(_LEFTDOWN && !_LEFTKILL)
    {
        RIGIDBODY.ADDFORCE(VECTOR3.LEFT * _LEFTRIGHTSTRENGTH);
    }

    IF(_RIGHTDOWN && !_RIGHTKILL)
    {
        RIGIDBODY.ADDFORCE(VECTOR3.RIGHT * _LEFTRIGHTSTRENGTH);
    }

    VECTOR3 VVELOCITY = RIGIDBODY.VELOCITY;
    VVELOCITY.X *= _VELOCITYDAMPING;
    RIGIDBODY.VELOCITY = VVELOCITY;
}
```

See Listing 1. Keeping in mind that code is meant to be read, try to have a go at working out what this code means.

The first code block is a conditional that is only runs if the space bar was pressed, and it tells the Rigidbody component we added to the player earlier to add an explosion force to the player to make it jump. It also sets the \_SpaceDown variable to false. If we don’t do this, the code will think that the space bar is being held down always, and the player will just jump into space.

Take a look at the call to the AddExplosionForce function. It takes three parameters, a force, a

position and a radius. The force in our case is the jump strength, multiplied by the jump scale. The position is taken from the transform component (remember that from earlier when we set the position and scale of our floor and player cubes?) and the radius is just set to 0. The end result is that the player will jump when this bit of code is run.

The next two conditionals make the player move if the left and right cursor keys are pressed. They both work in the same way – only making the player move in different directions, and this time instead of an explosive force this is a constant force. See if you can work out how they do it.

The last bit of code in FixedUpdate is a bit of a hack to reduce the effect of a constant left and right force over time. It has the effect of slowing the player down. Without it the player can float away fast.

There is one last function in our code. Unlike Start, Update, and FixedUpdate, this code only gets called under special circumstances, and that's while the player cube is touching something else in the scene – hence the name OnCollisionStay.

#### LISTING 2, COLLISION.

```
VOID ONCOLLISIONSTAY(COLLISION collisionInfo)
{
    _RIGHTKILL = FALSE;
    _LEFTKILL = FALSE;

    FOR(INT i = 0; i < collisionInfo.contacts.length; ++i)
    {

        IF(collisionInfo.contacts[i].normal.y >= 0.1f)
        {
            _JUMPCOUNT = 0;
            _JUMPSCALE = 1.0f;
        }

        IF(collisionInfo.contacts[i].normal.x > 0.1f)
        {
            _LEFTKILL = TRUE;
        }

        IF(collisionInfo.contacts[i].normal.x < -0.1f)
        {
            _RIGHTKILL = TRUE;
        }
    }
}
```

We make use of the function in Listing 2 to let us know when the player has landed after a jump, and when it has touched another wall on the side. Remember the \_LeftKill and \_RightKill variables from earlier – these are set here as well.

Unity kindly provides us a lot of information about when a collision happens, such as the direction the things that collided were facing, which is known as the collision “normal.” It’s a bit complicated to go into precisely what that is right now, but it’s good enough to know that we can work out if the player has landed or has something touching the sides of it. The collision normally is formed of X, Y and Z parts just like position and scale.

To find out if the collision means that the player has landed on something we look at the “Y” part. If the player has landed Y will be set to 1 or something close to it depending on the angle of the surface. In our case we check to see if Y is greater than 0.1, which is close enough. If it is, we can reset the \_JumpCount to 0, meaning we can let the player jump again. We also reset the \_JumpScale too.

We can see if the player is touching something on its sides by looking at the “X” part of the collision normal. If it is greater than 0.1 it was touching the left, and if it’s less than -0.1 it’s touching the right. If either of these is true then we stop the player from applying more left or right force.

The last function in the code is called “OnTriggerEnter,” which we will explain later.

```
VOID ONTRIGGERENTER(COLLIDER OTHER)
{
    APPLICATION.LOADLEVEL ("GAME");
}
```

Phew! That was quite a bit of code, but you’ll be glad to know that’s all we need to do for our game to work right now. I promise from now on it gets a lot easier.

If you’ve successfully replaced all the code that was in Player.cs with the above code, then save it, go back into Unity and press play. Have a go at moving our player cube by pressing the space bar along with the left and right cursor keys. When you are ready to continue press the play button again to get out of play mode.

### Step 9 – Save the scene

Now would be a good time to save the Scene we’ve been editing. To do this select the File menu and then Save Scene.

When the file save dialog comes up name the scene “Game” and then click save.

We are now ready to add some platforms to jump onto in the world.

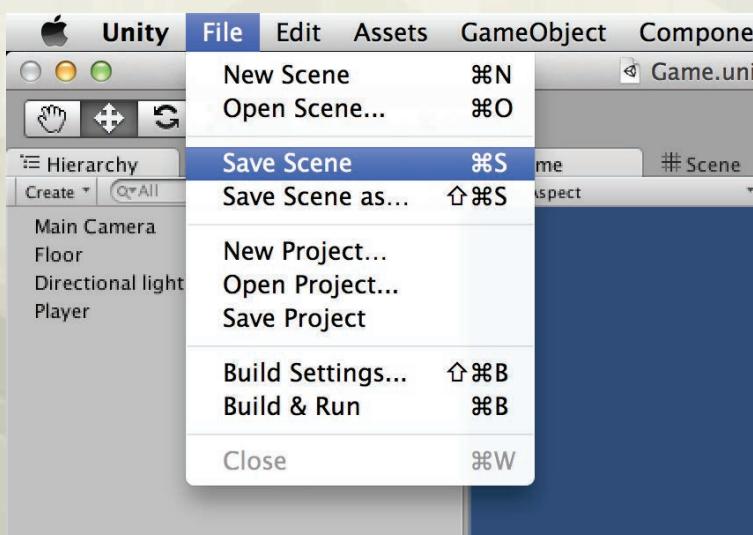


Figure 48

### Step 10 – Platforms and walls!

The objective in our game is to get the player from the floor to the top of the world by jumping from platform to platform. So far we only have a floor and a player. It’s time to add some more platforms and some walls to make sure we don’t go over the edges.

So first we are going to create the walls. Create a cube in the same way you did the player, but this time rename it to Wall and give it a position of -4.5,4.5 and 0 (X, Y and Z) and a scale of 1,10,1 (X, Y and Z) – leave rotation as 0,0,0.

This gives us a wall on the left. Now let’s create one on the right.

Create another cube just like the wall, and set it to the same position and scale as above, but this time set the X part of position to 4.5

That’s our two walls done – now to create a couple of platforms.

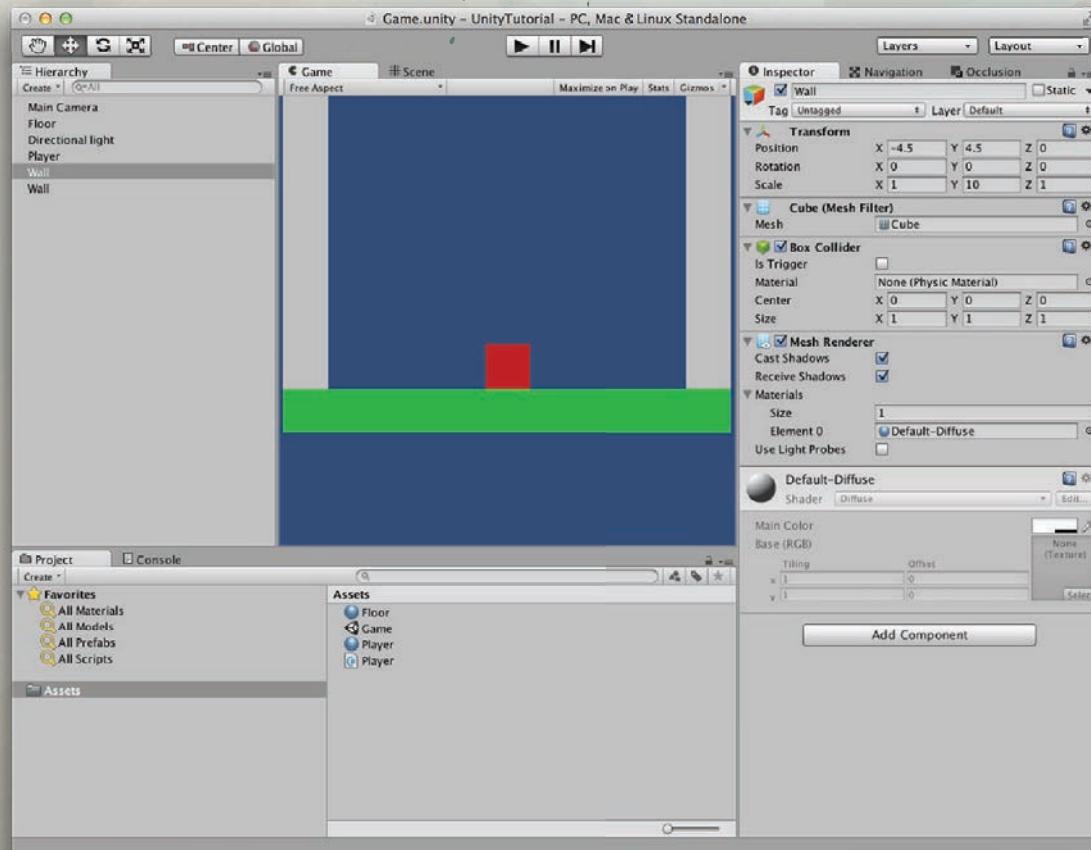


Figure 49

Create another cube, and this time call it Platform. Give it a position of 2,0,5,0 and a scale of 2,1,1. This is our first platform.

Create another cube, again call it Platform, but this time give it a position of -2,2,0 and scale of 2,1,1. This is our second platform.

We need to create a third platform. Do it in the same way as you created the first two, but this time with a position of 3,3,0 and a scale of 2,1,1.

We could create more platforms, but by now it's probably likely that the player will be getting close to the edges of the screen, so we need to fix that.

But first, save the scene to make sure your work isn't lost.

### Step 11 – move the camera

We are now going to make the camera follow the player around. To do that Select “Main camera” in the Hierarchy view.

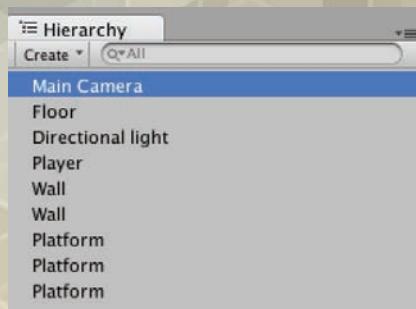


Figure 50

With the mouse button still held down on “Main Camera,” drag it so it’s over “Player” and let go. If it worked, the Main Camera object should appear underneath the player, indented a bit like in Image 51.



**Figure 51**

What you just did was parent the Main Camera with the Player object, which means wherever the Player object goes, the Main Camera goes too. Click play to see what happens when you move the player around.

### Step 12 – add more platforms

This step is actually a bit of an exercise for you. Go ahead and create a few more platforms in your scene. You can position them where you like, but make sure to keep the “Z” part of the position 0 so the player can interact with it. If you don’t, then it’s entirely possible it will look like the player just jumps or falls straight through it. When you are happy with what you have we will create an exit point – something your player cube can touch to end the level -- the objective.

Here’s a hint for you when putting down more platforms: If you go into scene view rather than game view, you can move the camera around by using the cursor keys. This allows you to see more of your level when it comes to placing platforms down.

### Step 13 – adding an exit

Every level has to have an end, something for the player to aim for. In ours it’s going to be an exit that we can use to allow the player to move onto the next level.

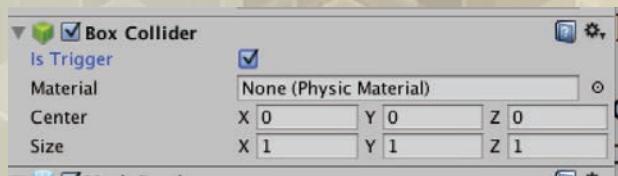
Before we do that we should consider what a level is. In our case it’s a scene inside Unity. At the moment we are creating our entire level in a scene called “Game,” so if we wanted to create a new level we could create a new scene, name it something else, and then go through the same steps we used to create our current scene, placing the platforms and the player somewhere else for variety, so that when the player hits the exit we make Unity load and play the new scene.

I’m going to use the same three platforms I created earlier, place the exit on the third platform, and then use that to reload our current scene – in a bigger game I would use that exit to load a new level.

Before we do this, create a new Material like we did for the player but this time call it Exit and give it a yellow color.

Once you’ve created the material called Exit, create a new cube, call it exit and give it a position of 3.5, 3.8, 0 and a scale of 0.5,0.5,0.5. Apply the exit material to it as we did with the Floor and Player earlier.

This time though, we are going to do something new. Find the “Box Collider” component on our Exit cube and tick the box marked “Is Trigger.”



**Figure 52**

What we've done is we've created a new way for the player to collide with an object. This time, instead of triggering a collision, it makes Unity call a function on the player called `OnTriggerEnter` – the function we didn't explain earlier. It looked like this:

```
VOID ONTRIGGERENTER(COLLIDER OTHER)
{
    APPLICATION.LOADLEVEL ("GAME");
}
```

This function will get called if the Player touches the yellow exit cube. What it actually does is instruct Unity to load and run a level called "Game." As mentioned earlier, in Unity's case a scene is a level, and the current scene we are working in is called Game, which means Unity will reload and run our current scene.

Give it a go, press play, and try to get to the yellow exit box. If it all works, as soon as you touch it the game should reload and you will find yourself at the bottom again.

If you want to create a new level, then create a new scene, add a floor, player, walls and platforms in a different position but call it something like Level2 and in the `OnTriggerEnter` code replace "Game" in the `LoadLevel` call with "Level2," and when you hit the exit in Game it will load and run Level2.

And that's it, the end of this tutorial! If you've had a bit of trouble following it, the complete Unity project is provided so you can see the *end result*. The rest is up to you now. Create new levels. Look at the code and figure out how it works and how to extend it. Work out how to have more than just two levels.

Most importantly – don't forget to have fun making this game!

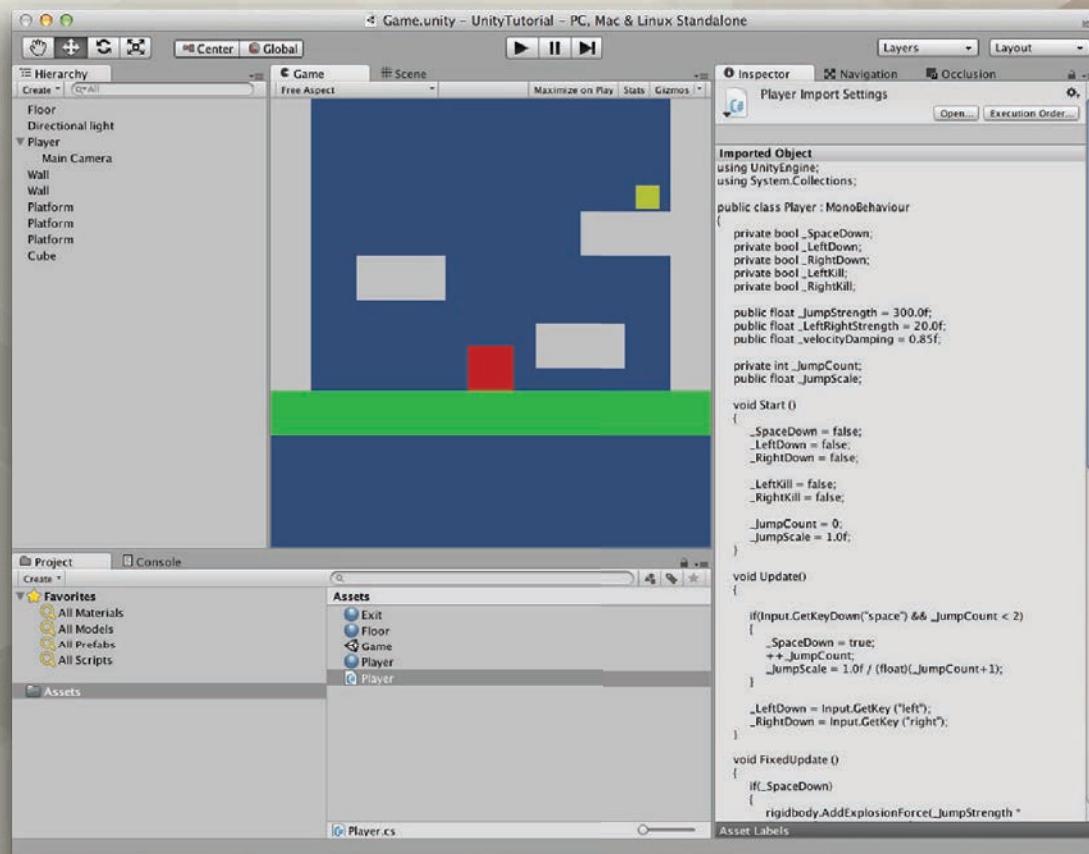


Figure 53

**Byron Atkinson-Jones** is a seasoned game developer who has worked for the last 20 years on games, for companies like EA, Sega, Lionhead Studios, and Introversion. He currently runs two game studios and makes games for the Xbox one, WiiU, PC, Mac and iOS. You can find Byron on Twitter at [@xitex](#)

# GET SCHOoled!?

WHAT DO GAME SCHOOLS REALLY GET YOU, AND ARE THEY RIGHT FOR YOU?

Andrew Yoon

## MAKING A VIDEO GAME HAS NEVER BEEN EASIER. THANKS TO THE RISE

of new platforms and marketplaces, development teams as small as one person have been able to put their content in front of millions of people around the world. Acquiring the skills necessary to develop a game—whether it's an indie darling or AAA blockbuster—has also never been easier, thanks to the rise of gaming-oriented programs at some of the nation's top universities.

For example, high school graduates can get a BA in Interactive Entertainment at the University of Southern California (USC), or a BS in Computational Media from Georgia Tech. Starting next year,

New York University (NYU) will also expand its Game Center program with a BFA program in Game Design.

### Open to all

Pursuing a degree in game development isn't exclusive to recent graduates, though. USC Games director Tracy Fullerton explains that their grad program attracts people from all walks of life, from professionals who already have game industry experience to those that want to pivot their skill set. "A graduate degree is a chance to change direction, to work on ideas that you might not be able to try in [their existing] industry, to develop new skills, make new connections and generally jump-start your career in a new trajectory. We've seen people come to our program with degrees or backgrounds in documentary filmmaking, animation, business, theater, and more," she said.

"A lot of our students are working professionals and they want to pivot and change gears," NYU Game Center



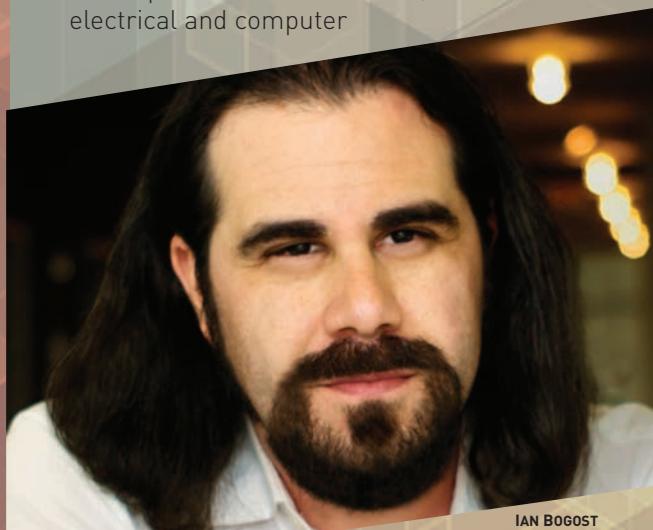
department chair Frank Lantz added. "They're thinking about graduate school as a way of refocusing what they do and take it to a new level."

While each university offers a unique approach to its game development programs, there is a shared goal amongst them all: transferring an understanding of game development as a holistic process. "We focus on the meta-skills on how all the different aspects of games come together into a successful project," Lantz said of NYU. Meanwhile Georgia Tech professor Ian Bogost says that his school takes a "more modular" approach to computing degrees, to give students the skills to understand the fundamentals of game-making.

"When you think about what a game degree is, there are a lot of really valuable underlying skills there. To name a few: programming, design, writing, pitching, collaboration, team-building, leadership, scheduling, building business models, and so forth," Fullerton added.

## Where to go?

To get a sense of what makes each university's program unique, prospective students should research their histories and strengths. Georgia Tech, for example, offers a more technically-oriented approach to development. Bogost explained that while the university doesn't have any degree programs that are "specifically" for game design, they have a variety of degrees which lead people to jobs in games. "We have degrees in computer science of course, and electrical and computer



IAN BOGOST



FRANK LANTZ

engineering," he said. "But we've taken a more long-term view."

For example, the Computational Media BS degree requires all students to take computer science courses. Understanding the technology behind games is crucial to being able to solve the everyday problems that arise in game development, Bogost pointed out. Thinking like a programmer is an important asset for game designers, even if they don't end up in a role necessarily defined by tech.

Consider a Georgia Tech project like GameTailor. By using algorithms to predict individuals' performances, an AI can procedurally generate game content on an individualized basis. This kind of approach emphasizes how engineering can be used to create unique gameplay experiences. Bogost also noted that while Georgia Tech is known for its tech focus, the university also provides a liberal arts education as well. "Design and computer science come together" at the school, he said.

New York University's Game Center takes a more design-centric approach, one that better reflects the indie game development scene of New York City. "We're in New York City—that's an important factor in terms of defining the experience that students are going to have," Lantz said. "This is not a place where you find AAA development. For a while that's what made New York City seem like it was on the margins of game development... But that's not the

case anymore. Vision-driven indie development is happening in New York."

Because indie game developers tend to take on multiple roles in smaller teams, the Game Center teaches all its students how to be a director. "You learn how to be the person most responsible for upholding the creative vision of the game," Lantz said. However, "one thing we won't teach at the Game Center is to do how a very specific role." For example, you wouldn't learn how to optimize tessellation in DirectX 11. "This won't be a very good program for someone who wants to do a very specific thing."

Finally, the University of Southern California points to its storied legacy as a draw to students. Its faculty includes "people who have developed triple-A games, but also some of the best young developers in indie and art games." Alumni of the USC game program include the award-winning team at thatgamecompany—the studio behind Journey. "Are the alumni of a program out there making interesting and innovative games? Do they have the creativity, flexibility, and skill set to be part of the new industry that is being defined right now?" Fullerton asked. "Alumni who have multiple skill sets, who can function on small, cross-disciplinary teams, who are comfortable with moving fast and iterating constantly, who are good leaders and great team

members. That's shows you that they learned something valuable in school."

Not everyone wants or needs to go to school

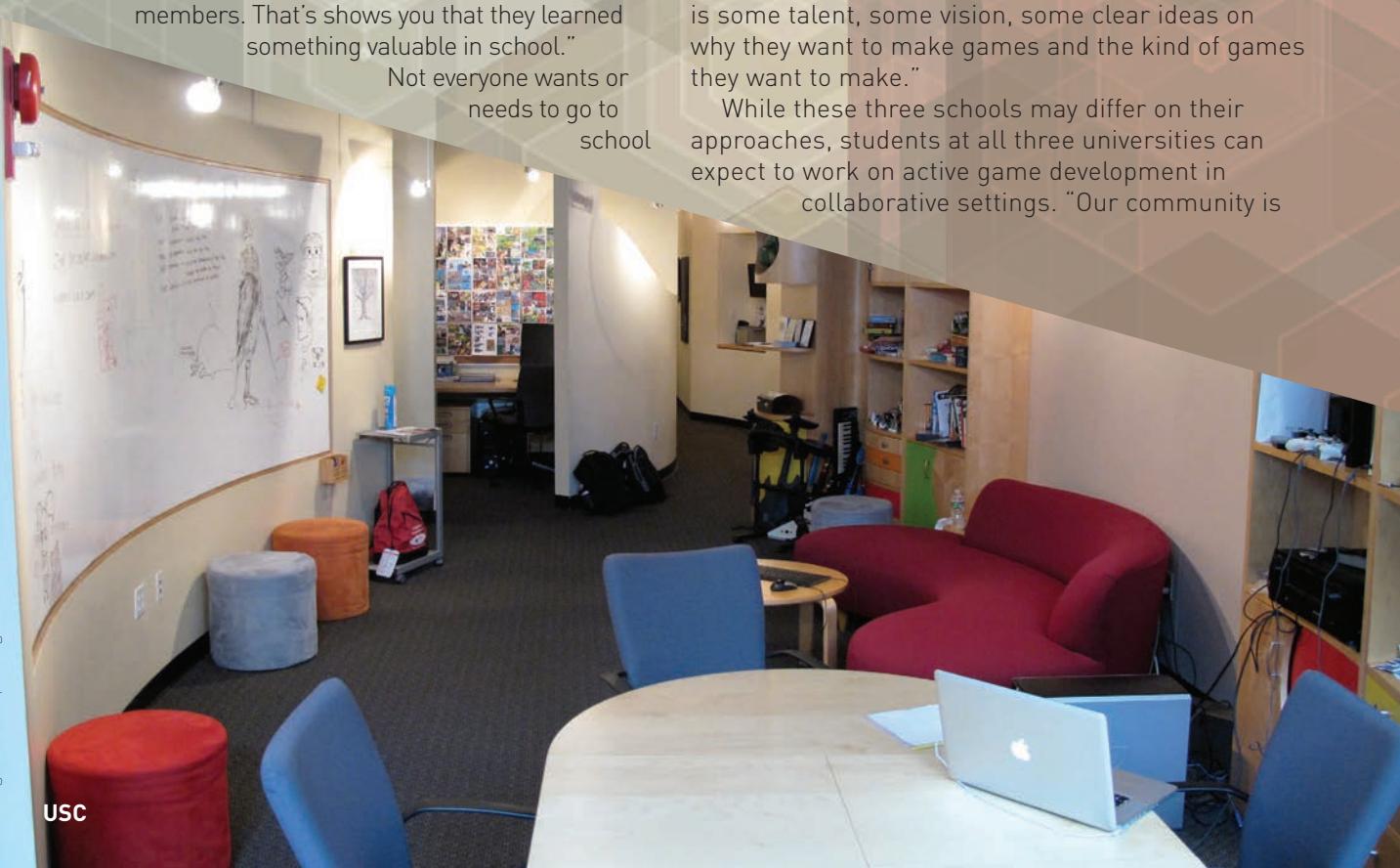
to succeed, though. "I think there's a lot of value in the apprenticeship model, and that's an alternative towards going to school," Lantz said. Before gaming degrees were available at universities, many simply worked their way up in the industry, starting as a small member of a larger team. That approach still works today. However, Lantz argues that "that model makes less sense as the industry is less dominated by giant triple-A studios."

## prerequisites

For prospective students of game development, one of the more daunting requirements may be knowing how to code. Each university applies a different value to how much programming students should know. USC's Fullerton agrees with Georgia Tech, saying that "everyone should learn to code." Those interested in getting a degree in game development "need some technical preparation."

However, NYU's Lantz disagrees. "We don't require students to be technically adept," he said, explaining that "video games especially are multidisciplinary. We try to put together a community of students that have a mix of skills. Some may be more technically minded, some are more visually focused, and bring graphic design and art design skills to the table... The one thing they need to have is some talent, some vision, some clear ideas on why they want to make games and the kind of games they want to make."

While these three schools may differ on their approaches, students at all three universities can expect to work on active game development in collaborative settings. "Our community is



filled with chances to work on games-in classes, in jams, in research labs, and just over lunch," USC's Fullerton said. "The way to succeed is to make the most of these opportunities." Georgia Tech's video game development club, VGDev, is a student-run organization with the aim of creating complete video games every semester. NYU's Game Center Incubator gives publishing opportunities for games completed in their graduate program.

Students that get a degree from these programs often get jobs in the triple-A game industry, or as independent developers. Georgia Tech alumni can be found in many of the industry's top companies, including Electronic Arts and Zynga. USC alumni can also move into careers with large publishers, given the university's strong relationship with the surrounding community in Los Angeles. "A big part of what students find is that they can begin making connections into the interactive entertainment industry from day one, if they take advantage of the community here," Fullerton said.

## The way forward

The value of a degree is increasing as well, our sources say. "I think there's a growing respect for game programs," Lantz said. "Over time, game programs are getting better. We're getting better simply through iteration and understanding what works and what people are getting value from."

"I think the industry's sense of game degrees is changing," Fullerton agreed. "But whether the industry respects a game design degree or not isn't the important issue. For me, it is what a student makes of the opportunity within such a degree... You learn about more than just game design, and that, though it might not seem self-evident, is really important."

Students are increasingly interested in independent game development and the holistic approach taken at these universities enable students to make that transition after graduation.



# INDIE CADE

TRACY FULLERTON

"We get a mix of students: we have students that want to get a job at Valve or Ubisoft or a large studio, but we also get a lot of students that are more entrepreneurial and are interested in starting their own little studio," Lantz said. "While many have found a home in [traditional] development, just as many have gone into indie development, including starting their own companies," Fullerton added. "Recently we've had VC backed start-ups like Servios, Kickstarter projects like Last Life, development deals like thatgamecompany and Giant Sparrow."

"As the industry is less dominated by giant triple-A studios, it's a more tumultuous world where smaller, more innovative projects are having a big impact," Lantz said. "There's a sense of an explosion of new ideas that people are exploring. People are inventing new kinds of gameplay and new kinds of games and business models. In that world, I think it's invaluable, the focus our kind of program can give our students, to take greater risks and be innovative."

*Andrew Yoon is the former Editor in Chief at Shacknews, currently working on a game in a quiet New York City duplex. You can follow him on Twitter @scxzor.*

068 pm

POSTMORTEM\_Gabe Cuzzillo





# FOILED

pm

069

POSTMORTEM\_Gabe Cuzzillo

**Foiled was my first game.** It's a one on one local multiplayer swordfighting game about possession of souls, which was featured at Indiecade East, and nominated for best student game at the IGF student competition.

Before making Foiled, I had never programmed before, and never tried to design a game. I started playing with Gagemaker tutorials over winter break from school, after seeing Indie Game: The Movie. My best friend and I were really into Nidhogg at the time, so we began by brainstorming a simple adaptation of the mechanic as a test of my newfound abilities, and that slowly grew into an idea for a complete game.

I feel really fortunate that Foiled was my first game. There are a bunch of things about both the game itself and the circumstances of its development that made it a perfect way for me to approach game design for the first time, and almost none of them were intentional.

#### WHAT WENT RIGHT

**1. GOOD ADVICE AND COLLABORATION** The first thing that allowed Foiled to come together was a summer break where I had basically no plans, and a lot of built up creative energy. I pretty quickly enlisted an old high school friend as my artist -- Aaron Taecker-Wyss -- who had been making games for years. We ended up working in the same room for a lot of the summer. Having someone to talk out ideas with, as well as just someone to play the game with constantly really helped the game take shape. Aaron was much more well versed in fighting games than I was, and helped balance and refine the mechanics.

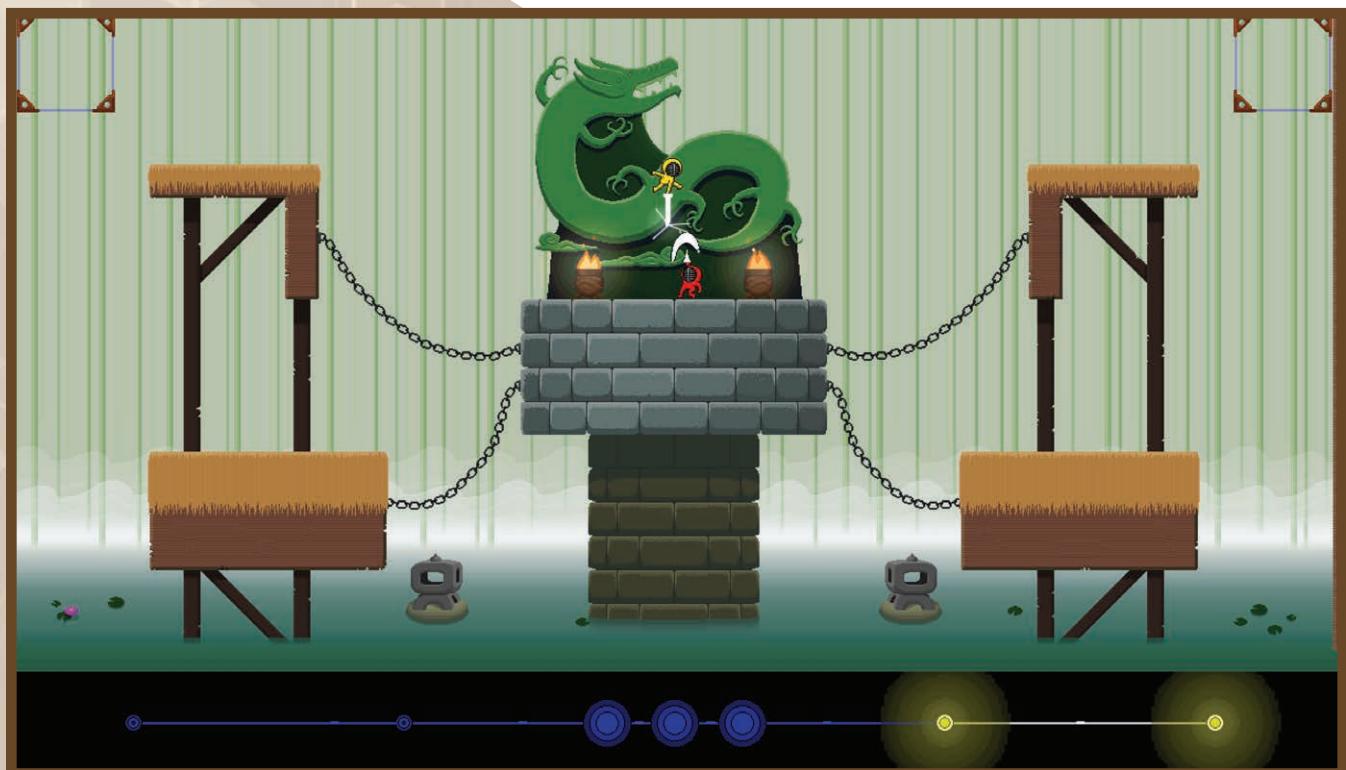
I also had my brother teaching me to code,

and friends and family constantly giving advice about how to build and tweak the game. The nature of local multiplayer really forces you to take feedback from a lot of people, which was incredibly valuable for the game, and for me.

By the end of the summer the bulk of the game was there, and I had to go back to school. Once there I was able to get into an independent study with Bennett Foddy (QWOP, Pole Riders, et cetera). He was incredibly generous with his time and really helped bring the game to a new level. He has an eye for minutiae no one else seemed to be able to recognize. One of the first things he suggested was instead of stunning the player after a sword clash, I simply prevent them from moving back towards each other. Changes like that really helped the game come together.

**2. SIMPLICITY** The game began as a project I thought I could get done in a few weeks, and I kept that mindset for most of the development (which ended up taking about six months). Keeping it so simple allowed it to be constantly playable and fun throughout, which allowed for the continuous motivation necessary to do the amount of work that I eventually did.

Part of what gave the process good momentum was constantly being forced to show it to people in order to play it myself; I was constantly working on whatever





would make the experience better for the next playtest.

At the beginning of the project I was deeply afraid of learning to program because of a bad experience with LISP when I was twelve. The way Foiled developed made it easy to take baby steps, learning how to do things with icons first, then slowly moving to code. My brother was also constantly talking me off a programming ledge, as it were, so I can only imagine what would have happened if I had designed something I thought would take more than a few weeks.

**3. SCORING** The original idea for the game involved collecting corpses and returning them to your base to build defenses and power-ups. The immediate problem that presented was camping. Why would anyone want to venture out of their base, if that's where they needed to return their opponent's corpse to?

The solution was to always activate the goal on the furthest side from the killer. This simple scoring change made the game flow from a dueling game to an attack/defense game seamlessly. It's my favorite thing about Foiled.

**4. SUPER MEAT BOY** That summer I spent a lot of time in the first and second level of Super Meat Boy, just feeling the movement, and analyzing all of the control minutiae that makes that game feel so good. There were many nights where I would just jump repeatedly in place with my face two inches from the screen trying to figure out what the rules were. Using that game as a basis for movement allowed me to focus more on the flow and combat in Foiled. Not only that, but it taught me a huge amount about the types of tricks that contribute to game feel. Breaking down the thought processes behind little things (like the number of frames between pushing away and separating from a wall you were on) taught me a huge amount about game design.

#### WHAT WENT WRONG

**1. THE ART** I didn't have a strong idea about what the game should look like. I was more concerned with the rest of the experience, and I was looking to Aaron to come up with a style for the game. Meanwhile he was trying to follow whatever it was I wanted. I ended up not really being able to articulate the fact that I didn't have a good idea for the art, and instead gave him only vague direction. This led to an art style that ended up looking somewhat bland. That isn't to say it's all bad—I really like the way the dudes turned out. Though, if I were to make Foiled Again, I would try to

find a look that more thoroughly brought out what's good about the game.

**2. THE WALL GAME** When people get really good at Foiled, the attack-defense game quickly comes down to an attack that approaches from the bottom of the wall up toward the goal. The attacker will try to bait the defender into diving, and triangle jump off an adjacent platform to dodge the dive when it comes. While I think this is an interesting little piece of yomi, it gets boring when that's clearly the most effective tactic. In future versions of Foiled I plan on working to de-emphasize it.

**3. THE LOOSE SOUL** In Foiled, when you kill someone while you already have a soul, a second "loose" soul is spawned that bounces around the room, then explodes a few seconds later. This mechanic went through many iterations; it began as souls just laying on the ground until someone decided to pick them up, then I changed it so they floated upward slowly, and in the next iteration it flew around the room randomly through walls. It never felt quite right, as it usually ended up with one player or the other collecting the bonus soul easily, without the other getting a chance to do anything about it. I was changing this drastically even in the last few days of development.

The solution I came up with was basically to make it really hard for either player to capture the soul, and to try to keep the soul on the attacker's side. On one hand, comboing into a second possession felt like a cool high-level move to pull off. On the other, it feels fairly arbitrary whether you're able to retrieve it, because a small change in where the kill takes place can make the soul bounce into totally different areas of the map. This means every once in a while a defender seemingly gets a soul "for free," or a weird bounce prevents an attacker from retrieving what should have been an easy second soul. It feels odd in a game that is so deterministic in every other way.

I was hesitant to take it out, because it felt like it offered some dynamism to a game that can become repetitive. I think a much better solution exists, whether that's changing how the loose soul works, or simply finding another way to introduce more dynamism.

**4. THE TUTORIAL** Accessibility was a weird problem in Foiled. There were two major types of problems when people sat down to play the game for the first time. First there were people who very easily were able to pick up the controls, but didn't realize that

they were holding something after a kill, or didn't know the goal was a goal, or thought they were then defending the soul. Then there were people who had never played an N-Super Meat Boy-style platformer, who couldn't figure out you could wall jump, and generally had a pretty miserable time, especially when matched against a player who was a bit more familiar.

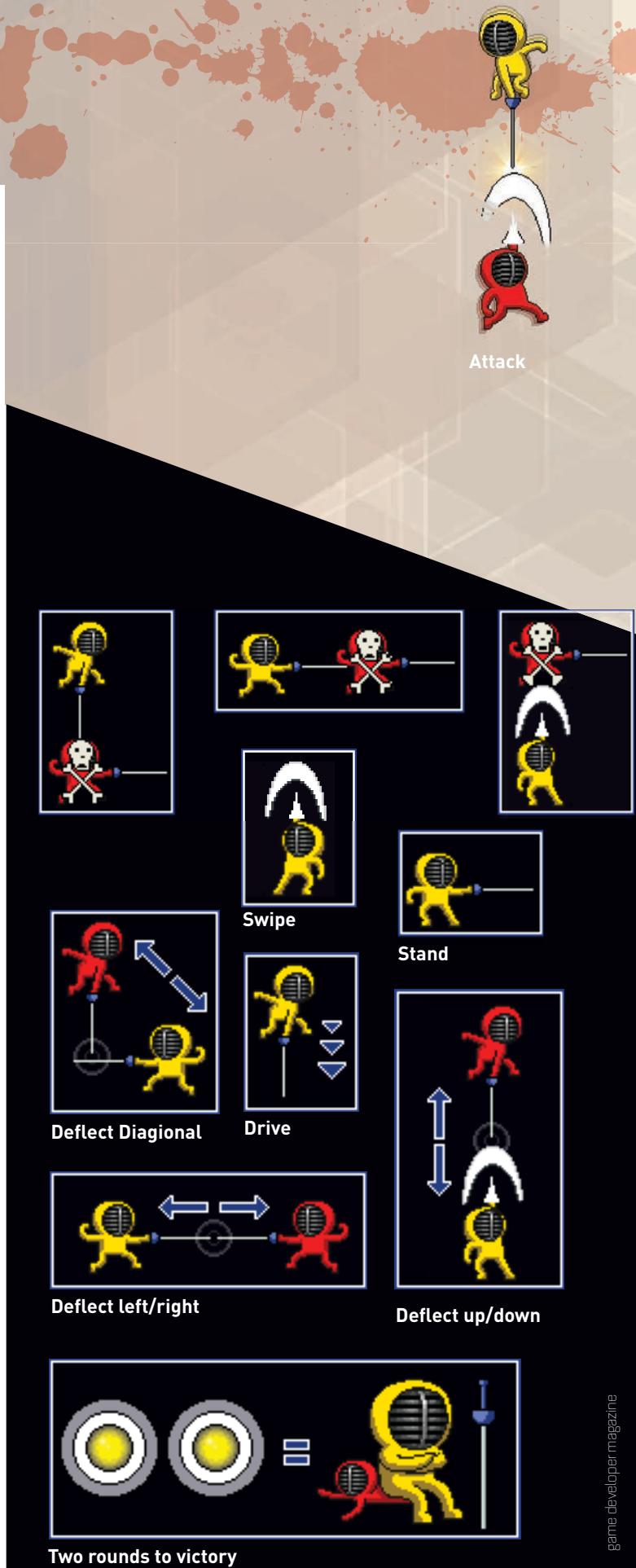
I then made a pretty poorly thought-out tutorial that didn't really explain what was going on very well. In retrospect this was definitely the wrong solution. Instead, I needed to work on how the goals and scoreboard were presented in game, make it clear how they operated, and design levels that more gradually eased people into the intricacies of the movement.

I had tried to do these things during development, I just hadn't focused on it enough. Not only was the tutorial bad, I also felt like it hindered the feeling the game should have provided. I wanted it to reveal itself to players without an explicit explanation. Throughout development I had pictured myself and my best friend in high school discovering this game in a dark corner of the internet and dusting it off to find what would become a mutual obsession. The tutorial breaks that feeling of connecting over a game that requires joint experimentation and exploration to figure out.

## RIPOSTE!

My initial plan was to work on Foiled for much longer, and then try to release a paid version. Bennett Foddy advised me to release the build I had prepared for the IGF for free instead. This turned out to be good advice, because I've realized I really wanted it to be a game that could be tried out by kids who discover it through a comment thread or a random forum, and don't have access to their parent's credit card. Releasing for free allowed people to have the type of experience I had in high school with games like Spelunky and Shoot First. I remember how those games created a sense of camaraderie that larger games never could, and that is what I hoped I could provide with Foiled.

*Gabe Cuzzillo was born, went to high school, went to two years of film school at NYU, then made this game and did another year. He is currently working on a new game that probably has something to do with an ape.*





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# THE BEST FREE TOOLS

MAKING GAMES DOESN'T HAVE TO BE EXPENSIVE!

Shane Marks

## Game tools can definitely help you get your games done

faster, but a lot of the best ones cost a lot of money. But games don't have to take millions of dollars to make. If you're willing to put in a little extra time to learn a new interface and workflow, free tools can be just as useful as the paid ones. That's why we've collected some of our favorites, to help you make informed choices when working with free tools. Here you'll find some suggestions, ideas and possibly inspiration. (Note that while these tools are free or offer a free versions, they all vary in licensing, so please make sure they're compatible with your project.)

### Development Tools/engines

This section is devoted to tools for people who want to implement game systems via code or editors.



#### MonoGame

[monogame.net](http://monogame.net)

MonoGame is a C# framework that allows developers to target desktop, handhelds, mobile, and consoles using a single codebase. The framework is written on top of Mono, an open source implementation of

the .NET framework. The framework was originally designed to implement Microsoft's XNA 4.0 API, but Microsoft's decision to abandon XNA has meant that the MonoGame project has started to grow beyond the stagnated XNA implementation.

Developers can choose to use MonoDevelop or Visual Studio as their IDE (integrated development environment), though to build content to the xnb format you will also need install Windows Phone SDK 7.1.1 (installing XNA 4.0 doesn't work anymore), which means you will need a Windows machine to build the content. Once you've built it though, you can

continue using whatever OS you were working in. You can read more about the specifics of these issues on [Gamasutra](http://Gamasutra) or on the MonoGame wiki.

Although there are some issues present, the MonoGame Team is working on solutions. To date the framework has been used in multiple successful titles such as Bastion, FEZ, Mercenary Kings, TowerFall Ascension, and Transistor.

You should also be aware that Ethan Lee, the developer behind the ports of games such as Escape Goat 2, FEZ, Rogue Legacy, and TowerFall Ascension, has been working on a fork of the project known as FNA, which aims to reimplement MonoGame using SDL2 (see below), and can be found here: <https://github.com/flibitijibibo/MonoGame>

#### Simple DirectMedia Layer (SDL)

[libsdl.org](http://libsdl.org)

SDL is a cross-platform library written in C, designed to act as a wrapper around operating system specific functionality. Some of this functionality includes audio, input devices, graphics hardware, file access, timing, and threading. SDL allows developers to write more generalized code, rather than worrying as much about the underlining specifics of the system they're targeting.

Beyond this, any extra functionality can be added through libraries that sit on top of SDL. Some of these libraries include support for multiple image formats, audio mixing, networking, TrueType font, Rich Text Format support and many more, via third party libraries.

SDL provides bindings for several languages such



as C#, Lua, Python, Lisp, Haskell, and others. It's also commonly used as the base code for other game libraries such as LÖVE, PyGame, ScummVM, and even the CryEngine, as well emulators such as MAME and ZSNES.

SDL is probably the most commonly used games library I know of - you'll see it in games such as Amnesia: The Dark Descent, FTL, Portal, Psychonauts, Team Fortress 2, The Cave, The Walking Dead and many, many more.

## Unity

[unity3d.com](http://unity3d.com)

Unity is a game engine developed by Unity



Technologies that allows developers to target desktop, web, mobile, handhelds, and consoles using a single codebase. It comes with a fully-fledged game editor as well as the MonoDevelop IDE, which provides code auto-completion and debugging.

The engine provides scripting through Mono, and allows developers to write games in C#, a JavaScript-like language that most people call UnityScript, or a Python-like language called Boo. While some new developers to Unity start off using UnityScript or Boo due to its perceived lower barrier of entry the majority of developers use or eventually switch to C#.

Unity comes with full support for 3D and 2D games, and generally anything that you feel is lacking can usually be found through their online Asset Store or somewhere else online. Games like Kentucky Route Zero, Night in the Woods, Superhot, Shadowrun Returns, and Gone Home have all been made in Unity, showing that as an engine it's versatile enough to be adapted to any number of genres.

While the free version should allow a lot of developers to write their entire game without the need for Pro features, they should be aware that there are restrictions, which you can read about here: [unity3d.com/unity/licenses](http://unity3d.com/unity/licenses). A developer can use the free version provided their annual gross revenues does not exceed US\$100,000, otherwise they will have to purchase a license for Unity Pro, which will cost \$1,500 or \$75/month.

Check out [unitypatterns.com](http://unitypatterns.com) for some useful tips and tutorials, as well as the tutorial in this issue.

## Top 5 Alternatives Libraries/Frameworks

If none of the above suggestions appeal to you then maybe check out one of the following.

### Cocos2d [cocos2d.org](http://cocos2d.org)

Cocos2d is a 2D framework designed for mobile and desktop, but the majority of games made with it are for mobile. It's divided into multiple branches, the most popular being cocos2d-x, cocos2d-swift, and cocos2d-html5. Each branch is written in a different language, though they do try to keep some consistency. Cocos2d also comes with an editor called CocosBuilder, which can be used for designing UI, and setting up scenes and events without code.

### LÖVE [love2d.org](http://love2d.org)

LÖVE is an \*awesome\* framework written in Lua design for making 2D games. The nice thing about LÖVE is that it's well documented, there are loads of tutorials, there's an active community, and a lot of cool libraries built on top of LÖVE to help you add features you feel are missing. The fact that LÖVE is written in Lua is also a big plus to me since it's an extremely popular scripting language in the game industry. So even if you later decide LÖVE isn't for you, you can still apply that Lua knowledge somewhere else.

### OpenFL [openfl.org](http://openfl.org)

OpenFL is a Flash API-compatible library designed for desktop, mobile and web. OpenFL is built on top of a library called Haxe, so if you want lower level access then check that out. One of the cool things about OpenFL is that because it's compatible with Flash you can also use popular Flash libraries such as Flixel and FlashPunk if you feel more comfortable using those libraries. OpenFL has been used in such titles as ryndkapsel and the IGF winner Papers, Please.



### Phaser [phaser.io](http://phaser.io)

Phaser is a HTML5 framework designed for desktop and mobile, built on top of Pixi.js. Although Phaser is relatively new, it supports a lot of features such as preloading, animations, tilemaps, sounds, physics and WebGL rendering, that are not commonly found in most competing JavaScript frameworks.

### SFML [sfml-dev.org](http://sfml-dev.org)

SFML is a C++ library similar to SDL, but with additional features such as networking within the core library. Like SDL, SFML comes with additional third party libraries, and also supports bindings to multiple other programming languages.

## Art/Graphics

Here are some free art tools that can be used to create various types of visual content for games.

### Blender

[blender.org](http://blender.org)

Blender is a cross-platform open source 3D graphics suite developed by the non-profit Blender Foundation in collaboration with hundreds of others around the world.



It supports modeling, animation, rigging, texture mapping, UV wrapping, compositing, morph targets, sculpting, simulations such as clothes and hair physics, and several other features. Any features you feel are missing can be added using Blender's Python API, and generally any custom features that become popular enough in the community end up being



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part of future Blender releases. The most recent well known addition has been Cycles, adding a new powerful rendering engine to Blender.

There are plenty of books and online tutorials about Blender, and several new books have been released that show off some of the newer features available to users. You can check out projects made using Blender in their showcase reel on their website.



### GIMP

[gimp.org](http://gimp.org)

GIMP is an open source raster graphics editor originally started by Spencer Kimball and Peter Mattis in 1995. Today it is developed by The GIMP Development Team, and has gone to become one of the most popular graphic editors in the world.

GIMP supports various paint tools common to most raster graphics editors such as Photoshop. It also has support for animation, layers and channels, path tools, quick masks, exports to many formats and can be enhanced via scripts and plugins. GIMP also supports Photoshop brushes, so you don't have to worry about looking for GIMP-specific brushes.

One of the most interesting things about GIMP is that because it's open source, it can be repackaged by its users with different default settings and plugins, which allows it to be configured by for a more specific kind of task. This had led to the popularisation of configurations like GIMP Paint Studio.

### Inkscape

[inkscape.org](http://inkscape.org)

Inkscape is cross-platform open source vector graphics tool similar to Adobe Illustrator. It's designed to be used in creating icons, logos, diagrams, maps, web graphics, and much more. It does this through SVGs, implementing an open standard set by the W3C.



Inkscape supports advanced drawing tools, object manipulation, styling, text manipulation, as well as many other features. It can also export to several formats such as SVGZ, AI, PDF and PNYesG.

Probably one of the most useful things I've done with Inkscape is generate game terrain. This is extremely useful when creating terrain similar to games like World of Goo, or Worms.

### Top 5 Alternatives for Art/Graphics

**Graphics Scale** [humanbalance.net/gale/us/index.html](http://humanbalance.net/gale/us/index.html)

This is a popular tool designed specifically for pixel art. It supports all the features commonly found in pixel art tools, and while there is a pro version, chances are you won't need that since the free version supports all the features commonly needed.

**Hexels** [hexaystudios.com/hexels](http://hexaystudios.com/hexels)

Hexels is a grid-based art program that lets users paint with shapes. The specialised nature of this tool means that artists may find it easier to distinguish their game. If you're interested in seeing the kinds of things possible with Hexels, check out [madeinhexels.tumblr.com](http://madeinhexels.tumblr.com)

**Piskel** [piskelapp.com](http://piskelapp.com)

This is a pretty new open source web-based pixel art tool. It supports layers, frames, previews, imports, and all the other basic functionality you'd expect from a pixel art program. One of the coolest things about Piskel is the fact that because it's web-based, it allows its users to create accounts and save their progress online. The most obvious advantage of this is being able to pick up where you left off without carrying the files around with you, or worrying about the machine you're currently using having the software installed.

**Spriter** [brashmonkey.com](http://brashmonkey.com)

Spriter is a relatively new animation tool which was created through Kickstarter backing. It allows you to set up advanced animation sequences using an editor, without the need to worry about which development



environment you are using. It also allows an artist to create, preview and tweak animations without the need of a programmer, which can remove a lot of the overhead in getting a game looking right. Spriter was used on Gunhouse, made by this magazine's editor (Brandon Sheffield) and his team.

### **Wings3D** [wings3d.com](http://wings3d.com)

This is a 3D modeling software program similar to Blender. While Blender supports more features than Wings3D, people often prefer Wing3D because of its simpler UI and refined feature set.

### **Audio**

While there are plenty of free tools for development and art, for whatever reason I've always found it hardest to find good free audio tools. Here are some tools that I think are pretty useful for editing audio or

creating music and sound effect.

### **Audacity**

[audacity.sourceforge.net](http://audacity.sourceforge.net)

Audacity is a cross-platform open source audio editor and recording tool created by Dominic Mazzoni and Roger Dannenberg in 1999. Several years later, it's still being developed, with new improvements coming every release.



You can use Audacity to record live audio, record computer playback, perform noise removal, add audio effects, convert, edit or mix multiple types of audio formats, as well as export to multiple formats. Audacity also supports plugins and allows custom effects to be made using a programming language called Nyquist.

Some of the most basic uses of this software

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would be to remove lag in podcasts where the speakers are in different locations. This would be done by every participant recording their own audio stream using Audacity, and afterward stitching every audio stream together in the editor while accounting for the lag that happened while recording.

Another simple use for this software would be creating sound effects, or splicing up an audio track in case you needed to remove parts of it to make it better loop in your game.

### Bfxr

[bfxr.net](http://bfxr.net)

Bfxr is a browser-based synth program used for generating sound effects. Bfxr is based on Sfxr, a tool that was written during the 10th Ludum Dare, but has been extended over time with additional features.

Bfxr has added new waveforms and filters, expanded the pitch and jump parameters, as well added a mixer and visualizer. It also allows for users to lock specific parameters during randomization and mutation for better control.

Once you've created the sound effects you want, you can then download them as .wav files.

## Top 5 Alternative Audio Tools

### Audio [audiotool.com](http://audiotool.com)

Audio is a web-based audio workstation which can be used to create music for your game. It also supports midi devices, and since it works within a browser you don't have to worry about installing any kind of software. The only downside you might find is that you have to publish your tracks to a public page. You still retain the copyright, but it does mean that the tracks will be seen by everyone.

### LLMS [lmms.sourceforge.net](http://lmms.sourceforge.net)

LLMS is an open source cross-platform audio workstation that allows you to produce music. It supports midi devices, as well as a plugin system to extend the software.

### Famitracker [famitracker.com](http://famitracker.com)

This is tracker specially designed for creating NES/

Famicom audio. This can be useful if you're interesting in creating a game that's trying to be a throwback to that era, or you're simply interested in seeing what you can produce with a more limited set of options.

### MilkyTracker

[milkytracker.org](http://milkytracker.org)

Milky is a popular cross-platform tracker used to create sound effects and music tracks for games. Milky exports to .mod, which is supported by popular game engines such as Unity.

### OpenMPT [openmpt.org](http://openmpt.org)

OpenMPT is a tracker for Windows which allows you to create music and effects for your game. OpenMPT also supports a plugin system which allows it to extend the functionality of the software.

### Misc.

Finally, I've decided to throw in a few pieces of software I use on a day-to-day basis, or have found to be useful at various times.

### Document/Spreadsheets

[Google Docs](http://Google Docs) [docs.google.com](http://docs.google.com)

This comes in pretty handy if you're trying to put together documents for your project and want to collaborate with someone else.

### Libre Office [libreoffice.org](http://libreoffice.org)

Libre Office is useful if you'd rather store all your documents locally, or know you're going to be without a connection and need to work on those spreadsheets!

### Source Control

[Bitbucket](http://Bitbucket) [bitbucket.org](http://bitbucket.org)

BitBucket provides Git and Mercurial source control, a wiki, and issue tracker. Free accounts are provided for up to five users, but after that you'll need to start paying.

**Github** [github.com](https://github.com)

Github provides source control, a wiki, and issue track. Unfortunately, unlike BitBucket, all free accounts are publicly viewable unless you pay for a private account. However, a pretty neat feature in Github is Github pages. These allow users to create a static website for the projects they host there. A lot of users use this feature to host their own blogs. You could do the same thing for your game website and save yourself some money.

**Project Management**

There are many project management tools out there, but unfortunately most of them are bloated, or filled with junk I don't think is particularly useful. Here are some free ones I've found myself going back to.

**Slack** [slack.com](https://slack.com)

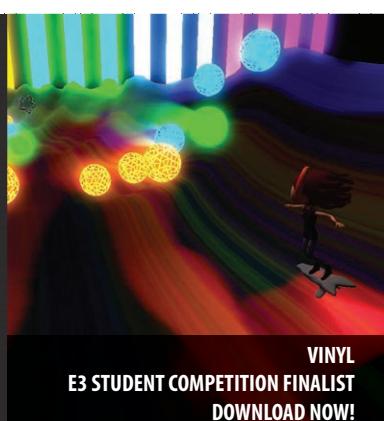
This software is used for team communication. It

allows users to separate out conversations into different channels or topics to help keep track of conversations and issues. It also allows users to hook in different pieces of software, to provide different kinds of notifications to teams. To those who have used IRC it's essentially an IRC web front end with a bot.

**Trello** [trello.com](https://trello.com)

Trello is used for creating, organizing and tracking tasks. This comes in really handy when collaborating with other people.

*Shane Marks is a game developer from Ireland, who has worked on titles for console, desktop and mobile. He is currently working on a new title which will hopefully be super fun times for everyone. Contact him on twitter at @d92008.*



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## TRANSITIONS

**GAMASUTRA SALARY SURVEY 2014** The game industry is inherently prone to change, volatility, and disruption. But in 2013, we began to see the chaos of prior years settle down just enough to allow game makers to familiarize themselves with the current reality. Whereas 2012 showed us an industry in flux, 2013 was a year of identifying and dealing with transition. These transitions affected the way game developers make a living.

How so? Most obviously, we can no longer consider the democratization of game development an emerging trend -- lower-barrier game development is now a fact of life. While this created the opportunity for many people to make and release games, it also invited a flood of games onto app stores and digital PC storefronts, making it difficult for anyone to actually find -- let alone pay you for -- the game you made.

In triple-A game development, 2013 was a year in which salaried employees adjusted to a release slate made up of even fewer games than the year prior, and competed over fewer jobs, as large publishers came to terms with the transition, often resorting to layoffs.

And we also transitioned to a new generation of game consoles, the initial success of which left companies scrambling to serve a market that has proved meaningful even through all of the industry's fluctuations and changes.

So here are some of the top-line statistics: In 2013, **salaried game developers in the U.S. earned an annual salary of \$83,060 on average**, which is down slightly compared to last year's \$84,337.

Fourteen percent of our respondents said they were laid off during the course of the year, which is 2 percent higher than 2012. But **60 percent said their salary increased between 2012 and 2013**, versus 32 percent who said their pay stayed the same, and 9 percent who said it decreased.

Despite the fact that making video games is hard, **general sentiment surrounding a career in game development is positive**, with 45 percent saying they agree that the game industry is "still a great place to work in" (flat year-on-year), with 19 percent "strongly agreeing" (down from 24 percent). The remaining respondents were in strong disagreement to neutral with that statement (only 3.1 percent said they "strongly disagree," flat from the previous year).

**Forty percent said they were satisfied with their current career path**, with 18 percent "extremely satisfied," 29 percent "somewhat satisfied," and 13 percent "unsatisfied."

In the write-in answers to the open question, "Do you have anything to say about the game industry in 2013?", answers indicated that game developers are well-aware of the challenges that the industry poses, which include: **long work hours, job instability, shifting business models, the fact that good games are hard to make, and cultural issues such as sexism**.

But underneath most of these worries, there is an undercurrent of enthusiasm that revolves not around salary, but around loving games, and creating games. That's why people stick with this industry.

Of course, enthusiasm doesn't put food on the table. Here's how game developers earned their living, and how much they made, in 2013.



# GAMASUTRA SALARY SURVEY 2014

## PROGRAMMERS AND ENGINEERS

**\$93,251**  
{avg. salary}

Programmers continue to be among the highest-paid in the game industry. The average U.S. programmer's salary in 2013 was \$93,251, compared to \$92,151 in 2012. That salary is bested by business and legal, and this year, audio (the latter has a much lower sample than programming, and more easily skewed by high-paid outliers).

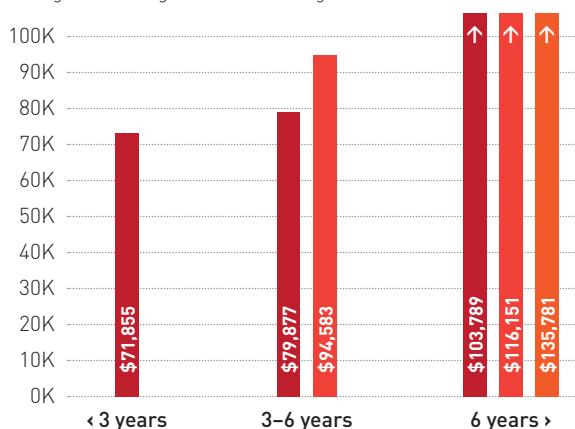
Average pay for U.S. programmers with less than three years experience was \$70,637 in 2013, compared to \$74,008 in 2012. Average salary in the 3-6 year experience range was virtually flat at \$83,695 from \$83,243, and the 6 years-plus category went up, to \$113,177 from \$111,281.

Canadian programmers averaged \$81,660 vs. \$70,712 in 2012, while European programmers made \$47,312, compared to \$43,914 in the prior year.

Out of all job categories, the programming and engineering discipline is the most heavily skewed towards men, who make up 95 percent of total programming respondents.

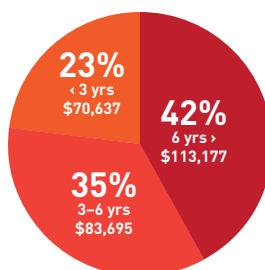
### Programmer salaries per years experience and position

■ Programmer/Engineer ■ Lead Programmer ■ Technical Director



## ALL PROGRAMMERS AND ENGINEERS

### Years experience in the industry



### % receiving additional income

77%  
Average additional income \$16,534

### Type of additional compensation received

Annual bonus	46%
Project/title bonus	17%
Royalties	5%
Stock options/equity	31%
Profit sharing	14%
Pension/Employer contribution to 401K	37%
Percent receiving benefits	94%
Type of benefits received	

### Gender stats

Gender	% Represented	Average Salary
Men	95%	\$93,977
Women	5%	\$79,318

## ARTISTS AND ANIMATORS

**\$74,349**  
{avg. salary}

Visual artists are the people who make video games appealing to our eyeballs. On average, game artists in the U.S. made \$74,349 in 2013, down from \$75,009 in the prior year.

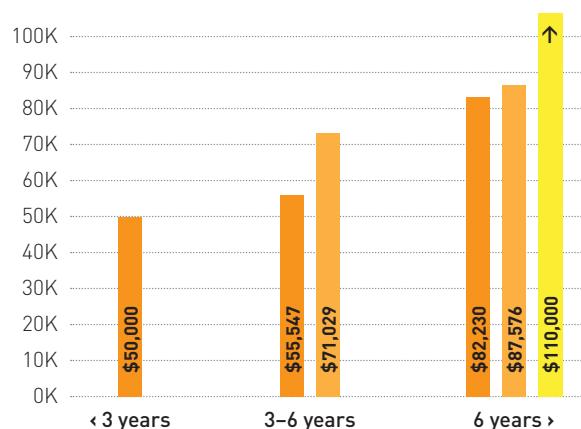
Salaries for U.S. visual artists with under three years experience dropped to \$50,463 from 2012's \$55,682. Visual artists with 3-6 years experience saw an average salary of \$59,942, down from \$64,619. While less-experienced visual artists' average salaries dropped, professionals with over six years experience saw a boost in average salaries to \$86,743, up from last year's \$76,653.

In Canada, visual artists made an average of \$62,663 in 2013, down slightly from \$63,227 in the year prior. Europe-based visual artists averaged \$41,280 vs. \$40,776 year-over-year.

From a gender perspective, visual arts are heavily skewed toward men, who make up 91 percent of respondents. There's also a significant gender wage gap, which amounts to over \$20,000.

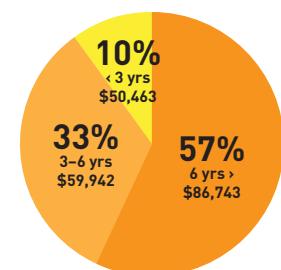
### Artist and Animator salaries per years experience and position

■ Artist or Animator ■ Lead Artist/Tech Artist ■ Art Director



## ALL ARTISTS AND ANIMATORS

### Years experience in the industry



### % receiving additional income

76%  
Average additional income \$15,192

### Type of additional compensation received

Annual bonus	35%
Project/title bonus	25%
Royalties	8%
Stock options/equity	23%
Profit sharing	13%
Pension/Employer contribution to 401K	37%
Percent receiving benefits	97%
Type of benefits received	

### Gender stats

Gender	% Represented	Average Salary
Men	91%	\$76,054
Women	9%	\$55,909



# GAMASUTRA SALARY SURVEY 2014

## GAME DESIGNERS

**\$73,864**  
{avg. salary}

Game designers hold perhaps the most romanticized career path in all of video game development. But 2013 showed that their pay only outranked one discipline: quality assurance.

On average, a salaried U.S.-based game designer made \$73,864 in 2013, down from \$75,065 in 2012. For designers with less than three years experience, the average salary in 2013 was \$50,625, down from \$55,313 the year prior. Designers in the 3-6 year range made \$65,385 on average, up from \$63,639, while designers with over six years of experience averaged \$86,563, down from \$92,583 in 2012.

Canada-based designers made \$60,435, up from \$56,576 in the prior year, and European designers averaged \$39,626, down from \$43,600 year-over-year.

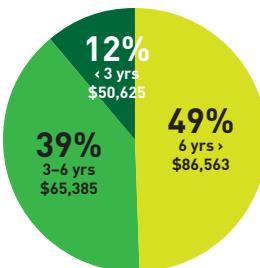
Gender balance shifted 2 percent year-over-year in favor of women, who made up 13 percent of all game designers polled. As for the gender wage gap, men were paid about \$4,500 more on average in the U.S.

**Game Designer salaries** per years experience and position



## ALL GAME DESIGNERS

### Years experience in the industry



### % receiving additional income

77%  
Average additional income \$13,860

### Type of additional compensation received

Annual bonus	40%
Project/title bonus	29%
Royalties	9%
Stock options/equity	28%
Profit sharing	11%
Pension/Employer contribution to 401K:	30%
Percent receiving benefits	95%
Type of benefits received	

### Gender stats

Gender	% Represented	Average Salary
Men	87%	\$74,448
Women	13%	\$70,000

## PRODUCERS

**\$82,286**  
{avg. salary}

A good producer is essential in keeping a project focused and on track.

Producers in the U.S. averaged an annual salary of \$82,286 in 2013, down from \$84,127 in 2012. Per years of experience, producer salaries were down across the board. Those with under three years of experience averaged \$50,192, compared to \$63,472 in 2012, a \$13,000 drop.

Producers with 3-6 years experience averaged salaries of \$70,833 in 2013, down from \$77,077. Those with more than six years experience made \$92,853 on average, down from \$95,976 in 2012.

In Canada, producers averaged \$68,000 annually, down from \$76,875. Europe-based producers made \$56,274 on average vs. \$54,167 the prior year.

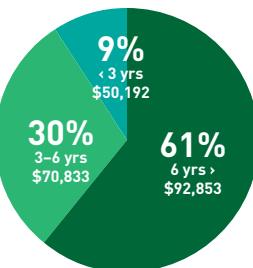
The producer discipline had the highest percentage of women, who made up 22 percent of all salaried U.S.-based producers who responded to the survey. They were still paid \$8,400 less on average, however.

**Producer salaries** per years experience and position



## ALL PRODUCERS

### Years experience in the industry



### % receiving additional income

83%  
Average additional income \$12,798

### Type of additional compensation received

Annual bonus	46%
Project/title bonus	25%
Royalties	7%
Stock options/equity	25%
Profit sharing	14%
Pension/employer contribution to 401K	43%
Percent receiving benefits:	95%
Type of benefits received	

### Gender stats

Gender	% Represented	Average Salary
Men	78%	\$84,151
Women	22%	\$75,726



# GAMASUTRA SALARY SURVEY 2014

## AUDIO PROFESSIONALS

**\$95,682**  
(avg. salary)

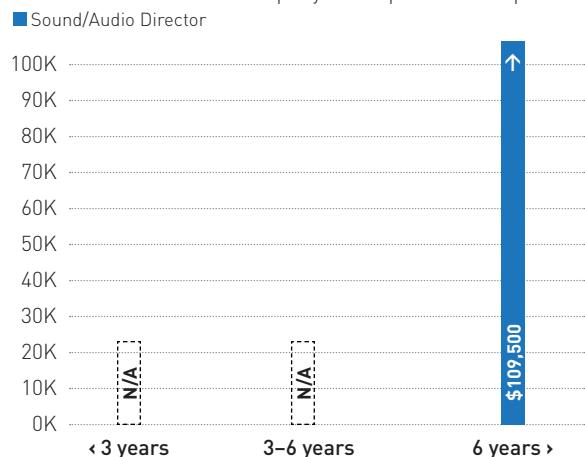
A good audio person can turn a good game into a great one. There are actually relatively few salaried audio professionals, as a lot of these jobs are contracted. That means we didn't have many respondents for this category — even less than last year.

However, full-time audio professionals in the U.S. averaged \$95,682, up from \$81,543 [again, there was a smaller pool of respondents, so the results are more easily skewed].

Audio professionals with 3-6 years experience averaged \$60,227, down from \$68,167, while those with over six years experience earned \$118,750 on average, up from \$98,846. Unfortunately, we didn't gather enough responses for entry-level salaried audio professionals. We also didn't have enough respondents to accurately determine Canadian and European averages.

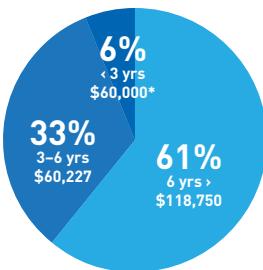
Of all U.S. salaried audio professionals polled, 91 percent were men. This discipline saw the highest average additional income on top of salary, at more than \$32,000.

### Audio Professional salaries per years experience and position



## ALL AUDIO DEVELOPERS

### Years experience in the industry



### Gender stats

Gender	% Represented	Average Salary
Men	91%	\$98,500
Women	9%	\$67,500

### % receiving additional income

84%  
Average additional income \$32,135

### Type of additional compensation received

Annual bonus	41%
Project/title bonus	22%
Royalties	19%
Stock options/equity	13%
Profit sharing	31%
Pension/Employer contribution to 401K	41%
Percent receiving benefits	94%
Type of benefits received	

### Gender stats

Gender	% Represented	Average Salary
Medical	94%	
Dental	91%	
401K/Retirement	82%	

## QA TESTERS

**\$54,833**  
(avg. salary)

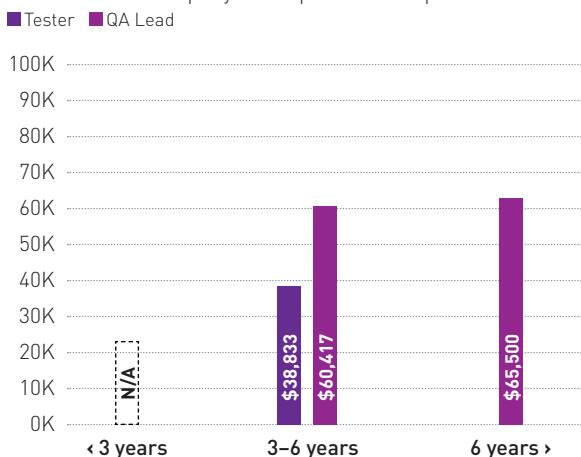
Quality assurance plays a vital role in players' experience with a game, but it is perennially the lowest-paid job category in the game industry. The average salary for a QA professional was \$54,833 in 2013, which is actually up from \$48,611 in 2012 (but still lower than all other disciplines).

QA professionals with 3-6 years experience averaged \$48,426, up from \$44,167 in the year prior. Those with over six years experience made \$62,885 on average, down from \$65,000. We weren't able to garner enough responses for full-time entry-level QA.

QA staff in Canada averaged \$36,500, vs. \$41,731 in the year prior. Europe-based QA staff made \$31,346 on average, compared to \$31,000 in 2012.

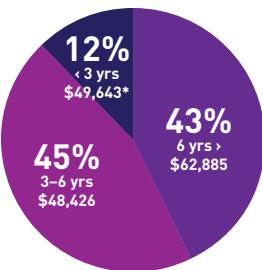
Men made up 88 percent of all salaried U.S.-based QA staff polled. This discipline was the only one in which women were paid more than their male counterparts, by more than \$2,200.

### QA Tester salaries per years experience and position



## ALL QA TESTERS

### Years experience in the industry



### Gender stats

Gender	% Represented	Average Salary
Medical	88%	\$54,576
Dental	86%	
401K/Retirement	83%	



# GAMASUTRA SALARY SURVEY 2014

## BUSINESS AND MANAGEMENT

**\$101,572**  
(avg. salary)

This category includes the people whose job it is to keep a company organized and, in the best scenarios, financially healthy. This includes people who are executives, executive managers, community managers, legal staff, human resources, IT, content acquisition and licensing, and general administration staff.

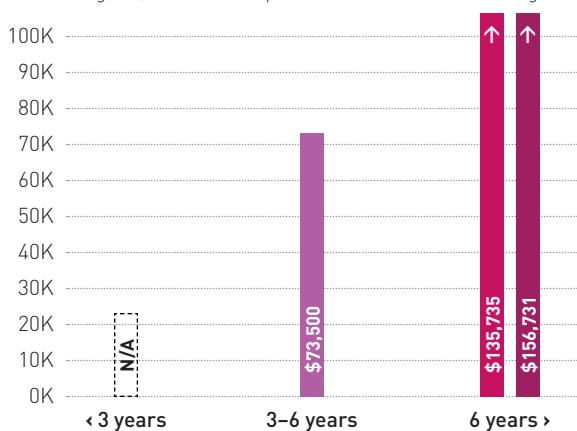
This is typically the highest-paid discipline, and 2013 followed tradition. The average salary for business professionals in the game industry is \$101,572, down slightly from \$103,934 in 2012.

Business professionals with less than three years experience made \$69,853 on average in 2013, compared to \$67,348 in 2012. Those with 3-6 years experience averaged \$81,042, down from \$85,081 from a year prior, while businesspeople with over six years experience made \$120,000 on average, down from \$128,819 in 2012.

Canada's game industry businesspeople averaged \$81,250 in 2013, up from \$78,750. Europe-based business staff made \$57,500, down significantly from last year's average of \$72,652.

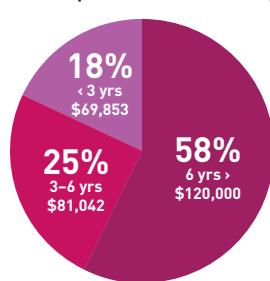
### Business/Management salaries per years experience and position

■ Marketing, PR, sales ■ CEO/president ■ VP/executive manager



### ALL BUSINESS AND MANAGEMENT PEOPLES

#### Years experience in the industry



% receiving additional income: 80%

Average additional income: \$27,246

Type of additional compensation received

Annual bonus	49%
Project title/bonus	10%
Royalties	5%
Stock options/equity	33%
Profit sharing	20%
Pension/employer contribution to 401K:	25%
Percent receiving benefits:	91%
Type of benefits received	
Medical	91%
Dental	80%
401K/Retirement	71%

#### Gender stats

Gender	% Represented	Average Salary
Men	79%	\$104,513
Women	21%	\$90,250

### {AVERAGE SALARY} BY U.S. REGION

(across all levels of experience and disciplines)

West	\$89,559
Midwest	\$70,857
South	\$74,838
East	\$76,677



### {TOP 10 STATES} WITH HIGHEST AVERAGE SALARIES

(across all levels of experience, excluding states with low sample size)

	AVERAGE SALARY	PERCENT WHO OWN HOMES	AVG. SALARY OF HOMEOWNERS
1 California	\$91,602	29%	\$112,301
2 Washington	\$90,217	41%	\$105,669
3 North Carolina	\$88,214	48%	\$98,000
4 New York	\$82,738	17%	\$108,214
5 Nevada	\$79,286	36%	\$106,000
6 Texas	\$79,098	55%	\$90,858
7 Maryland	\$78,851	32%	\$84,583
8 Illinois	\$77,500	46%	\$88,409
9 Massachusetts	\$73,500	38%	\$88,289
10 Georgia	\$73,354	34%	\$99,642

### {AVERAGE SALARY} BY U.S. REGION BY DISCIPLINE

	EAST	MIDWEST	SOUTH	WEST
Programming	\$84,460	\$76,538	\$81,882	\$99,851
Art and Animating	\$72,236	\$68,928	\$64,705	\$79,948
Game Design	\$72,717	\$64,318	\$64,939	\$77,906
Production	\$78,571	\$69,500	\$84,464	\$83,478
Audio	\$58,500	\$75,000	\$67,500	\$112,500
QA	\$52,500	\$60,833	\$41,388	\$58,310
Business/Mgmt.	\$96,000	\$66,785	\$95,700	\$109,681

### {AVERAGE SALARY} FOR HOMEOWNERS VS. NON-HOMEOWNERS BY U.S. REGION

	EAST	MIDWEST	SOUTH	WEST
Homeowners	\$89,100	\$85,166	\$89,896	\$106,609
Non-Homeowners	\$68,636	\$57,631	\$60,540	\$79,315

### {AVERAGE SALARIES} U.S., CANADA, AND EUROPE

	U.S.	CANADA*	EUROPE**
OVERALL	\$83,060	\$71,445	\$46,232
Programmer	\$93,251	\$81,660	\$47,312
Art and Animation	\$74,349	\$62,663	\$41,280
Game Design	\$73,864	\$60,434	\$39,626
Production	\$82,286	\$68,000	\$56,273
Audio	\$95,682	\$83,928	\$66,666
QA	\$54,833	\$36,500	\$27,500
Business	\$101,572	\$81,250	\$57,500

\*Most Canadian respondents were from Quebec (42%), British Columbia (28%), Ontario (20%), and Alberta (5%).

\*\*Most European respondents were from the United Kingdom (21%), Germany (11%), France (9%), Spain (8%), and Sweden (6%).



# GAMASUTRA SALARY SURVEY 2014

## THE INDIE REPORT

*This is the fifth year for the indie developer salary report, in which we survey non-salaried game developers. 2013 was a mixed bag overall, with some salaries up, some down year-on-year.*

*The drop in solo salaries is particularly alarming, while the rise in indie team salaries seems promising -- but be careful in making assumptions about this data. We've found that average indie salaries are prone to big fluctuations over the years. Practice the fundamentals of good game development, and adjust for a market that is noisier than it has ever been. Here are the highlights from the indie survey\*:*

### 1/ SOLO INDIE SALARIES WERE DOWN

Solo indie developers earned an average income of \$11,812 in 2013, down 49 percent from 2012's \$23,130 average. This drop may be attributed to the fact that most anyone can make and release a game if they want to, from experienced full-time game developers to part-time hobbyists with less experience with the market.



49%

### 2/ MEMBERS OF AN INDIE TEAM EARNED MORE INCOME

Individual members of an indie team fared better than solos, earning an average of \$50,833, up 161% from 2012's \$19,487. Of course, more overhead for a team doesn't automatically equate to making more money, but there is something to be said for having more hands (and brains) on a project.



161%

### 3/ GAME SALES MADE UP MOST INDIES' GAME DEV INCOME

Most indie game developers -- 57 percent -- said they did not have any additional game dev income outside of game sales. Meanwhile, 27 percent said they made additional income through contract work.



57%



27%

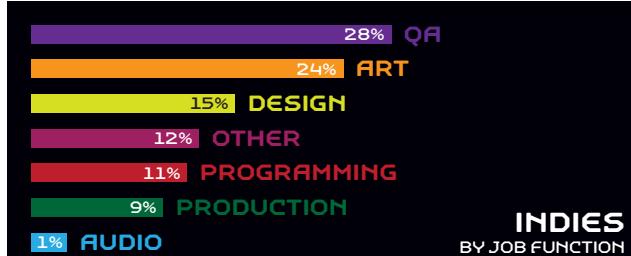
Other sources of income came from promotions (including non-game DLC and other content), sponsorship opportunities, awards or grants, crowdfunding, or other methods. Less than 6 percent of respondents said they made income in any of these other categories.

### 4/ ONLY A FEW INDIES BRAVED THE CROWDFUNDING ROUTE

Crowdfunding is a hot topic, but only 5 percent of indie respondents had collected any income from



5%



crowdfunding. Of the very small sample who said they made crowdfunding money (only 17 responses), one collected over \$200,000.

### 5/ LESS THAN ONE IN 10 INDIES MADE SALES ON PAID ALPHAS

A small percentage of respondents -- 8 percent -- said they made money from paid alpha sales. Nearly half of the developers who made money from paid alpha sales said those sales comprised



8%

96-100 percent of their total game sales in 2013.

### 6/ MOST INDIE GAME DEVS MADE...NOT SO MUCH

Fifty-seven percent of indie game developers (including both solo indies and members of indie teams) made under \$500 in game sales. On the other end of the spectrum, 2 percent made over \$200,000 in game sales.

\*Results only include developers who made more than \$10,000 in 2013, and were capped at \$200,000, unless otherwise noted.

## {AVERAGE SALARIES} BY EDUCATION LEVEL AND DISCIPLINE

(across all levels of experience)

	PROGRAMMING	ART	DESIGN	PRODUCTION	AUDIO	QA	BUSINESS
<b>High school/GED</b>	\$97,500	\$95,000	\$71,500	\$67,500	N/A	\$53,750	\$127,500
<b>Some College</b>	\$103,438	\$79,250	\$80,833	\$90,109	\$113,750	\$54,167	\$90,500
<b>Associates Degree</b>	\$98,056	\$72,000	\$78,214	\$90,000	\$87,500	\$52,500	\$45,833
<b>Bachelors Degree</b>	\$89,422	\$71,379	\$68,125	\$81,397	\$80,735	\$53,611	\$95,872
<b>Some Graduate</b>	\$99,500	\$83,611	\$100,000	\$90,500	N/A	\$32,500	\$157,500
<b>Masters Degree</b>	\$97,763	\$88,000	\$70,692	\$75,962	\$85,833	\$65,000	\$106,000
<b>Some Doctoral</b>	\$97,500	N/A	\$113,750	\$87,500	N/A	N/A	\$202,500
<b>Doctoral Degree</b>	\$102,500	N/A	\$122,500	\$82,500	N/A	\$42,500	\$123,750



# GAMASUTRA SALARY SURVEY 2014

## THE GENDER GAP

*The gender pay gap is once again a hot topic in the world of U.S. politics, and in the world of video game development, the issue has reared its head.*

According to our salary survey, men working U.S.-based salaried jobs in the game industry made \$85,074 on average in 2013, whereas women made an average of \$72,882 (excluding students and educators).

U.S. overall, women make 77 cents on every dollar that men make, according figures from a 2012 Census Bureau survey.



### AVERAGE SALARY

MEN	\$85,074
WOMEN	\$72,882

That means on average, women made 86 cents on every dollar that men made in the U.S. game industry.

While it's still an issue that needs to be fixed, the game industry gender wage gap is smaller than the national average: In the

### PENNIES ON THE DOLLAR

#### AUDIO

\$1.00

\$0.68

#### BUSINESS

\$1.00

\$0.86

#### DESIGN

\$1.00

\$0.94

#### PRODUCTION

\$1.00

\$0.90

#### PROGRAMMING

\$1.00

\$0.84

#### QA

\$1.00

\$1.04

#### ART

\$1.00

\$0.73

■ MEN ■ WOMEN

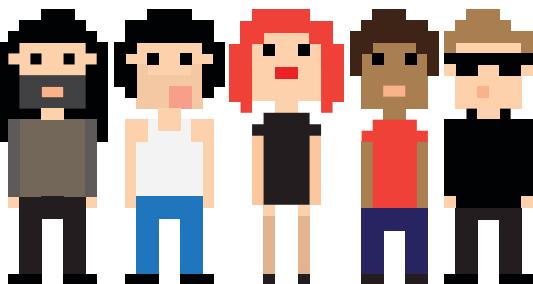
The chart below shows the pay gap in various game industry positions. In 2013, game design had the smallest gap, with women making 94 percent of what men do on average in the U.S. Audio professionals had the largest, with women making 68 percent of men on average.

Research beyond the realm of video games has examined possible causes for the gender wage gap. One of the prevailing theories, reported by Pew Research, is that women are more likely to experience career interruption than men, as a higher percentage of women take time off to care for family. Such career interruptions could have an impact on longer-term earnings.

More flexibility in working conditions and hours could hold the key to further closing the wage gap, and perhaps have a greater effect than employee revolt or anti-discrimination laws, experts say.

Harvard University labor professor Claudia Goldin said in a recent paper, "The gender gap in pay would be considerably reduced and might vanish altogether if firms did not have an incentive to disproportionately reward individuals who labored long hours and worked particular hours."

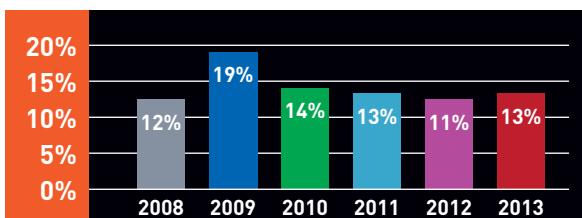
The government this year has made the gender wage gap a sticking point for U.S. politics. In April, President Obama backed directives meant to help close the wage gap by signing legislation that would make it easier for workers to sue companies for disparate pay.



### LAYOFF RATES

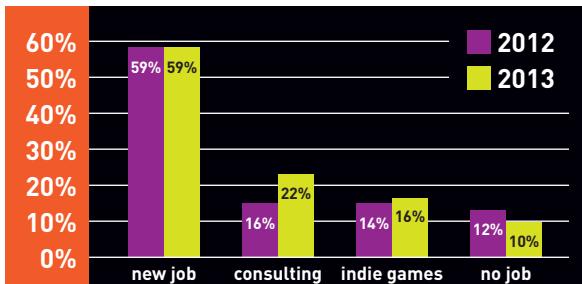
While previous years have seen a downward trend in layoffs, 2013 saw a slight increase.

Fourteen percent of respondents said they were laid off in 2013, up from 12 percent in 2012. Still, layoffs in the game industry are 6 percent lower than 2009, when 20 percent of those polled said they had been laid off that year.

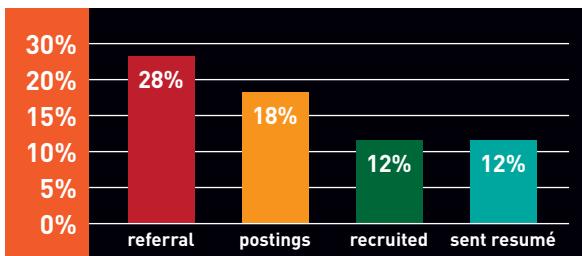


Of developers who were laid off, 59 percent eventually found new employment at a game studio or publisher, flat from 2012. The next-most popular post-layoff move was to primarily go into consulting, with 22 percent choosing that path, up from 16 percent last year.

Sixteen percent moved into indie game development (up 2 percent), while 10 percent said they haven't found new work in the game industry since they were laid off (down 2 percent).



The most popular ways to find a job in 2013 were via referral (28 percent), job postings (18 percent), being recruited directly by the company (12 percent), and sending in a resume (12 percent).





## SALARY SURVEY COMMENTS

### SALARY

“ [The industry] needs to consider actually paying employees a wage that competes with other industries, as well as overtime.”

“ I’ve left the games industry due to low pay and long hours.”

“ It’s harder than ever to make a living, as clients expect to pay less for their games.”

“ Pay is still terrible, and based on the attitude of, ‘There are plenty of people who want your job.’”

“ Pay with larger companies seems to be going up again, finally!”

“ We need unions. Employees remain under-represented and underpaid.”

### BALANCE

“ Work-life balance has never been worse for production teams. It’s especially bad for 3D and engine programmers (the actual people that ship the game at the end).”

“ It’s imperative that companies... [be] flexible if employees need to be there for our families.”

“ The future is bright. Work-life balance has improved dramatically; sales are in constant growth; digital distribution and a prolific indie scene democratize development even while AAA budgets continue to grow.”

“ The games industry has still a lot of learning to do when it comes to treating employees as creative humans: crunch time destroys the work-life balance and in the end kills creativity.”

### DIVERSITY

“ The industry needs more diversity...and a worldwide workforce from all backgrounds.”

“ Diversity of audiences is still largely not reflected in game content.”

“ I’ve been very pleased with the issues of diversity in games finally being shouted from the mountaintops. #1ReasonToBe really empowered me this year.”

“ The games industry is a truly vibrant and diverse place. ... That said, there are some very close-minded people. The games industry, and gaming in general, doesn’t need that.”

“ The industry is definitely becoming more accepting of women, which is awesome and speaks towards a bright future of diverse and interesting games I think.”

“ Still way too few women in the biz.”

### AAA

“ The lowering of barriers... makes me super excited for what new cool things will come out of the industry. It also makes it a little scary for corporate gaming companies, for which I am currently employed.”

“ There are seemingly less opportunities in AAA development right now but low-end, indie and mobile seem to be picking up the slack.”

“ 2013 seemed like one of the worst years for company closures of traditional, “big box,” triple-A studios.... We have to

perform like rockstars but are definitely not getting paid for it.”

“ Triple-A can kill the passion of people. We have to take care of how we work big projects.”

“ Triple-A is not the future for us grunts. We are losing authorship as these games grow larger, and we suffer the most when they fail.”

“ Despite knowing how unlikely it is, I would love the focus to shift back to AAA.”

### INDIES

“ For me, it is hard to earn income as an indie.”

“ Being an indie developer has never been more challenging due to the sheer volume of indie developers trying to gain the attention of the same consumer audience.”

“ More indie development opportunities are available than ever before!”

“ The game industry is a great yet scary place for indies right now. There have never been more opportunities to get involved, but there has also never been more competition.”

“ Large studios are not nimble enough for today’s industry. That said, it’s never been more

difficult for an indie to get recognized. More competition, more requirements, more initial investment. This should be interesting.”

“ Indie is king. Down with AAA. lol jk jk.”

### SO HAPPY

“ It is still an amazing thing to see a product that so many people are excited about come together over the products life time! With so many great games coming out these days, the game industry is a great place to be!”

“ The expansion of the games industry into regions such as India, China and Brazil is exciting.”

“ Beyond the traditional next-gen console shift, mobile platforms have changed everything, making the games business a whole new world of opportunity. Love it!”

“ 2013 brought about changes in our industry, in terms of business and cultural diversity. With these main changes, and subsequent subtle changes, the games industry was, and will continue to be a fantastic industry to work in.”

“ I absolutely love the games industry and cannot see myself working for any other industry.”

### [METHODOLOGY]

With the help of research firm Audience Insights, we sent email invitations to Game Developers Conference 2014 attendees, and Gamasutra members in May 2014 inviting them to participate in our annual salary survey.

Although we received well over 4,000 unique responses worldwide, not all who participated in this survey provided sufficient compensation information to be included in the findings. Among participants, 6.5 percent were disqualified as not having derived their income directly from the game industry.

We also excluded cases in which the compensation was given as less than \$10,000 USD, and the highest salary range was limited to \$200,000 USD to prevent a limited number of outliers from distorting the true central tendency of the computed average salaries in each category. We further excluded records missing key demographic and classification information.

While there were participants from all parts of the world, this report focuses primarily on U.S. compensation, plus additional consolidated figures for respondents from Canada and Europe. The total sample reflected in the data presented for U.S. is 1,246; for Canada 292; and for Europe 573. For other global regions there was insufficient sample size to include in the report.

The sample represented in our salary survey can be projected to the overall game developer community with a margin of error, for the U.S., of plus or minus 2.6 percent at the 95 percent confidence level. The margin of error increases for specific subgroups reported within this community.

# MAKING THE LEAP

**WHEN PROFESSIONALS FROM OTHER INDUSTRIES WANT TO ENTER GAMES**

Dawn Rivers and Benjamin Taylor

## ALWAYS THOUGHT THERE WAS A CONVENTIONAL PATH FOR GETTING INTO

the game industry -- until of course it was time to pursue game art as a career, leaving behind my existing profession.

### Dawn's path

I knew I wanted to become a 3D artist sometime between 1998 and 1999, when the masterful use of polygons immersed players in Ocarina of Time's Hyrule, and the cut scenes of Final Fantasy VIII enchanted us. In 2005, I choose to attend the Ringling College of Art and Design, both for their competitive Computer Animation program and their connections with game industry recruiters. I was certain that if I came out on top, I could get into game art with ease. By the time I graduated in 2009 with an animated short and a portfolio focused on cinematography, it seemed specialists such as myself were not in high demand in the game industry.

But as it turned out, lighting specialists were in high demand at Pixar Animation, and the rest of the film industry at large, and I was quickly invited to intern at Pixar that summer! Following the internship I became a full-time lighting technical director, and stayed there through 2012. At Pixar, I had the incredible opportunity to learn under some of the best directors of photography and lighters in the animation industry. My portfolio was filling up with landscape paintings, character renders, mood studies, and everything needed to make a well-rounded 3D lighting portfolio. The internship was very intensive, and we learned to light based on the artistic stylings of the film, "Up." I couldn't help but think with this kind of experience I'd be able to apply for any lighting, environment, or post-production job, and I could easily make a beeline to my dream career in games. I was horribly mistaken.

I still had important lessons left to learn, but at the time, I didn't know it. I thought I was set.

### Trying to apply

Between the internship and becoming a full time employee, I took that opportunity to apply again to game companies. I was passionate. I had a strong cinematography portfolio, demo reel, and great credentials. I quickly applied for dozens of game art jobs and even more quickly got rejected by all of them. Most companies reflected the same tone in their rejection letters; they claimed I was very talented, had a great resume, but they couldn't see where my specialty fit in to their pipeline. They saw that I had no real game development experience or a portfolio that even reflected that I understood a game art pipeline.

This feedback only solidified when I went to apply to companies in person at GDC 2010. I received glowing portfolio reviews at every booth hiring 3D artists, but as soon as the reviews were finished I would often get asked, "Are you really interested in making games?" "Is this really what you want?" "I have friends at [...insert film company here...] that I could put you in touch with." Admittedly, it was crushing. I couldn't think of a person who wanted to be a game artist more than I did, but I had no way of showing it! So when those questions came up, I was certain to ask, "How do I show you that I can make games." And the response that I got from everyone was the same; "Make games."

Now that I had a clear objective, it was time to take action!

The first steps I took toward building a better understanding of game art and broadening my perspective was The Global Game Jam. In case you're not familiar with it, the Global Game Jam is a 48-hour event hosted at various cities across the world that's devoted to nothing but game making and collaboration. There's a new theme every year, and often company sponsorship helps provide things like free Unity Pro licenses for the duration of the jam, or



access to Adobe products and art tools. Inspirational speakers like Jesse Schell and Will Wright offer up their wisdom in keynotes, and everyone from hobbyists to AAA developers show up to make cool and unique games.

I have been game jamming every year since 2010. My first game, "Shame of the Skunk Monk," was created with a desire to learn how to make flash games, and to build a sprite portfolio. Since then, I try to learn something new at every Global Game Jam, and have succeeded every year. My husband Ben

Taylor can describe more thoroughly what that means, later in this article. Through jams I've learned Unity, Flash, how to use Twitter's API for games,

how to collect data from leaderboards, sprite making, game animation, low-poly modeling, game testing best practices and so much more.

I took my love of experimentation and decided to make an indie company, Mechamagizmo, to better learn what makes mobile games fun, and to spend more time building a stronger

knowledge of Unity 3D. Having a company also allowed me to participate in more Hackathons, reality game making shows like IGN's "The Next Game Boss," and even showcase our games at demo nights at Google. All this allowed me to grow as an artist at Pixar, while simultaneously gaining experience as a game developer.

## The leap!

At GDC 2012 Harmonix approached me to learn more about some of their new projects. I had interviewed out of school with Harmonix, and not only admired the crazy and innovative games they made, but the creative company culture they harbored. After our initial meeting I was sold on the projects they were creating (one of which was Fantasia: Music Evolved) and very excited to

hear that they did in fact need a lighting artist.

I knew right then that I had to give it a try. The truth of the matter was even though I excelled at my job at Pixar, I was very creatively unfulfilled. With such a large company full of remarkably talented individuals vying for the same leadership roles, it was never very clear if I would ever have the artistic freedom that Harmonix was offering. I also knew, deep down in my heart, that I really wanted to make games professionally. Thanks to the two years I spent building my game portfolio as an indie, and learning to collaborate like a game developer through game jams, I was prepared to leap on this once in a lifetime opportunity.

It was far from a straight shot into my game career. I had to go to school and build my skills independently before I could make the leap. I did not immediately break in, but instead worked earnestly at a job and on my own projects before I could move on. Real achievements are the ones that are truly earned. That's how I made the leap into video games.

My husband's journey was equally as serendipitous, going from artist to engineer. Though we went to school together, his path led him directly into games, and from within the industry he was able to change roles. Like me, he is both a triple-A and indie game developer, and he regularly gives talks about the distinction between the two. What follows is Ben's perspective on making the leap between disciplines.

## Ben's Path

I started young, taking my first programming class at age 7 at Penn State in 1992. I knew it came

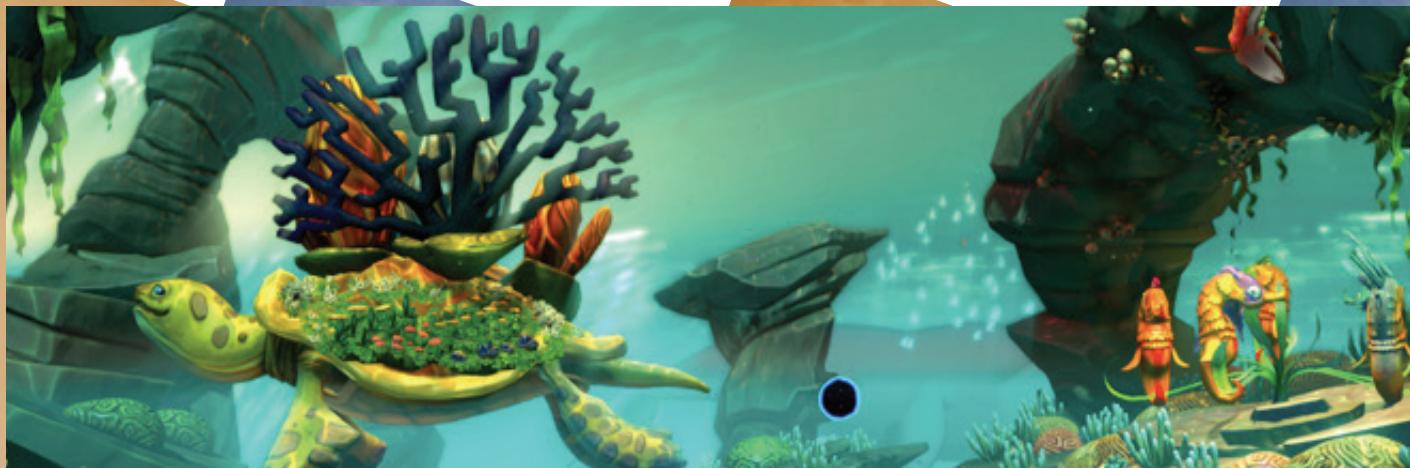
easily to me, and like so many things with kids, I became more engaged with the things that challenged me. I bring this up because I believe this foundation is what allowed me to build my skills over time, be prepared for opportunities that arose, and eventually make leaps. Of course, any skills take time, but I understood that proficiency in art and language were things that would take years and years of practice.

I also understood that I was awful, well under my technical objectives, when it came to creating art.

This would lead me to study at the same art school as Dawn (Ringling), where we met. During my time there I ran the school's gaming club in a very entrepreneurial way, creating different rooms for different areas of game design and development. However, the "game creation" section turned out to be a failure, when only three people attended regularly, Dawn, Michael "Bean" Molinari, and myself.

This was my first experience making games, and a total leadership failure on my part.

During the summer of my junior year, I was hired by Carnegie Mellon to write the art curriculum for a summer gaming pre-college, the National High School Game Academy. As an instructor, I finally had the opportunity to solidify what I had learned in the past, and all of my failures and experiences suddenly made sense. From then on, I would constantly and



purposely put myself in danger. That postmortem experience was immensely valuable to me, and it was an incredible coincidence that during that same summer in 2006, I would be commissioned to brand the IGDA Education SIG for a very important woman: Susan Gold, the creator of the Global Game Jam.

I would later end up attending the same graduate program that hired me, CMU's Entertainment Technology Center, and take their introductory game-jam-like program called Building Virtual Worlds. This was my first time working on cross-disciplined teams that resembled the game industry. After being taught game design by Jesse Schell, dozens of game jams, hackathons, and experimental projects, I would be hired by Will Wright as the art director for the Stupid Fun Club. It was here that I had the opportunity to make slightly larger jumps into design and engineering, especially as I hired my art team to take over 3D, illustration, and graphic design tasks from me.

Along the way, I never stopped teaching. It was through teaching that everything made sense.

## The leap!

With an intense desire to work on a SimCity, I was hired by EA Maxis as a gameplay scripter; a design position. It was here that I continued to learn game design under Stone Librande, and make larger leaps into coding. Using the engineering skills I had slowly been developing over the past two decades, I was able to convince our development director to let me tackle some programming tasks. I transitioned into a more user interface and user experience-centered role, and got to spend several months clearing bugs as an

engineer. After we reached "disk final" on SimCity 2013, I went on to become a full-time engineer at Nexon. More than a leap, my path to that point was a series of little jumps.

Constant learning, honing skills, and adapting are what allowed me to make the leap. I had the perspective gained from performing many different roles.

## Just keep swimming

Of course, this is central to being an indie and an entrepreneurs -- the necessity to wear a lot of hats. Dawn and I continue to slowly and solidly develop our expertise. Our company exists to protect what we've done in the past as we continue to seek out new, exciting educational outlets. We're constantly making efforts to help our community, with Dawn's leadership with the Boston IGDA and my speaking at conferences. However, our energy and focus are largely aimed inward as we strive to grow as professionals, not just outward toward the goal of becoming more visible figures in our industry.

*Dawn Rivers is lighting artist at Harmonix Music Systems. Ben Taylor is technical designer of integrated play at Hasbro.*



# YOUR JOB IS AN RPG

ADVANCING YOUR CONTINUING CAREER WITHIN THE GAME INDUSTRY

Sheri Rubin

## **S**O HERE YOU ARE - ALL THOSE YEARS OF HARD WORK BUILDING YOUR

brand, learning your craft, and networking have paid off, and you're living the dream as a video game developer. Now you just have to do well at your job, and the rest will take care of itself...

...except it won't.

The reality is that not only to get in but stay in this industry you'll need to put in some hard work both in and outside of your normal jobs or projects. It doesn't matter if you're a generalist or a specialist, if you've been in the industry for 2 months or 2 years (or even 2 decades!)--it doesn't even matter if you're "indie" or "AAA"--the same rules apply for everyone, and wearing rose-colored glasses won't help you one bit.

One of the biggest misconceptions people have is thinking once you've gotten a job in the industry you've already proven yourself worthy, so you can always get that next job. Believing in that misconception can be a costly, time consuming mistake as you can find yourself back at square one, without a job, having to "re-prove" yourself all over again.

Instead, you need to think about your career as if you were in an RPG, and learn how to equip, train, and become a successful adventurer.

This industry is constantly changing, and one skill you honed to perfection may get nerfed in 6 months, becoming irrelevant. You may be tromping through forests only to find out that most mercenaries have taken to sea, because boats are the new way citizens like to travel.

If you're running your character (aka you) correctly though, you will constantly hear the beloved "ding!" and get access to the best loot and best adventures.

So how do you level up? You start with the character creation process (goals); procure your equipment and armor (personal brand); move on to training (professional development); and then go out and find the best bars, inns, and local festivals (networking).

## Creating Your Character

As you prepare to create your character make sure you read up on all the classes (disciplines) to choose from, as each has their own strengths and weaknesses. There are also different ways you can go about developing as an adventurer, from training up in a specific set of skills or spells (e.g. shaders and automation) to rising up the ranks in a guild (e.g. seniors and leads).

Since you're in the industry, you've already done the prep work of choosing your class, figuring out your base stats and skills, and setting out to get experience as a junior adventurer. But what happens when you level up: Have you figured out what you want your character to do and be as it gets more experience? What feats (Improved Crash Finding) will you choose? Where will you put your skill points (rigging, textures, lighting)? Should you go multi-class (designer/programmer) or focus on a sub-class (quest writer)?

The best way to ensure you have the career you want is to decide what paths you want to take. If you have no idea what kind of adventurer you want to be at level 20 then you'll spend levels 1-19 just randomly rolling the dice and hoping it all works out – if you can keep your character alive that long! Instead, if you think a bit farther than your current quest you can make sure you're finding the right equipment, learning the right spells, going on the right quests, and hanging out with the right adventurers.

So take a moment to really stop and think about what it is that you want long-term. What goals do you have and why do you have them? Do you want to become known for a specialty (environments)? Do you want to lead a guild (creative director)? Become a trainer (game educator)? The answers to those questions and more will really help you define your path and make progress a lot easier as you take the next step in creating your character: procuring equipment and armor.

# CHARACTER CREATION



## Procuring Your Equipment and Armor

Whether you prefer to travel solo as an indie or in a party, you still need to set yourself up for success and come across as authentic and credible. For example, if you were a software engineering lead, but you couldn't write a single line of code, your compatriots probably wouldn't trust you to lead them into battle.

You need to constantly be aware of and maintaining your personal brand. Whether you know it or not, you

have one — your brand is a set of characteristics, style choices, and other things that represent you. It's in the way you talk, the way you look, your profiles, your business cards...basically everything!

How you appear to others and act toward others can often affect your career as you move through the industry, because it directly ties into your ability to network and interface with other people. It can mean the difference between rising through the ranks or being shamed out of the industry.

So before you run off to the smithy buying up silver chainmail or red robes let's figure out your brand. The things you need to figure out are:

- What do you think is your brand?
- Would outsiders agree that's your brand?
- Is your branding consistent?
- How you can change or update your brand?

### **What do you think is your brand?**

You need to know who you are in order to cultivate your brand, but the key here is you need to know who you really are not who you think you are or who you want to be.

### **Would outsiders agree that's your brand?**

Ever have a coworker who says – and tries to act like – they are a reliable, dependable teammate, but all you see is someone who is late to work, doesn't finish their tasks, and constantly screws up? That's someone whose idea of who they are does not match up with how the world sees them.

### **Is your branding consistent?**

Are you portraying yourself as a serious professional on your website and social media profiles but your resume is in Comic Sans (the horror!) and your blog posts are all animated gifs? That is not showing off a consistent brand, and will leave others confused about what to expect from you – especially when considering you for a project/job.

Let me be clear, I am not saying that you have to be and act completely serious and "professional" all of the time. You could choose to present yourself in all situations as quirky or laid back, or make it clear in your branding that you are laid back but can be serious and professional when the situation warrants it – e.g. during contract negotiations with a publisher.

What I am saying is that no matter who you are and which way you go with your brand, you do need to a) make your presentation consistent, and b) understand the potential pros and cons of your choice.

### **How can you change or update your brand?**

Although some of your traits, behaviors, and personality may be mostly immutable (you just can't help being Chaotic Neutral, can you?) it doesn't mean your brand is set in stone. There are things you can do to change, update, and maintain your brand without losing your authentic self.

### **"5 Words or Phrases" Self-Assessment**

So let's figure out your brand so that you can then pick out the equipment you need to be a successful adventurer. One of the easiest ways to begin getting a handle on your personal brand is to complete the "5 Words or Phrases" self-assessment.

This is 3-step exercise (with a bonus step for the overachievers!) I created as a very simple method to make sure the inner you matches the outer you. I cover this in more detail (see Resources) in It Doesn't Matter Who You Are - complete with a downloadable worksheet - but here, in brief, are the descriptions for the three main steps (plus the bonus step!) that comprise this exercise:

#### **Step 1: Ask yourself who you are**

Write down five words or phrases that you think describes yourself – the current you, not who you were or who you want to be. This is not how you think others perceive you, but your own feelings about yourself.

## Step 2: Seek insight from people you trust

Find at least five trustworthy people who know you (at any level) who can be honest, even brutally so. Ask them to give you five words or phrases – negative or positive – that they feel describe and define you as a person to them.

## Step 3: Compare and contrast

Compare the two sets of answers to really assess your self-awareness. If you said you were punctual and hardworking and your friends agreed that's great. If, instead, they said you were lazy and late that's still great. At least you now know that others see you differently, and better yet, you can do something about it!

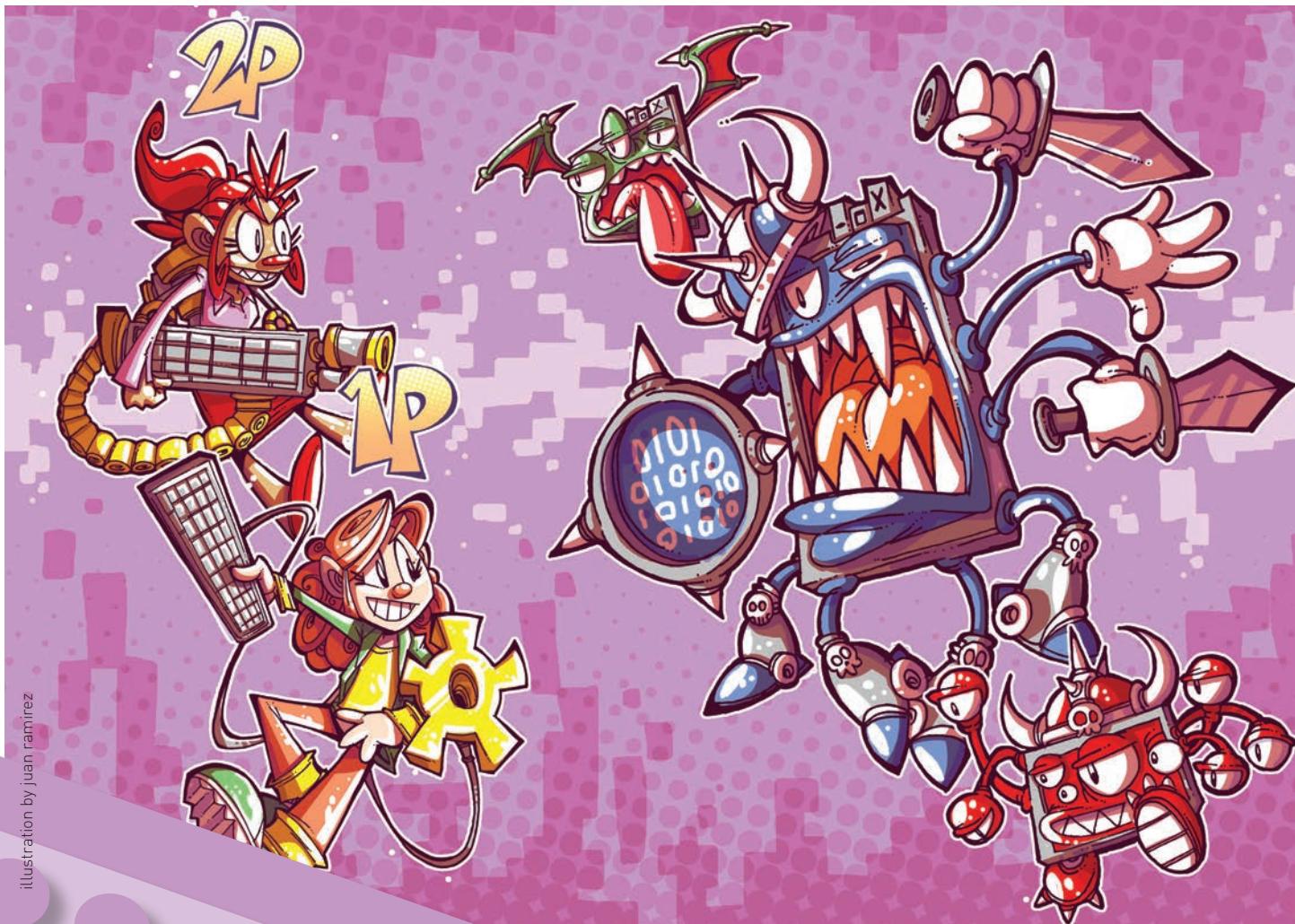
## Bonus Step: The 5 words you wish to be

Consider completing the extra step of writing down the five words or phrases with which you would like

to be used to describe you in the future. This gives you a goal to shoot for and allows you to create actionable steps to help you get there.

## Selecting the Right Armor, Weapons, Tools, and Other Equipment

Now that you have your goals, and you've figured out your brand, it's time to head to the market and pick up the items you need to complete your brand and set you up for success in your quests. Maybe all the armor you purchase is a certain color (I usually wear



or carry something purple to most industry events) or you may need to build out your portfolio to post on the town bulletin board. Perhaps you need to outfit yourself with clothes to wear at your day job, and clothes for speaking at conferences. Here is a sample list of things you might have in your inventory when you're done shopping to furnish your brand:

- Clothes (Doesn't have to be suits and ties, but don't look like a hobo either)
- Business cards (You need your own, not just your company's cards)
- Website/Blog (Preferably on your own domain – see below)
- Portfolio (yes, even for producers!)
- Social media (Facebook, Twitter, LinkedIn, so forth)
- Professional email and domain (no sexymama85@domain.com please!)
- Multiple, tailored elevator pitches (you need different pitches for different things)
- Resume, game credits list (always keep these updated!)

Once you've purchased all your gear it's time to start your training!

## Training Your Character

So far you've figured out your base class, your stats, what kind of adventurer you want to be, and bought the equipment you'll need to get going. All good adventurers know that training is an essential part to being a valuable mercenary – and to staying alive!

Training, aka professional development, is another crucial piece of the character building process that is getting and staying in the industry. You have to constantly be learning and growing and improving yourself and your craft. Why is this so crucial?

### **It's crucial because:**

- It helps you deal with an industry that is constantly

changing - the popular engines, languages, tools, and platforms of today aren't always the same tomorrow.

- **"It keeps you relevant and valuable** – ensuring you're up to date on best practices and allows you to contribute to lots of different projects/tasks. This helps you avoid the chopping block and makes you more valuable as a job candidate."
- **It increases your credibility** – you're staying on top of and able to talk about current areas in your craft, giving you more chances for getting speaking gigs, deals, and future work.
- **It offers you more options** – you have more jobs you qualify for, more freelance jobs you can earn, and so on.

Although each discipline has different skills they may train in, there are places you can go to help you figure out what to train in that are fairly universal for all characters:

- **Your boss/management** – duh! - talk to your boss and the leaders you respect at your company and ask them how they...."
- **Those in your desired job** – if you want to be a lead, go talk to a lead; if you want to be a designer, go talk to designers – ask them what they feel is critical to do their job, what they are learning now.
- **Trade press articles/surveys** – look at what developer press outlets and trade organizations like ESA/UKIE are saying is trending for platforms, tools, engines, and other areas of the industry.
- **Professional associations** – go to the IGDA or your discipline's related association (such as PMI for project managers) and read up there on trends and best practices.
- **Current job descriptions** – look at what people are asking for in current job descriptions in the areas

you're interested in: what they are looking for now, what's gaining in popularity, and what skills/software/experience you don't have yet that they want.

Once you know what you need to train in, you can find the right resources to make sure your character is in a battle-ready state. There are many ways for you to learn new skills or hone your craft but a few of the major areas include: internal company resources; online libraries; virtual and physical courses; and game development events (such as conferences and jams).

If you still feel like you need more training or some of those places can't teach you the specific skill you need, there are a few other places you could check out as well: game dev groups like IGDA Chapters and SIGs, industry nights, and co-ops; online groups/forums like deviantART, StackExchange, or TIGSource; specific groups/programs like Toastmasters, IGDA Scholars, GameMentorOnline, and Scrum Alliance; even you. Yes, YOU!

You can make your own games or apps; volunteer; read books and blogs; watch or listen to creative media or find mentors; and so much more! Just use your imagination, keep an eye out for what's coming on the horizon, and watch what other adventurers or guild mates are doing.

There is not a single game dev I know - even with decades of experience or multi-million dollar blockbusters on their bios - who is not constantly learning, growing, and challenging themselves to get better. You have to be there learning right along with them!

### Finding Great Bars and Local Festivals

In order to get jobs and go on epic quests you inevitably will have to find your way to a bar, guild, local festival, or similar, in order to meet people and prove your worthiness as a mercenary. In the non-RPG world this is referred to by most people as "networking" or "schmoozing" by others.

What is networking? Networking is about connecting, building relationships, and gaining access. It's also about having support systems and paying it forward. Most importantly it's about, learning and growing and opening up opportunities for you now and in the future. Networking can also mean the difference between getting stuck running fetch quests versus getting a chance to build up a party and complete a massive raid.

Let me make sure this is crystal clear: **Everyone has to network. Period.**

### You network because:

- You want a job, a sale, a contract.
- You want to get press for your game (or press for yourself, or a speaking gig, or.. a thousand other options)
- You want to get new skills, responsibilities, or promotions.

But above all else you do it because sooner or later everyone needs help – even you. Whether you are the one who needs help or you can provide the help, this is a critical piece to keeping yourself in the game. Proper networking, professional development, and branding helps you in so many areas, including job searching, promotions, game deals, and speaking gigs.

### The Basics of Networking.

Before you head off to the local watering hole, you should at the very least know the basic and intermediate level skills of networking. So here are the fundamental things you need to know how to do before you start carousing it up with others:

- Shower or bathe yourself
- Brush your teeth, use mouthwash and breath mints/strips
- Put on deodorant
- Take a comb or brush to your hair
- Use a mirror to make sure you look put together
- Mind your manners
- Carry business cards with you

While I wish I didn't have to tell people this, there are, unfortunately, some (usually the barbarians and ogres!) who just don't seem to have learned them yet.

Okay...so while I was completely and extremely serious with those last seven tips, especially the first three, let's help you increase your mastery level from novice to apprentice.

### Deciding Your Networking Style

The first thing you should probably figure out is what kind of networker you want to be, as that will help inform your actions later when you are actually out and about town. Are you the kind of mercenary who walks into a crowded bar and:

- a) heads straight into the crowd yelling "Hey Joe!"

Hi Donna! How you doing..." trying to meet and re-meet as many people as possible?

or

b) heads off to a table in the back with some friends for a long, fun dinner?

The answer to that question is what helps you determine if you prefer a lot of "weak ties" (Option A) or a few "strong ties" (Option B) when it comes to how you approach networking.

### **Weak Ties**

For some, it's about getting to meet and connect with as many people as possible online or in person – this tactic is often used by extremely sociable extroverts. Those are the people who run around conferences and saying hi to almost everyone and passing out business cards by the dozens.

The people they are connected to are usually 'weak ties' meaning they are in their network but they may not really know them very well. However, one advantage a weak ties networker has is that they have a very large network, and so can usually rely on their contacts to help them out and connect them to someone they need to know.

### **Strong Ties**

The other side of the coin is those people whose main goal is to meet and connect with as few people as possible but get to know them really well – this tactic is often used by introverts (or as I call myself, a fake extrovert). They may not have thousands of people on their LinkedIn list but those they do connect with, they know fairly well.

For example, when it comes to an industry conference like GDC, I'll go to the parties and make my rounds, but then I'm generally out of there fairly quickly. Instead I'm spending most of my time having meals and late night snacks with people close to me, so I can catch up on their life, have fun, and continue

to strengthen those specific relationships.

In reality, everyone has both strong and weak, ties but the proportions are different. You need to decide what your main style is and how it suits your needs and personality. This can really help influence how you build and grow your various relationships with coworkers, colleagues, and friends, both virtually and in person; at your job; and at industry events.

Speaking of industry events; while attending professional events is sometimes thought of as a necessary evil, they can be useful and fun too. There are many things to consider when attending events, some of which are different from what you would do when interacting with people at work or online. You can check out the resources section for more help on attending events – especially for introverts/fake extroverts if you're looking for more tips in that area – but for now let's go over some general Networking DOs and DON'Ts that apply universally to almost all adventurers:

### **Networking DOs**

- Talk to your mentor – they can be very useful in guiding you through this process, or they can even introduce you to people.
- Read up from others in the industry – lots of game devs have helpful networking advice to share on their blogs or social networks.
- Keep a list/database/whatever of your contacts somewhere – Gmail/Outlook Contacts, Plaxo, Evernote, or even a plain old spreadsheet – but back it up, even the ones in the cloud!
- Practice! Practice! Practice! – anytime you're around other devs is a time you can practice on your ice breakers, elevator pitches, chit chat, and so on.

## Networking DON'Ts

- **Don't do on and off again networking**
  - if you run too hot and cold people will think you're only there just to get something from them and then you'll go away; remember: this is about building up relationships for the long-term.
- **Don't just bash games or people** - you don't know what they've worked on (many of us are under NDA for more games than you think) or it may be something we're proud of even if we know it sucked; you also don't know who they've worked with or who they know; remember: this industry is SMALL, and we talk.
- **Don't send crappy LinkedIn/Friend requests** - if you don't make it clear how I know you then you can forget about me accepting the request (this even happens with some weak ties people too)!
- **Don't forget to do your follow-ups**, otherwise getting the contact doesn't matter – keep in touch through social networks, emails, or at future events. And the most important tip of all? Don't be the mercenary who runs around asking everyone if they can join their quest. Seriously, nothing will make us walk away from you faster (except if you didn't do the basics!) than if we see you just bugging everyone else for a job. Yuck. Goodbye. Have fun storming the castle alone!

## Final Thoughts on Being a Great Adventurer

You've gotten this far in your travel: You created your base character, you set goals for what you want your character to be as it levels up, you acquired the right equipment and armor, and you spent some time mingling with other mercenaries. You're in your first guild or on your first quest - but the game isn't over.

Don't forget: The industry is like a big MMO that's constantly being updated, giving you more and more skills to learn, quests to complete, places to travel, and potential party members to meet. The best questers take pride in continuously practicing their skills, maintaining their equipment, and surrounding themselves with trusted party members.

So you need to practice your skills, and learn new ones. You need to constantly upgrade and repair your equipment. You need to go on the quests that give you the experience you need to level up and make it to the next phase of your career as a mercenary - whether that is getting promoted or getting a keynote.

Everything you do to level yourself up makes you stand out from the crowd that much more, and that is what will make

you a successful adventurer.

Although each of our journeys may be different we're all still playing in the same giant server, fighting many of the same monsters, while desperately trying to stay alive. If you continue to work on your character you can not only stay alive but have fun at the same time.

See you at level 20!

## RESOURCES

[It Doesn't Matter Who You Are – 5 Words or Phrases Self-Assessment Exercise](#)

- [Article](#)
- [Download full PDF - Includes entire original article with step-by-step guidance and worksheet to go through the review.](#)
- [Download assessment PDF - Includes review worksheet only](#)

### 3G Review Process

- Learn about the 3Gs and how they can help you improve your personal branding, networking, and job searching efforts.

### GDC Vault

- Want to learn about programming? QA? Art pipelines? Almost any topic you can think of has been discussed at GDC (the industry's largest professional conference, which also runs this e-magazine), so here's where you can read, listen, and watch many of their fabulous sessions, often for free.

### International Game Developers Association (IGDA)

- The IGDA is the largest non-profit professional association in the world, and serves all individuals who create video games. They also provide opportunities on both a local and global levels for networking, professional development, and advocacy. [Full Disclosure: I currently sit on the boards for both IGDA and IGDA Chicago.]

### Additional Career Building Resources

- Find selections of some of my favorite resources related to job searching, mentoring, volunteering, networking (including guides on attending industry events), personal branding, and professional development. This section of my personal website is constantly being updated with tools, tips, tricks, and recommended media on topics that'll help you reach the next level!

*Sheri Rubin, founder and CEO of Design Direct Deliver, comes to the gaming table with 20 years' experience and more than 30 game credits to her name. As an avid philanthropist and fierce advocate for the betterment of the video game industry, she dedicates much of her free time to volunteer organizations including the International Game Developers Association (IGDA) and the Red Cross. Sheri received her bachelor of science degree summa cum laude in Business Administration and serves on the board of several organizations including IGDA, IGDA Chicago, and Rival Games Oy. She can always be found emailing from [sherid@designdirectdeliver.com](mailto:sheri@designdirectdeliver.com) and occasionally found tweeting from @SheriRubin.*

# EVERYONE CAN AND SHOULD MAKE GAMES

## INCLUDING ME, INCLUDING YOU

Shawn Alexander Allen

**E**VERYONE IS MAKING VIDEO GAMES  
**E**THESE DAYS. OR AT LEAST IT SEEMS  
LIKE IT.

Video games are one of the newest cultural art forms, and there is still so much promise for the young medium, especially as more and more creators enter the space. Programs that aim to ease the creation of video games, such as Game Maker, Construct 2 and Twine are widely available so that anyone, even those who don't know how to code, can build a game from scratch. Digital platforms that allow people to distribute and sell their games have grown and enabled far more people to get their games out and into the world. Everyone who wants to make video games can do so, just like one would write a story, paint a picture, or embark on some other form of creative endeavor.

Lone creators, married couples, groups of friends, video game industry veterans, small pockets of marginalized voices, and more, are all creating their own games. This push of personal game creation is a movement that has led to changing the landscape of what we call video games as a whole.

Amid the hype of "indie games," though, there is still a long list of relevant voices who we have not heard from yet, especially those of minorities. This is true for a number of reasons, such as not seeing themselves as creators, not feeling like they could do what other people can do at their level, or just the fact that the notion of diving in and starting game creation can be very intimidating.

"Where do I start?" is still a big barrier to entry.

## How I got started

Five years ago I was working at Rockstar Games in New York City. I was working on video game trailers, the kinds that would play during prime time TV, and would be seen by millions. It was a job of creation and

storytelling, much like the video games we used to create the trailers with, but in a more detached form.

I had bought an Xbox 360 because I wanted the shiny next generation game system. For all of the glitz graphical thrills I would get, the Xbox Live Arcade service, delivering smaller downloadable games, is where I found the joy of independent games that I still love to this day, like Braid and Super Meat Boy.

I had a dream of making my own games but it had been deferred for most of my life because I had no idea how I would go about turning my existing skills of art and writing into a game in any realistic way; I didn't know how to write code, and I for sure had no way to get a large group of people together to make a console game.

At a basic level, many of the games that were released on game consoles and PC were expensive, three dimensional big team affairs. The smaller scope of independent games that still maintained such a high quality level showed me that there was a shift happening in the world of video games. The fact these games were being written about in droves, and some would manage to go on to sell hundreds of thousands up to millions of copies was just an affirmation of that.

That was my first lesson: Think small in scale but not in creative ambition.

## So what have I done?

Since then I went on to work on a couple of games with two different teams. I worked with a team of four other people on "the universe within..." which won a "best overall" award at the game jam it was created at. It was also written about on Kotaku. A couple of months later I worked with a friend on "Glorious Ending Cinematic" for the first Molyjam.

After attending the Game Developers Conference for the first time, I came home energized by the talks and by meeting so many developers. I began working



on some prototypes alone, learning a fairly easy-to-use “no code necessary” game creation program called Construct 2 in the process.

Now I’m on my third year of full-time development for my first planned commercial release, Treachery in Beatdown City, which I recently had a successful kickstarter campaign for. I’m the animator, main artist, designer, writer, as well as a few other things. I’m working with a friend who is the coder, my wife who does art and character design, and a musician.

## Getting started

I had a lot of false starts in game creation during my life, where I would get jazzed up, create a bunch of art and write a story, and then go nowhere with it. I had a very specific idea of games and what I wanted to do with them. Besides some HTML, I had never really learned to program, so that always felt like a barrier to me.

Before I began making games I spent a lot of time playing and writing breakdowns of games, reading game criticism, attending talks at the NYU Game Center, and even taking a two day workshop.

The workshop was called Mechanics, Dynamics, and Aesthetics by Marc Leblanc. Core to MDA was learning about a number of design ideas such as iterative design, trying to actively “find the fun,” and “failing fast”.

MDA was focused on learning design away from the computer, for example with card games. Taking a non digital game and changing the rules made sense while learning about game design, as there were no technical hurdles for anyone to have to overcome. I was able to jump right in, change a rule or two, play it out with a group and see results. This group included people who understood coding at all levels, but with card games we were all on equal footing.

## Game Jams to the rescue

A game jam is a game making event organized with certain constraints, usually with a set amount of time to create your concept, as well as a theme to make your game around.

After I began working on my long-term game I was able to participate in a couple of 48 hour game jams

about 2 months apart from each other. During each of these events I was able to create games that I could share with people and have them play. Doing this gave me experience with what I wanted to focus on in a very short time and it really boosted my confidence as a game developer.

The first game jam I attended was the Global Game Jam, an event that has a decent amount of support and even some structure to it. It has a web site that, while not the most intuitive, allows some sort of central hub to host your games, list out your team, and look up and sign up for game jam locations.

Working in a space with many other people eager to work on games for 48 hours was much more beneficial as a novice than doing it at home alone, at least in my experience. When you're in a space with other people you can see what everyone is making, get help from those around you and create openly, away from the vacuum of the internet. You also have team members that are relying on you, and who can help motivate you to keep going during times of frustration.

The magic of a game jam with a time limit (especially a rather tight one) hosted at a space with other creators is that it forces you to make something in that time. The time limit keeps you focused, and when it's all done you'll probably have a game for people to play, which just feels amazing in and of

itself. And you may even want to keep working on it to further. You can polish it and release it to the world as a finished product, or just release it on the web as-is for even more feedback.

If you're looking for local game jams and are having a hard time finding local people to work with, try looking for local aspiring game creators and local game creation communities, especially at schools that may have game programs. I really believe that having game jams at a physical site is better than doing it online, and even companies like Double Fine, a larger independent studio, have found a lot of success through this method, albeit tailored to the needs of a company that employs many experienced people.

## Your first game doesn't have to be bad, but keep it small

Time and time again I have heard game developers say it is inevitable that your first game will suck, and that prospective game creators should just know



that will happen and deal with it. This always felt very defeatist to me, and led to a lot of my anxieties and paranoia about game creation. I didn't want to delude myself for months and release something that was terrible, so in some ways I didn't want to do anything at all.

While the maxim isn't completely true, it's not completely wrong, either. The odds are that your first game project won't be the greatest thing ever, just because the first time anyone creates anything it will probably take practice to get better at it. The important thing is taking the first step.

If you focus on making smaller games made under a time constraint, like in a game jam, that will also enable you to examine your game sooner rather than later. If anything, the jam will end, and the people around you will give good feedback.

Beware of imposter syndrome-induced anger at your project, though. During my first game jam I was finishing up my art on the second day and I started to feel this sudden dread come on. I looked around, and teams seemed to be doing something way more interesting - definitely a grass is greener moment. I thought our game was terrible, so much so that I told my wife not to come to the wrap up event on Sunday, I didn't think it would be worth it.

If you remember from before, this was the same

game that my team won an award for, and when people played it they really dug it. This feeling is apparently not unique to me as it's been recounted by a number of creators.

### Learning the hard truth

Over the years, despite actively working on my own projects, I continued to probe into getting answers to the questions I always had about how developers were doing the whole independent thing. It seemed like some developers had an easier time transitioning into making games than I had, or were way better at doing it, for a number of reasons. I was always curious to know why and how - perhaps it was something I overlooked that could be remedied.

The answer was never quite simple, but usually revolved around experience, time available, team size and what kind of game was being made. It might seem obvious, but everyone who makes games is different, and is making something different, but also has a unique home life as well. It can be hard



to get over seeing team pump out game after game, while you're stuck on your first or second.

Finances played a big part too, and also seemed to be all over the place. Some people were independently wealthy, or created while living at home with the need to have a job. Some were able to get a loan from their parents or even their local government. For me, I was given 3 months severance and had half a year on unemployment while my wife worked a full time job so that I could work full time on my game, which is not something everyone can do.

The other lesser known fact is that the late night hustle to make games after working a full time job is a common thing. I thought it was only me having to deal with exhausting, drawn-out development time during off hours, for years at a time. But it turns out there are many who, even with released games, haven't been able to dedicate their full time to game development.

## Lessons Learned

The best takeaway I got from the last few years of my own struggle to make games (including

wondering whether I even belonged as an independent developer) was to focus on working on making games first and foremost. The knowledge and experience I gained from each was very important to making more games in the future.

I learned that I am a valuable contributor to the scene, and that we need more people to bring their experiences, especially minorities.

Thinking about the business end from the get-go was foolish. I thought there were a lot of people out there living the "indie life," but it was actually a lot of people just like me, struggling to keep focus while working on games. From the outside looking in, things can seem very different than they really are.





Game creation has its own quirks for everyone.

It's okay to admire game developers and the games they make, but avoiding developer/game worship will leave you better off. Attempting to model your game development schedules and process around people you look up to could leave you frustrated, because the truth is all teams work differently.

There are no hard and fast rules that define how you make games, but remember that if making games is something you want to do, then you should pursue it. Your path will not be like mine. Your first game might be amazing, but don't give up if it isn't. Game jams might not be your thing, and they may not suit how you create.

If you don't want to write code, that's fine. Find a program that allows you to start working without it, and go from there. When you hit your limits and need to ask questions, go to the forums, ask friends, and hit up social media for help. You might also want to team up with a friend who finds programming interesting, even if they are not the most experienced. Staying energized through creativity and sticking with a project should be your goal, and it can be a very taxing one.

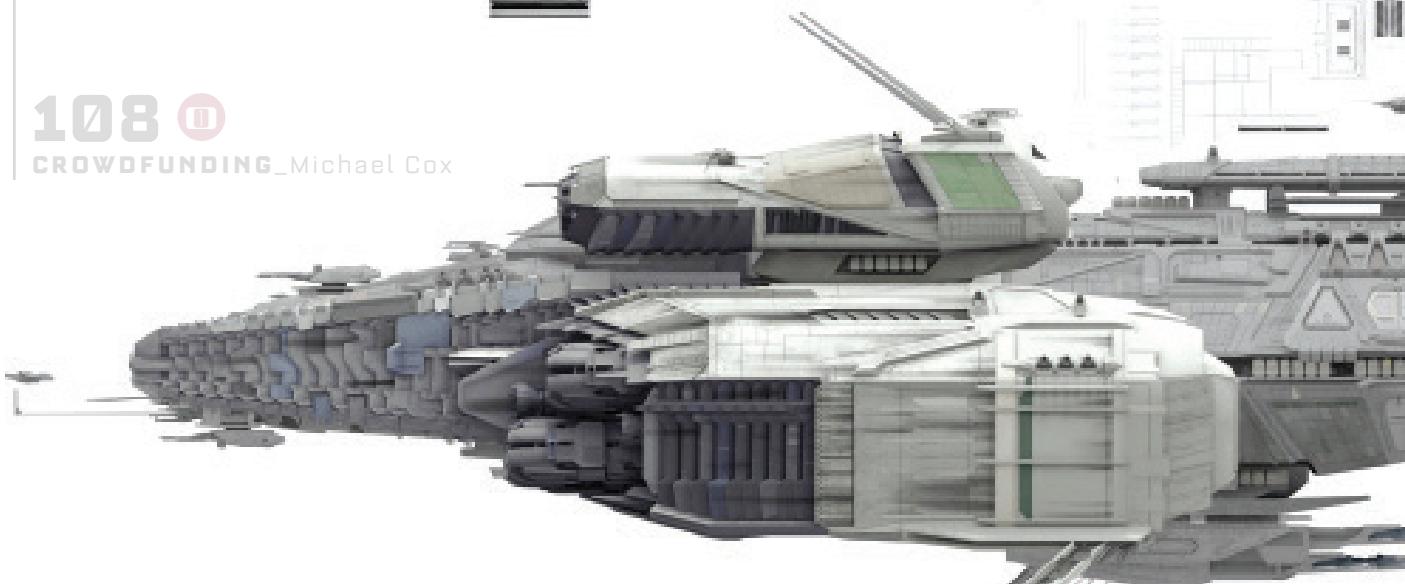
I've talked a bit about working on a commercial release that managed to get funding on Kickstarter. I spent a few years before that working on it as a concept without any real guarantee that it would ever make any money, and the last couple of years figuring out the rest. The last year was spent working on this game, demoing it to people, and making a lot of connections with awesome and supportive people

who wanted to see me succeed. Finding funding for a game you intend to make money off of can be a real sticking point, and I'd recommend working on getting somewhat comfortable making games before even thinking about giving up your job to pursue that avenue.

For all of the difficulties posed by the path toward making games, any blockade you may encounter is only temporary. Video games have the power express things interactively. Just as Animal Farm uses pigs to explore a dichotomy in political beliefs, a game could go even further by letting these events play out interactively.

I'd like to encourage you to make games, to really think about what matters to you and go for it. Look inward, and tackle the things that make you who you are. Skin them however you want, but at the same time think about what making this game is saying about you. The landscape of games is changing rapidly, and we need your voice.

*Shawn Alexander Allen is a game designer, artist, writer, and activist born and raised in New York City. He is currently working on *Treachery in Beatdown City*, a game that is as subversive of the fighting and RPG genres as it is of gentrification, nationalism, racial stereotyping, and the war on terror. TiBC is the first game being published by his company NuChallenger which he hopes will grow into a creative space to give those with underrepresented voices a place to make games. Previously Shawn worked for 4.5 years in AAA games, and the first game he shipped sold over 25 million copies. Despite that he's more proud of *Treachery in Beatdown City* and other personal group projects.*



# CROWDFUNDING

## A CROWDFUNDING PRIMER

BY MICHAEL COX

FOR MANY SMALL GAME DEVELOPERS, CROWDFUNDING IS AN OPPORTUNITY TO HAVE A VOICE IN THE INDUSTRY, AND A GREAT WAY FIND AN AUDIENCE WHERE IN THE PAST THOSE DOORS MIGHT HAVE BEEN CLOSED.

But crowdfunding is an under-researched subject, without a lot of concrete information. Unfortunately, there is no one-size-fits-all solution — but there is definitely a correct mindset to be in when you make choices for your campaign. This guide aims to help you get the best out of your crowdfunding efforts, even if you don't have 10,000 twitter followers, or a big name to back up your project. I've personally helped many people do just that, including successful Kickstarter projects such as Catacomb Kids, Lioness, and Rain World. So let's get started

### PAGE DESIGN

The primary goal of the main page isn't to make the sale; it's to confirm the sale. The majority of users will be arriving from outside sources with some knowledge about the game, because they will come through twitter links, press, or maybe even from your own site.

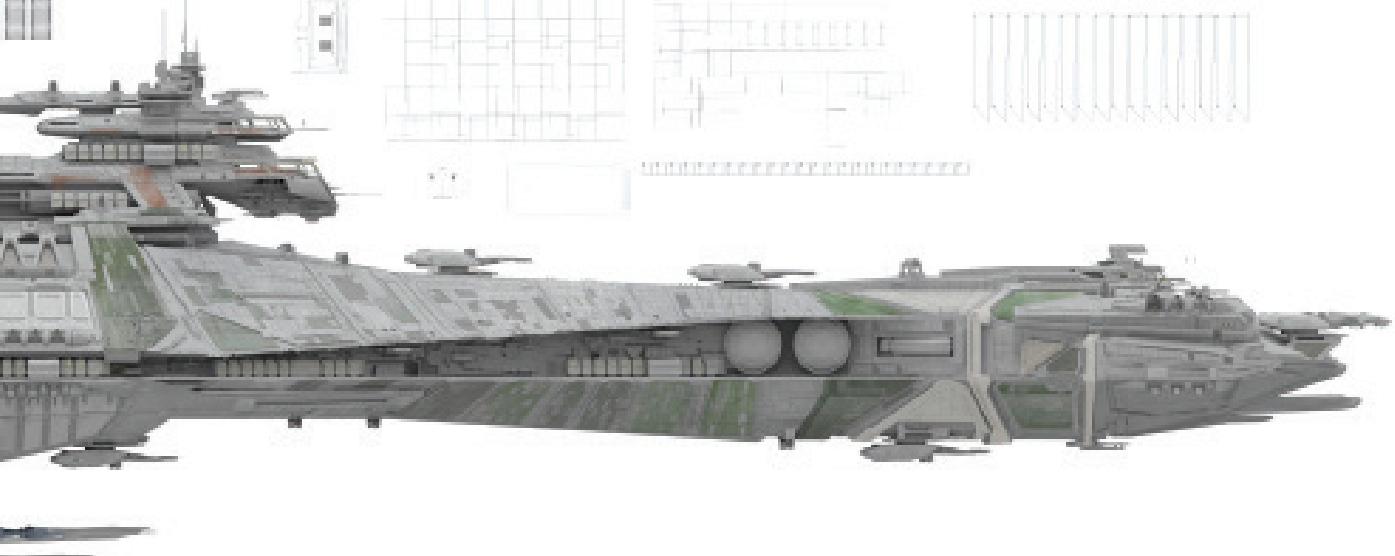
The page's first goal should be clarity, first and foremost. Dedicate the beginning of the page to those who are coming in with existing interest in the game by answering the immediate questions they might have. For example, "What platforms can I play this on," and "what is this game about?" Then continue to provide clear answers to the less immediate questions as you go further down the page, such as

"Where exactly is my money going," and "Why is this team qualified to make this game?"

Each section should be clearly distinctive, allowing for a quick search for answers. As a simple test, ask a friend to scroll through the page quickly with a question in mind, and tell them to stop where they think they will find the answer. If they can't find what they're looking for, you may need to retarget, and move your information around under clear subject headings.

The secondary goal is to highlight the most important aspects of the game. People are not willing to wade through everything. The average reader of an online article reads just 28% of the way through [see reference 1], and this applies to your campaign as well. There is no room for filler content. Place a high value on your page real estate when featuring segments from the game. Show only the most important features, and leave everything else out. Only display content that represents the future of the game. Keep concept art and other various pre-production assets away from the main page. Polished content will do a much better job helping fans visualize your goals for the project.

Do not display the stretch goals on the page from the start. Nothing looks more foolish than having a big million dollar goal image on your page while



GETTING FUNDING AS AN UNKNOWN:

# FUNDING

you are still barely reaching your goal. Also making a big announcement about the future of the project is exciting for backers and the press. Do not rob yourself of that boost of excitement by spoiling all the goals early on.

Be honest without being self-deprecating. Talk about the challenges of making the game openly, and tell people exactly how the money is divided. If you need to pay for rent and food costs, tell people that, and explain your position. Not everyone will be skeptical of the kickstarter's intentions, but the people that are will appreciate it and commend the campaign.

## REWARDS

This theme of simplicity should be echoed in the reward section. People need to clearly understand what they are getting. Keep the reward text concise and to the point. If you need a spreadsheet of reward tiers, you've made a mistake. Instead, avoid confusion and keep things simple. The majority of rewards should also state "includes all previous rewards," if possible. If a reward exclusion is absolutely necessary, it should be clear on the reward itself.

Avoid creating "dead space" in the early reward tiers. Keep in mind that "Sold Out" and 1 dollar pledges clog up the most valuable location on the page: the top.



“

DO NOT DISPLAY THE STRETCH GOALS ON THE PAGE FROM THE START. NOTHING LOOKS MORE FOOLISH THAN HAVING A BIG MILLION DOLLAR COAL IMAGE ON YOUR PAGE WHILE YOU ARE STILL BARELY REACHING YOUR GOAL.”

## A potential backer should understand what rewards

they are getting and the basic information about the game without needing to look very far.

Early bird discounts have potential to increase early funding. However, do not place early bird discounts on early reward tiers. The first wave of backers will already be gunning to get the game, and may fill up the reward tier before the latecomers can be goaded into contributing by the small price reduction. This potentially leaves you with more dead space. A good early bird discount is one that takes a reward tier normally reserved for the most ecstatic fans and brings it to a level a core backer might consider accessible. As an example, try reducing a \$400 tier to \$250 for the first ten backers.

Don't undervalue the game; represent the game's value accurately. People pledge because they legitimately want to support the game. If it will eventually retail for \$15, then a \$15 reward tier to get the game is a perfect fit. To raise the value to a higher level, the reward should feel weighty and compact while adding something to show appreciation for the support. Many people appreciate small tokens of thanks like beta access, digital art zines, and access to backer-exclusive forums.

With poor planning, physical rewards can end up hurting your campaign by tagging on hidden costs. To avoid breaking the bank, always place reward limits on expensive or time-consuming rewards to control the chaos. Also, plan to have these rewards fulfilled far into the future (and communicate that clearly), to ensure your backers receive the level of quality they deserve. Even with these precautionary restraints, budget for at least twice what the actual production costs of physical



rewards are, and always include a charge for international shipping to help cover the unpredictable shipment and custom fees.

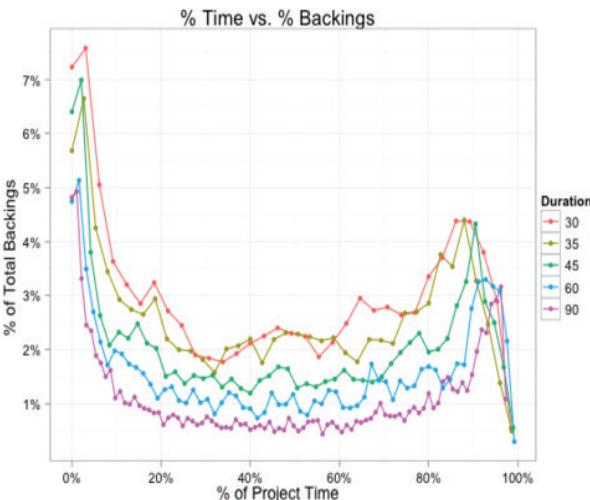
No one seriously wants to go over to your house and eat cantaloupe, so "meet the devs" is not likely a good tier. Legitimate large pledges are going to come in from one of three camps: relatives, a publisher, or a wealthy and enthusiastic fan. None of them are likely to care about the reward itself. For small campaigns, do not have rewards exceeding a thousand dollars; each reward creates visual noise your core backers have to navigate though.

## PRESS RELEASES

One of the wonderful things about working with Kickstarter is that it provides referral data about where your pledges come from. What was remarkable in my personal campaigns is that various press releases accounted for an average of over 65% of the funding. It should be no surprise that a good crowdfunding strategy focuses on the gaming press, but press releases really do have an affect.

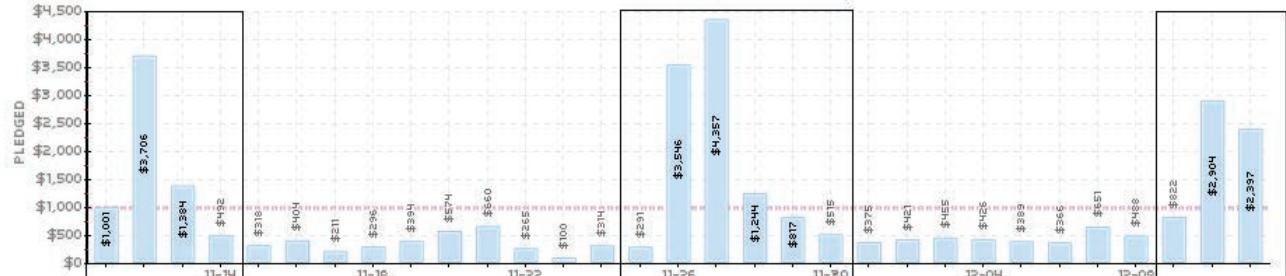
Typically a kickstarter campaign will experience a "bathtub," a "dead zone," or as kickstarter refers to it, the "The Trough." The Trough is a phenomenon that occurs across many types of campaigns, where a large bump in funding occurs at the start and end of the campaign with significantly less between those points. This forms a concave dip in the center.

While in this crater, the campaign relies on the momentum of the launch and the community built up during the campaign to carry it to the end. However, it's rare for a small developer to have a community large enough to survive that funding dip without an assist. One tactic, if your following is small, is to use press releases to supplement and grow the community, instead of relying on word of mouth and other community drift.



### Pledges Per Day: Catacomb Kids - A Very Roguelike Platformer

==== Average Per Day: \$987



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Press releases create additional spikes of funding that go against the trend shown above. As an example of this in action, I have highlighted the date and the impact of each press release from one of the campaigns I have managed.

In the case of the above for "Catacomb Kids - A Very Rougelike Platformer," the comments and community feedback gave us the impression that people didn't understand how deep the rougelike mechanics ran. As a reaction, we started brainstorming a solution, and developed "the rock trailer," which highlighted how deep of the mechanics of even the simplest of objects could be.

Every campaign should have at least three, though preferably four press releases like these. Each of these should contain a sizeable amount of content; typically a short trailer or demo showcasing a specific element of the game, such as the story or in the case of Catacomb Kids, a rock.

In the update post, include information along with your trailer explaining what you are showing. Take the opportunity to talk about what inspired the game's design or what motivated you to create the element shown. Each release is also an opportunity to expose more people to your team's philosophy.

Polish takes a lot of time. Ideally, you should not develop these press releases during the campaign. It's best to plan these all out in advance so you're ready to go when you need them. If you must push forward quickly, have at least your first update ready before launch. If you make a trailer, the length in most cases should remain under two minutes to reduce the amount of work that is necessary and to maintain interest.

Distribution is equally important. The majority of work during the campaign involves personally talking to press and fans about the content you've made. A minimum of 100 to 300 personally directed press emails is a good number to aim for. Go out, find which writer on each

game website might specifically enjoy your game, and talk to them as a person. Do not copy and paste anything aside from the description and the external links. It's going to take a long time and a bunch of research, but you will come out of that experience ready for each following update and the eventual sale of the game by establishing genuine relationships.

Absolutely do not include a demo of your game to start. If you release a demo, do it on week two or three of the 30-day campaign. There are two big reasons for this. First, once someone has played the demo, they have a rough idea of how every element in the game will play out. This spoils the opportunity to go in depth about the mechanics, characters, or theme, as they have already seen all of it. Second, it's much cheaper resource-wise to polish a single element of the game to display in a trailer, compared to have to ironing out multiple elements for a demo. If someone important asks, simply tell them you'll give them it at a later date.

Send out the press emails all at once, not piecemeal. Trust no one to listen to your pleas to release on a certain day unless you know them personally. Everything needs to hit around the same time to build hype from the flood of sudden backers.

Devote spare time to social media and responding to backers. For those who do have a strong following, make room for your backers by shortening the press list down to what is comfortable, and develop social media content instead.

### COMMUNITY & BEYOND

The community of content creators on kickstarter can be very supportive. Right away expect that similar projects will reach out to you, looking to collaborate and share your project with their followers. This can sometimes be a nice little boost to your campaign.

Also realize that not everyone on kickstarter is

running a campaign as open and honest as yours might be. When you are sending your followers to another campaign, remember you are taking some responsibility for the recommendation. Also, keep in mind that including these shout outs in your update posts bogs down the update and distracts from the message you are sending, so keep them down to a select few.

Anyone pledging a single dollar may comment on your page, and there is no way to edit these comments yourself. There may be spammers advertising other projects, or comments that appear hostile. Don't engage these comments directly. Keep the dialog about the interesting things your game is trying to do.

Don't spam your followers with tweets and updates. Respect your fans by making every update weighty and important. At a certain point fans will get exhausted from seeing a constant barrage of emails and tweets. As a guideline, keep those announcements down to two or three each week, unless something is important.

If you have time before your launch, join game development communities like TigSource or a dedicated sub-reddit, and keep a devlog of the game

and the kickstarter. The communities there appreciate the inner workings of game development so they will likely be the first supporters to your campaign.

## START KICKING

It's impossible to cover everything in a single guide, and these exact choices are not going to fit every campaign. Although the core concepts of creating efficiency and clarity should be present in every project, find ways to apply these ideas to yours in ways that fit.

*Michael Cox is a marketing consultant that helps small independent developers gather resources through crowd funding. He began crowd fund marketing in 2013 as a way to support his friends in the indie community and has since grown to be a part of the recent Kickstarter/Indiegogo projects Lioness, Fran Bow, Catacomb Kids, and Rain World.*

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[1]: Harald Weinreich, Hartmut Obendorf, Eelco Herder, and Matthias Mayer: "Not Quite the Average: An Empirical Study of Web Use," in the ACM Transactions on the Web, vol. 2, no. 1 [February 2008], article #5.



Student artwork by Leonardo Krajden.  
Concept by Darren Bartley.

**TAKE YOUR EDUCATION  
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TO THE NEXT LEVEL.**

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**GНОМОН™** SCHOOL OF VISUAL EFFECTS  
GAMES + ANIMATION

# Game School Directory

There are tons of options out there in terms of viable game schools, and this list is just the starting point to get you acquainted with the schools near you (or far from you, if that's what you prefer!). No list could possibly tell you all you need to know, so you should use this directory to find schools you're interested in, and then research them with our comprehensive directory at GameCareerGuide.com/Schools. Over there, you'll find all sorts of information, including:

- In-depth school profiles
- Listings of specific game development programs and degrees offered
- Tuition and financial aid information
- Student-to-faculty ratio
- Online class offerings
- Actual playable student games

While you're there, you can use our Digital Counselor app ([GameCareerGuide.com/digital\\_counselor](http://GameCareerGuide.com/digital_counselor)) to search through the full database of schools by location, degree offerings, online study options, and more to find the game development school that's right for you!

TITLE	URL	LOCATION	PROGRAM OFFERED
Academy of Interactive Entertainment, Seattle	<a href="http://www.theaie.us">www.theaie.us</a>	Seattle, WA	Advanced Diploma in Screen & Media: 3D Animation & VFX for Film, Advanced Diploma of Professional Game Development: Game Programming, Advanced Diploma of Professional Game Development: Game Art & Animation
Cogswell College	<a href="http://www.cogswell.edu/land/game_career.php">www.cogswell.edu/land/game_career.php</a>	Sunnyvale, CA	Game Design & Development, Digital Arts Engineering, Digital Art & Animation, Digital Audio Technology, Software Engineering
Full Sail University	<a href="http://www.fullsail.edu/index.cfm?fa=landing">www.fullsail.edu/index.cfm?fa=landing</a>	Winter Park, FL	Game Design , Game Art, Computer Animation, Game Development
Guildhall at SMU	<a href="http://www.smu.edu/guildhall">www.smu.edu/guildhall</a>	Plano, TX	Art Creation, Level Design, Production, Software Development
New York Film Academy	<a href="http://www.nyfa.edu/programs/">www.nyfa.edu/programs/</a>	New York, NY	Game Design
The Art Institutes System of Schools	<a href="http://www.artinstitutes.edu/game-design-and-programming-2602">www.artinstitutes.edu/game-design-and-programming-2602</a>	Pittsburgh, PA	Visual Effects & Motion Graphics, Visual & Game Programming, VFX for Film & Television, Media Arts & Animation, Game Programming, Game Art & Design, Computer Animation, Animation Art & Design, 3D Modeling for Animation & Games
Vancouver Film School	<a href="http://www.vfs.com">www.vfs.com</a>	Vancouver, BC, CA	3D Animation, Programming for Games, Web & Mobile, Game Design, Sound Design, Digital Character Animation [Maya], Classical Animation
Academy of Art University	<a href="http://www.academyart.edu">www.academyart.edu</a>	San Francisco, CA	Character/Tech, Computer Graphics, 2D, 3D Animation, Visual Effects, Visual Development, Game Design, Character Animation, Maya, Modeling, VFX/Compositing, Background Painting, Storyboard, Game Environments, 3D, Web Design 1, 3D Modeling

## Game School Directory

TITLE	URL	LOCATION	PROGRAM OFFERED
Carnegie Mellon University Entertainment Technology Center	<a href="http://www.etc.cmu.edu">www.etc.cmu.edu</a>	Pittsburgh, Pennsylvania	Entertainment Technology Center
Centre for Digital Media	<a href="http://thecdm.ca/">http://thecdm.ca/</a>	Vancouver, BC, CA	Master of Digital Media program
Columbia College Chicago	<a href="http://www.colum.edu/game">www.colum.edu/game</a>	Chicago, IL	Game Programming (BSc), Game Design (Game Sound), Game Programming (BA), Game Design (Game Art), Game Design (Game Development)
DAVE School [The Digital Animation & Visual Effects School]	<a href="http://www.daveschool.com/">www.daveschool.com/</a>	Orlando, FL	VISUAL EFFECTS, GAME PRODUCTION
DigiPen Institute of Technology	<a href="http://www.digipen.edu">www.digipen.edu</a>	Redmond, WA	The Bachelor of Arts in Music and Sound Design, The Bachelor of Science in Engineering and Sound Design, The Master of Fine Arts in Digital Arts, The Bachelor of Arts in Game Design, The Bachelor of Science in Computer Science and Game Design, The Bachelor...
ENJMIN [National School of Video Game and Interactive Media]	<a href="http://www.enjmin.net">www.enjmin.net</a>	Angoulême, FR	production, project management, game design, computer science, sound design, graphics, ergonomy
FZD School of Design	<a href="http://fzdschool.com/">http://fzdschool.com/</a>	Singapore, SG	
Game Character Academy	<a href="http://gameartistacademy.com/">http://gameartistacademy.com/</a>	Online	Character Art, Character Rigging/Technical Art
Media Design School	<a href="http://www.mediadesignschool.com">www.mediadesignschool.com</a>	Auckland, NZ	Bachelor of Art and Design (3D & VFX), Bachelor of Software Engineering (Game Programming), Bachelor of Creative Technologies (Game Art), Bachelor of Media Design, Graduate Diploma in Creative Technologies
Ringling College of Art and Design	<a href="http://www.ringling.edu">www.ringling.edu</a>	Sarasota, Florida	Game Art & Design, Computer Animation
Rochester Institute of Technology	<a href="http://www.rit.edu">www.rit.edu</a>	Rochester, NY	Game Design & Development, 3-D Digital Design, New Media Design , Software Engineering, New Media Interactive Development, Film and Animation, Visual Communications Design, Computer Science, Information Technology
Sheridan College	<a href="http://www.sheridancollege.ca">www.sheridancollege.ca</a>	Oakville, Ontario, CA	Bachelor of Game Design, Bachelor of Interaction Design, Game Development - Advanced Programming, Game Level Design
Tribeca Flashpoint Media Arts Academy	<a href="http://www.tfa.edu">www.tfa.edu</a>	Chicago, IL	Design + Visual Communications, Recording Arts, Film + Broadcast, Animation + Visual Effects, Game & Interactive Media
University of Advancing Technology	<a href="http://www.uat.edu">www.uat.edu</a>	Tempe, AZ	Serious Game and Simulation , Game Production and Management , Game Art and Animation, Game Programming, Game Design
University of Utah: Entertainment Arts and Engineering Master Games Studio	<a href="http://eae.utah.edu/">eae.utah.edu/</a>	Salt Lake City, UT	Entertainment Art and Engineering Master Games Studio
DePaul University	<a href="http://GameDev.DePaul.edu">GameDev.DePaul.edu</a>	Chicago, IL	Digital Cinema, Computer Science, Animation - Game Art, Animation, Game Development - Game Design, Game Development - Programming

TITLE	URL	LOCATION	PROGRAM OFFERED
iD Game Design & Development Academy for Teens	<a href="http://www.idtech.com/">http://www.idtech.com/</a>	Held at Stanford, Harvard, Emory, the University of Washington, Vassar, the University of Denver, Villanova, TCU, and Lake Forest College	iD GAME STUDIOS 101, GAME DEVELOPMENT – MINECRAFT, GAME DEVELOPMENT FOR IPHONE® & ANDROID™ WITH UNITY & JAVASCRIPT, 3D MODELING & ANIMATION WITH AUTODESK® MAYA®, 3D LEVEL DESIGN - UNREAL® ENGINE
3D Training Academy	<a href="http://www.3DTrainingAcademy.com">www.3DTrainingAcademy.com</a>	Kirkland, WA	3D Training Academy does not offer programs. We offer intensive 1 to 3 day workshops that are affordable and convenient. Workshops available in 3D Game Art & Design, 3D Animated Short Film, and Motion Capture.
3D Training Institute	<a href="http://www.3dtraining.com">www.3dtraining.com</a>	New York, NY	3D Project-based Course, 3D Foundation Workshop
3D-Online	<a href="http://www.3D-Online.com">www.3D-Online.com</a>	Manhattan Beach, CA	Game Development and 3D for Web and Wireless Devices, Game Engine Fundamentals, Introduction to 3D Graphics Programming
3dmx Digital Design University	<a href="http://www.3d-online.com/index.html">www.3d-online.com/index.html</a>	Zapopan, Jalisco, MX	Videogames Development
Abilene Christian University	<a href="http://www.acu.edu/academics/sitc/index.html">www.acu.edu/academics/sitc/index.html</a>	Abilene, TX	Digital Entertainment
Academy of Interactive Entertainment Sydney	<a href="http://www.aie.edu.au/sydney">www.aie.edu.au/sydney</a>	Ultimo, NSW, AU	Advanced Diploma of Professional Game Development [Software Development]
Academy of Interactive Entertainment, Lafayette	<a href="http://www.theaie.us">www.theaie.us</a>	Lafayette, LA	Advanced Diploma of Screen & Media: 3D Animation & VFX for Film, Advanced Diploma of Professional Game Development: Game Programming, Advanced Diploma of Professional Game Development: Game Art & Animation
Academy of Interactive Entertainment, Melbourne	<a href="http://www.aie.edu.au">www.aie.edu.au</a>	Melbourne, VIC, AU	Advanced Diploma of Professional Game Development (Software), Advanced Diploma of Professional Game Development [Art], Bachelor of Games and Virtual Worlds , Certificate III in Screen (Architectural Visualisation) - online, Certificate III in Screen, Cer...
Academy of Interactive Entertainment, Watson	<a href="http://www.aie.edu.au/">www.aie.edu.au/</a>	Watson, ACT, AU	Diploma of Screen (for television and film), Certificate IV in 3D Animation for Games and Film, Diploma of Computer Game Development
Acadia University	<a href="http://cs.acadiau.ca">cs.acadiau.ca</a>	Wolfville, Nova Scotia, CA	BCSS Game Development
Alberta College of Art & Design	<a href="http://www.acad.ca">www.acad.ca</a>	Calgary, Alberta, CA	Visual Communications Design Program: Charcter Design Stream
Algoma University	<a href="http://www.algomau.ca/">www.algomau.ca/</a>	Sault Ste. Marie, Ontario, CA	Master of Science [Computer Games Technology]
Algonquin College	<a href="http://www3.algonquincollege.com/mediaanddesign/program/game-development/">www3.algonquincollege.com/mediaanddesign/program/game-development/</a>	Ottawa, Ontario, CA	Game Development
American University	<a href="http://www.american.edu/gamelab/">www.american.edu/gamelab/</a>	Washington, DC	MA in Game Design
Angelo State University	<a href="http://www.algomau.ca/">www.algomau.ca/</a>	San Angelo, Texas	Computer Science
Animation Gurgaon	<a href="http://www.arenaanimationinstitutes.com/gurgaon/">www.arenaanimationinstitutes.com/gurgaon/</a>	Gurgaon, Haryana, IN	Redboxx-I
Animation Mentor	<a href="http://www.animationmentor.com">www.animationmentor.com</a>	Emeryville, CA	Diploma in VFX Fundamentals, Diploma in Animation Fundamentals , Diploma in Advanced Character Animation Production, Diploma in Advanced Animal and Creature Animation Production

# Game School Directory

Title	URL	Location	Program Offered
AnimSchool	<a href="http://www.animschool.com">www.animschool.com</a>	Orem, Utah	3D Animation Program, 3D Character Program
Anne Arundel Community College	<a href="http://www.aacc.edu">www.aacc.edu</a>	Arnold, MD	Game Art and Design Transfer AS Degree, Game Interface Design AAS Degree, Interactive Technologies AAS Degree
Art Center Design College - Albuquerque	<a href="http://www.suva.edu/">www.suva.edu/</a>	Albuquerque, NM	Animation
Art Center Design College - Tucson	<a href="http://www.suva.edu/">www.suva.edu/</a>	Tucson, AZ	Animation
Art Institute of California - Los Angeles	<a href="http://www.artinstitutes.edu/losangeles">www.artinstitutes.edu/losangeles</a>	Santa Monica, CA	Game Art & Design
Art Institute of California - San Diego	<a href="http://www.artinstitutes.edu/sandiego">www.artinstitutes.edu/sandiego</a>	San Diego, CA	Game Art & Design
Art Institute of California - San Francisco	<a href="http://www.aicasf.aii.edu">www.aicasf.aii.edu</a>	San Francisco, CA	Visual & Game Programming, Game Art & Design
Art Institute of California - Orange County	<a href="http://www.artinstitutes.edu/orange-county">www.artinstitutes.edu/orange-county</a>	Santa Ana, CA	Visual & Game Programming, Media Arts & Animation, Game Art & Design
Art Institute of Charlotte	<a href="http://www.artinstitutes.edu/charlotte">www.artinstitutes.edu/charlotte</a>	Charlotte, NC	Graphic Design, Web Design & Interactive Media, Digital Filmmaking & Video Production
Art Institute of Las Vegas	<a href="http://www.artinstitutes.edu/lasvegas">www.artinstitutes.edu/lasvegas</a>	Henderson, NV	Game Art & Design
Art Institute of Pittsburgh	<a href="http://www.artinstitutes.edu/pittsburgh/">www.artinstitutes.edu/pittsburgh/</a>	Pittsburgh, PA	Interactive Media Design, Media Arts & Animation, Game Art & Design, Entertainment Design
Art Institute of Seattle	<a href="http://www.artinstitutes.edu/seattle">www.artinstitutes.edu/seattle</a>	Seattle, WA	Web Design & Interactive Media, Animation Art & Design, Media Arts & Animation, Game Art & Design, Audio Design Technology, Audio Production
Art Institute Online	<a href="http://www.aionline.edu/information/programs/animation/game_art_design/?cid=GCARG_121508_Profile_Lin">www.aionline.edu/information/programs/animation/game_art_design/?cid=GCARG_121508_Profile_Lin</a>	Pittsburgh, PA	Game Art & Design
Art Institutes International Minnesota	<a href="http://www.artinstitutes.edu/minneapolis">www.artinstitutes.edu/minneapolis</a>	Minneapolis, Minnesota	Design Management, Photography (BFA), Interactive Media Design, Media Arts & Animation, Visual Effects & Motion Graphics
Artcode Game Academy	<a href="http://artcode.la/">http://artcode.la/</a>	San Salvador, San Salvador, SV	Creación de Personajes, Programación de Videojuegos con Java, DAP2D, DAP3D
Asian Institute of Gaming and Animation - ALGA	<a href="http://www.aiga.in">www.aiga.in</a>	Bangalore, Karnataka, IN	Game Programming, Game Art
Attend iDTech Camps	<a href="http://www.iDTech.com">www.iDTech.com</a>	Online and 80+ summer programs in the US	
Austin Community College	<a href="http://www.viscom.austincc.edu/">www.viscom.austincc.edu/</a>	Austin, TX	Game Development Institute with specialization in Programming, Art or Design, Visual Communication
Backstage Pass, School of gaming	<a href="http://www.backstagepass.in">www.backstagepass.in</a>	Hyderabad, Andhra Pradesh, IN	
Baker College Online	<a href="http://www.baker.edu/">www.baker.edu/</a>	Flint, Michigan	Bachelor of Computer Science, Game Software Development
Becker College	<a href="http://www.becker.edu/gamedev">www.becker.edu/gamedev</a>	Worcester, MA	Game Design, Game Development and Programming
BES La Salle - Universitat Ramon Llull	<a href="http://www.salle.url.edu/">www.salle.url.edu/</a>	Barcelona, Catalonia, ES	

TITLE	URL	LOCATION	PROGRAM OFFERED
Blekinge Institute of Technology	gamescience.bth.se	Karlshamn, Blekinge, SE	Digital Game Development, Master of Game Design [Magister i speldesign]
Bloomfield College	www.bloomfield.edu/	Bloomfield, NJ	Game Programming, Game Design, Music Technology, Graphics, Animation
Boston University Center for Digital Imaging Arts	www.cdiabu.com	Waltham, MA	Game Art & Character Animation, Animated Short, 3D Animation + Interactive Media
Boston University Center for Digital Imaging Arts	www.cdiabu.com/	Washington , DC	Game Art & Character Animation, Animated Short, 3D Animation + Interactive Media
British Columbia Institute of Technology, School of Computing	www.bcit.ca/study/programs/825hbtech	Burnaby, British Columbia, CA	Bachelor of Technology - Computer Systems Technology - Games Development Option
Broadview Entrainment Arts University	beau.broadviewuniversity.edu/	Salt Lake City, Utah	Digital Video and Media Production, Music Business, Sequential Imaging, Entertainment Design, Game Art, Media Business
Brown College	contact.browncollege.edu/game-design-development.aspx?src=60246	Mendota Heights, Minnesota	Bachelor of Science in Visual Communications - Graphic Design Emphasis, Bachelor of Science in Visual Communications - Multimedia Emphasis
Brown University	www.cs.brown.edu	Providence, RI	Computer Science
Brunel University - School of Arts	www.brunel.ac.uk/	Uxbridge, Middx, GB	MA Digital Games: Theory & Design
Bryan College	www.brynu.edu/default.cfm	Springfield, Missouri	Gaming and Robotics Specialist, Gaming and Robotics
C.W. Post Campus of Long Island University	www.liu.edu/cwpost/game	Brookville, NY	Master of Arts in Digital Game Design and Development
California Institute of the Arts	www.calarts.edu	Valencia, CA	Character Animation, Experimental Animation
California State University Channel Islands	www.cs.csuci.edu/	Camarillo, CA	Interdisciplinary Minor in Game Design and Development, Master of Science in Computer Science, Bachelor of Computer Science
California State University, Fullerton	www.fullerton.edu	Fullerton, CA	Entertainment Art/Animation
Camden County College	www.camdencc.edu	Blackwood, NJ	Computer Science, Computer Graphics, Game Design & Development
Cañada College	www.canadacollege.edu/multimedia	Redwood City , CA	Multimedia Art & Technology
Capilano University	www.gradshow.com/	North Vancouver, British Columbia, CA	Digital Animation
Centennial College	www.bccc.com	Toronto, ON, CA	Game Design & Development
Center for Distance Education	www.cd-ed.com	Sydney, Nova Scotia, CA	3D Animation, 3D Game Artist, 3D Advanced: Character Animation
Centre for Arts and Technology - Fredericton Campus	www.digitalartschool.com	Fredericton, New Brunswick, CA	Digital Filmmaking, Audio Engineering & Production, Animation for Game, Film & Visual Effects, Graphic Design & Web Development
Centre for Arts and Technology - Halifax Campus	www.digitalartschool.com	Halifax, Nova Scotia, CA	Digital Filmmaking, Audio Engineering & Production , Graphic Design & Web Development, Animation for Game, Film & Visual Effects, Event & Promotions Management
Centre for Arts and Technology - Kelowna Campus	www.digitalartschool.com	Kelowna, British Columbia, CA	Animation for Game, Film & Visual Effects , Graphic Design & Web Development, Digital Filmmaking, Audio Engineering & Production
CENTRE NAD - National Animation and Design Centre	www.centrenad.com	Montreal, Quebec, CA	Bachelor in 3D animation and digital design [Accredited undergraduate program]

## Game School Directory

TITLE	URL	LOCATION	PROGRAM OFFERED
Centro de Entrenamiento Alcance Digital	www.alcancedigital.com	Leon, Guanajuato, MX	Cinematografía Digital, Animación 3D, Animación 2D, Estereoscopía 3D, Producción profesional de videojuegos, Composición musical digital, Efectos visuales, Producción Creativa, Diseño Digital
Centro de Informatica - Universidade Federal de Pernambuco	www.cin.ufpe.br	Recife, Pernambuco, BR	Game Design and Development
Champlain College	www.champlain.edu and gamestudio.champlain.edu/	Burlington, VT	Management of Creative Media, Game Art and Animation, Game Design, Game Programming
Charles Sturt University	www.csu.edu.au	Bathurst, NSW, AU	Bachelor of Computer Science (Games Technology), Bachelor of Arts (Animation and Visual Effects)
Clover Park Technical College	www.cptc.edu/	Lakewood, WA	Media Design and Production - 3D Art and Animation
Colegio Universitario IES21	www.ies21.edu.ar	Córdoba, Córdoba, AR	Desarrollo de Simulaciones Virtuales y videojuegos
College for Creative Studies	www.insideccs.com	Detroit, MI	Advertising Design, Illustration, Entertainment Arts, Illustration
College of Lake County	www.clcillinois.edu/programs/cit/index.asp?gaming	Grayslake, Illinois	Computer Information Technology (Game Development)
Collins College	www.collinscollege.edu/	Phoenix, AZ	Game Art, Game Design
Cologne Game Lab	www.colognegamelab.de	Cologne, NRW, DE	Game Development & Research
Concordia University Centre for Continuing Education	cce.concordia.ca/	Montreal, Quebec, CA	Graphics & Visualization, Game Programming Certificate
Confetti ICT	confetti.uk.com/	Nottingham, Nottinghamshire, GB	Interactive Gaming
Conservatory of Recording Arts & Sciences	www.audiorecordingschool.com	Gilbert, AZ	MRPII
Cornell University	gdiac.cis.cornell.edu	Ithaca, NY	Game Design Minor
Creajeux	www.creajeux.fr	Nimes, FR	Concepteur 3D, Programmeur
DADIU	www.dadiu.dk/	Copenhagen, DK	
Dakota State University	www.dsu.edu	Madison, South Dakota	Computer Game Design
Daniel Webster College	www.dwc.edu	Nashua, NH	Video Game Programming
De Montfort University	www.dmu.ac.uk/faculties/art_and_design/ug_courses/game_art.jsp	Leicester, Leicestershire, GB	Game Art Design
Department of Digital Technology and Game Design, Shu-Te University	www.dgd.stu.edu.tw/main.php	Kaohsiung , Taiwan , TW	Multimedia Program Design, Information Scinece and Design, Digital Game Design
Derby University - School of Computing and Mathematics	www.derby.ac.uk/	Derby, UK, GB	Computer Graphics Production, Computer Games Modelling and Animation, Computer Games Programming
DeSales University	www.desales.edu/	Center Valley, PA	Computer Science - Game Programming Track
design3	www.design3.com/	Online	Learn game design, app development and 3D animation
DeVry University	www.devry.edu	Downers Grove, IL	Game & Simulation Programming
DeVry University - Dallas Metro Campus	www.devry.edu	Irving, TX	Game and Simulation Programming
DeVry University - Oakbrook Terrace, IL	www.devry.edu	Oakbrook Terrace, IL	

TITLE	URL	LOCATION	PROGRAM OFFERED
DigiPen Institute of Technology Europe-Bilbao	www.digipen.es	Zierbena, Bizkaia, ES	Digital Arts and Animation, Computer Science in Real-Time Interactive Simulation
DigiPen Institute of Technology Singapore	singapore.digipen.edu/	Singapore, SG	Computer Science and Game Design, Digital Arts and Animation, Computer Science in Real-Time Interactive Simulation, Game Design
Digital Film Academy	www.DigitalFilmAcademy.com	New York, NY	
Digital Media Academy	www.digitalmediaacademy.org/	Campbell, CA	Pro Series Training Courses, Educator Series
Digital Media Arts College	www.dmac.edu/	Boca Raton, Florida	Master of Fine Arts - Visual Effects Animation, Bachelor of Fine Arts - Computer Animation Game Art Concentration, Bachelor of Fine Arts - Computer Animation
Drexel University, Antoinette Westphal College of Media Arts and Design	drexel.edu/westphal/	Philadelphia, PA	Photography, Screenwriting & Playwriting, Graphic Design, Film & Video, Digital Media
Edinboro University of Pennsylvania	www.edinboro.edu	Edinboro, Pennsylvania	Computer Animation, Game and Virtual World Development
Edison Community College	www.edisonohio.edu/index.php?page=computer-games-and-simulation-programming-and-design-option	Piqua, OH	Computer Games and Simulation Programming and Design
Edith Cowan University	www.ecu.edu.au/	Perth, Western Australia, AU	Graduate Diploma of Games Programming, Bachelor of Computer Science [Games Programming], Master of Games and Simulation Programming, Bachelor of Science [Digital Media], Bachelor of Creative Industries [Game Design and Culture]
Edmonds Community College	www.edcc.edu/	Lynnwood, WA	Game Development
Electronic Gaming Education	www.electronicgamingeducation.com	Online	Game Development
Emily Carr University of Art + Design	www.ecuad.ca	Vancouver, BC, CA	Master of Applied Arts - Media Stream , Bachelor of Fine Arts
Escuela Da Vinci	www.escueladavinci.net/	Buenos Aires, Buenos Aires, AR	Diseño de Videojuegos / Videogame Development
euNoia Animation School	www.eunoia.tv	Mexico City, Mexico, MX	Traditional and 3d Animation
Expression College for Digital Arts	www.expression.edu	Emeryville, CA	Digital Filmmaking, Sound Arts, Interactive Audio, Motion Graphic Design, Game Art and Design, Animation and Visual Effects, Interaction Design
Facultad de Ingeniería - Universidad Nacional Autónoma de México	www.ingenieria.unam.mx/	México D.F., MX	Ingeniería en Computación/Computación Gráfica
Faculty of Informatics/ Complutense University of Madrid	www.videojuegos-ucm.es/	Madrid, ES	Máster en desarrollo de videojuegos (diseño), Máster en desarrollo de videojuegos (programación)
Fanshawe College	www.fanshawec.ca/programs/courses/full-time-programs/gdp1	London, Ontario, CA	Game Development - Advanced Programming
Fatec Sao Caetano do Sul	www.fatecsaocaetano.edu.br	Sao Caetano do Sul, SP, BR	Tecnologia em Jogos Digitais
Fingerlakes Community College	www.flcc.edu/academics/gameprogramming/index.cfm	Canandaigua, NY	Game Programming and Design
Florida Interactive Entertainment Academy at UCF	www.fiea.ucf.edu/	Orlando, Florida	Production Track, Art Track, Programming Track
Friends of Design - Academy of Digital Arts	www.friendsofdesign.net	Cape Town, Western Province, ZA	Game Technology and Multimedia Entertainment

## Game School Directory

TITLE	URL	LOCATION	PROGRAM OFFERED
FuturePoly	www.futurepoly.com	Bellevue, WA	Concept Art, Digital Painting, Texturing for Games, 3D Modeling for Games, Character Animation for Games, Character Modeling with ZBrush
Game Academy	www.gamea.com.cn	Shanghai, CN	NextGen Game Art, Game Design
Game Institute, Inc.	www.gameinstitute.com/	New York, NY	Game engine, 3D graphics development
GAMES ACADEMY	www.games-academy.com	Berlin, Germany, DE	Film Art & Animation, Interactive Audio Design, Game Design, Game Programming, Game Production, Game Art & Animation
Gemini School of Visual Arts & Communication	www.geminischool.com	Cedar Park, TX	Diploma in Visual Arts & Communication
Generando IT	www.generandoit.com/	Buenos Aires, AR	Flash Games, Iniciación Juegos Multiplayer, Unity 3D Fundamental
George Brown College	www.georgebrown.ca/Marketing/FTCal/design/G405.aspx	Toronto, Ontario, CA	Game Design
George Mason University, ACS	www.cs.gmu.edu/~acsgame/	Fairfax, VA	ACS Game Design
George Mason University, BFA	game.gmu.edu	Fairfax, VA	Computer Game Design
Georgia Institute of Technology	www.gatech.edu	Atlanta, GA	Artificial Intelligence, Graphics & Visualization
Glasgow Caledonian University	www.gcu.ac.uk/	Glasgow, GB	BA Computer Games [Art & Animation], BA 3D Computer Animation, BSc Computer Games [Design], BSc Computer Games [Software Development], BSc Audio Technology with Multimedia
Glasgow Caledonian University, School of Engineering and Computing	www.gcu.ac.uk/sec/study/	Glasgow, Scotland, GB	Computer Games [Design], Computer Games [Software Developmnt]
Glendale Community College	www.gc.maricopa.edu/	Glendale , AZ	AAS Multimedia Animation
Glyndwr University	www.glyndwr.ac.uk	Wrexham, Wrexham Borough, GB	Digital Art for Computer Games, Computer Game Development
Gnomon School of Visual Effects	www.gnomonschool.com	Hollywood, CA	Maya Fast Track Program, Highend Computer Graphics Certificate Program
Goldsmiths, University of London	www.gamesgoldsmiths.com	London, England, GB	MSc Computer Games & Entertainment
Great Eastern Technology	www.get3dtraining.com	Salem, NH	
Great Northern Way Campus	mdm.gnwc.ca	Vancouver, British Columbia [Canada] , CA	Masters of Digital Media Program
Hagerstown Community College	www.hagerstowncc.edu/	Hagerstown, MD	Simulation and Digital Entertainment
HAL Institute of Computer Technology - Nagoya	www.hal.ac.jp/	Nagoya, Aichi-ku, JP	Multimedia, Music and General information processing
HAL Institute of Computer Technology - Osaka	www.hal.ac.jp/	Osaka, JP	Multimedia, Music and General information processing
Hamburg University of Applied Sciences (HAW)	www.gamesmaster-hamburg.de/en/	Hamburg, Hamburg, DE	Time-based Media / Sound - Vision - Games
Hamidrasha Art College, Beit Berl Academic College, Kalmaniya	www.beitberl.ac.il	Beit Berl, Near Kfar Saba, IL	Software Development , Copywriting, Content Design, Animator, Graphic Designer
Harper College CE	gofoward.harpercollege.edu/	Schaumburg, IL	Flash Game Designer CE Certificate
Harvard Extension School	www.extension.harvard.edu/	Cambridge, MA	Introduction to Computer Graphics, Digital Multimedia Art, Understanding and Developing Multimedia
Herzing University - Madison WI	www.herzing.edu/	Madison, WI	Game Development, Graphic Design

TITLE	URL	LOCATION	PROGRAM OFFERED
Herzing University - Milwaukee	<a href="http://www.herzing.edu/online">www.herzing.edu/online</a>	Milwaukee, WI	
High Point University	<a href="http://www.highpoint.edu/">www.highpoint.edu/</a>	High Point, NC	Game and Interactive Media Design
Hochschule Darmstadt University of Applied Sciences	<a href="http://www.h-da.de">www.h-da.de</a>	Darmstadt, Hessen, DE	Media Direction, Digital Media, Media
Hochschule Mittweida (FH) University Of Applied Sciences	<a href="http://www.hs-mittweida.de/">www.hs-mittweida.de/</a>	Mittweida, Sachsen, DE	Media Informatics and Interactive Entertainment
Homer College	<a href="http://www.omiros.gr">www.omiros.gr</a>	Athens, Attiki, GR	MultiMedia Computing
Hong Kong Polytechnic University - Multimedia Innovation Centre (MIC)	<a href="http://www.mic.polyu.edu.hk">www.mic.polyu.edu.hk</a>	Hong Kong, Kowloon, HK	Traditional & Interactive Media, Animation & Games, Multimedia & Entertainment Technology
Howest - University College West-Flanders	<a href="http://www.digitalartsandentertainment.com">www.digitalartsandentertainment.com</a>	Kortrijk, West-Flanders, BE	Digital Arts & Entertainment
HTW- Hochschule für Technik und Wirtschaft	<a href="http://gamedesign.htw-berlin.de/">gamedesign.htw-berlin.de/</a>	Berlin, DE	Interaction Design / Game Design
Humber College - School of Media Studies	<a href="http://humber.ca">humber.ca</a>	Toronto, ON, CA	
Högskolan i Gävle - Creative Computer Graphics	<a href="http://www.hig.se/Ext/Sv/Utbildning/Hitta-utbildning/Program/Programsidor/Grundniva/Creative-Computer-Graphics-180-hp.html">www.hig.se/Ext/Sv/Utbildning/Hitta-utbildning/Program/Programsidor/Grundniva/Creative-Computer-Graphics-180-hp.html</a>	Gävle, , SE	Creative Computer Graphics
Id Animation & Arts	<a href="http://www.seamedu.com/animation-and-arts/courses-animation-foundation-pune.php">www.seamedu.com/animation-and-arts/courses-animation-foundation-pune.php</a>	Pune, Maharashtra, IN	Professional Diploma in Shading and Rendering, Professional Diploma in Texturing , Professional Diploma in Modelling, Diploma in Character Animation , Diploma in 2 D Animation , Diploma in 3 D Animation , Specialization in Game Art, Diploma in Game Art D...
Illinois Institute of Art - Chicago	<a href="http://www.ilic.aii.edu">www.ilic.aii.edu</a>	Chicago, IL	Digital Media Production, Media Arts & Animation, Game Art & Design, Visual Effects & Motion Graphics
Image College of Arts, Animation & Technology (ICAT)	<a href="http://www.icat.ac.in">www.icat.ac.in</a>	Chennai, TN, IN	3D Animation, Game Design, Visual Effects, Game Development
Indiana University	<a href="http://games.indiana.edu/">games.indiana.edu/</a>	Bloomington, IN	Game Business and Legal, Game Art, Game Programming, Certificate in Game Studies, MS Game Design, Game Design, PhD Game Telemetry, Game Audio
Informatics Professional Development Centre	<a href="http://www.informaticsgroup.com/">www.informaticsgroup.com/</a>	Singapore, , SG	
Institute Desgraff	<a href="http://www.institutdesgraff.com">www.institutdesgraff.com</a>	Sherbrooke, Quebec, CA	3D digital arts and animation for video games
Institute of Technology Carlow	<a href="http://www.itcarlow.ie">www.itcarlow.ie</a>	Carlow, Carlow, IE	Computer Games Development
Institute of Virtual Reality	<a href="http://www.institutevr.com">www.institutevr.com</a>	Peora, Uttaranchal, IN	Artificial Digital Life, Virtual Reality Art, 3D Animation & Vfx, Game Design and Art, Game Developer Program
Instituto Tecnológico y de Estudios Superiores de Monterrey - Campus Estado de México	<a href="http://www.cem.itesm.mx">www.cem.itesm.mx</a>	Atizapán de Zaragoza, Estado de México, MX	Animación y Arte Digital/Computer Graphics Animation
Inter-Dec college	<a href="http://www.interdeccollege.com">www.interdeccollege.com</a>	Montreal, Quebec, CA	3D animation, Video games
ISART Digital	<a href="http://www.isartdigital.com/">www.isartdigital.com/</a>	Paris, Île-de-France, FR	Game Design and Programming , Game Programming , Game Art, Game Design, CG Animation, Visual Effects, Sound Design, Production

## Game School Directory

TITLE	URL	LOCATION	PROGRAM OFFERED
Istanbul Yildiz Technichal University - Communications Design And Multimedia	<a href="http://www.yildiz.edu.tr/en/">www.yildiz.edu.tr/en/</a>	Istanbul, Marmara, TR	Digital-interactive media
Istituto Europeo di Design	<a href="http://www.ied.it">www.ied.it</a>	Rome, RM, IT	Master Program in videogame design & development
IT University of Copenhagen	<a href="http://www.itu.dk/game">www.itu.dk/game</a>	Copenhagen, , DK	Center for Computer Games Research, Media Technology and Games
IT University of Copenhagen	<a href="http://www.itu.dk">www.itu.dk</a>	Copenhagen, , DK	Media, Technology and Games
ITP at New York University	<a href="http://itp.nyu.edu">itp.nyu.edu</a>	New York, NY	Interaction Design
ITT Tech - Green Bay Campus	<a href="http://www.itt-tech.edu/campus/school.cfm?lloc_num=19">www.itt-tech.edu/campus/school.cfm?lloc_num=19</a>	Green Bay, WI	
ITT Tech - Greenville, South Carolina	<a href="http://itt-tech.edu/">itt-tech.edu/</a>	Greenville , SC	Visual Communications Associate of Applied Science Degree, Digital Entertainment and Game Design Bachelor of Science Degree
ITT Technical Institute - Arnold, Missouri	<a href="http://www.itt-tech.edu/campus/school.cfm?lloc_num=91">www.itt-tech.edu/campus/school.cfm?lloc_num=91</a>	Arnold, MO	Digital Entertainment and Game Design
Kajaani University of Applied Sciences	<a href="http://www.kamk.fi/en">http://www.kamk.fi/en</a>	Kajaani, , FI	Game Programming
Karelia University of Applied Sciences	<a href="http://tiko.ncp.fi/gameprogramming/index_en.html">tiko.ncp.fi/gameprogramming/index_en.html</a>	Joensuu, Finland, FI	Game Programmer
Keiser University	<a href="http://www.keiseruniversity.edu">www.keiseruniversity.edu</a>	Fort Lauderdale, FL	Video Game Design
Lake Washington Technical College	<a href="http://www.lwtech.edu">www.lwtech.edu</a>	Kirkland, WA	Video Production, Digital Games and Media, Print/Web
Lancaster University UK	<a href="http://www.lancaster.ac.uk/">www.lancaster.ac.uk/</a>	Lancaster, Lancashire, GB	mobile games development
Langara College Continuing Studies	<a href="http://www.langara.bc.ca/cs">www.langara.bc.ca/cs</a>	Vancouver, BC, CA	Business & Computer Technology
Living Arts College @ Living Arts College	<a href="http://www.living-arts-college.edu">www.living-arts-college.edu</a>	Raleigh, NC	Animation & Game Design, Interactive Media Arts, Digital Filmmaking , Digital Audio Production & Design, Digital Photography
Long Island University	<a href="http://www.liu.edu/post/gamedesign">www.liu.edu/post/gamedesign</a>	Brookville, NY	Digital Game Design and Development
Los Angeles Film School - Game Production	<a href="http://www.lafilm.edu">www.lafilm.edu</a>	Hollywood, California	Game Production
Lost Boys Learning	<a href="http://www.lostboys-learning.com">www.lostboys-learning.com</a>	Courtenay, BC, CA	VISUAL EFFECTS
Louisiana State University	<a href="http://www.lsu.edu">www.lsu.edu</a>	Baton Rouge, Louisiana	Digital Media Minor (DMTEC) - Undergraduate, Digital Media Minor (DMART) - Undergraduate
LSC - Kingwood	<a href="http://www.lonestar.edu/kingwood.htm">www.lonestar.edu/kingwood.htm</a>	Kingwood, TX	
Madeira Interactive Technologies Institute/University of Madeira	<a href="http://www.m-iti.org">www.m-iti.org</a>	Funchal, R. A. Madeira, PT	Masters of Entertainment Technology, partnership with ETC/Carnegie Mellon University - USA
Madison Media Institute   College of Media Arts	<a href="http://www.mediainstitute.edu">www.mediainstitute.edu</a>	Madison, WI	Video And Motion Graphics, Game Art & Animation, Recording & Music Technology
Massachusetts Institute of Technology (MIT)	<a href="http://web.mit.edu/admissions/">web.mit.edu/admissions/</a>	Cambridge, MA	Sloan School of Management, Electrical Engineering and Computer Science, Comparative Media Studies
Massasoit Community College	<a href="http://massasoit.edu/">massasoit.edu/</a>	Brockton, MA	Computer Information Systems - Programming Option

TITLE	URL	LOCATION	PROGRAM OFFERED
Max the Mutt Animation School	www.maxthemutt.com	Toronto, Ontario, CA	Illustration for Sequential Arts: Comic Books and Graphic Novels, Concept Art , Classical & Computer Animation and Production
McGill University, School of Computer Science	www.cs.mcgill.ca/	Montreal, QC, CA	Major in Computer Science Computer Games Option
MD.H Mediadesign-Hochschule	mediadesign.de/	Berlin, DE	Game Design
Media Arts & Game Development	www.edu/games	Whitewater, Wisconsin	
Mesa Community College	www.mc.maricopa.edu/~lybbert/studio180/degrees.html	Mesa, AZ	Associate of Applied Science in Game Technology
Michigan State University	seriousgames.msu.edu	East Lansing, Michigan	Game Design & Development Specialization, Serious Game Design MA
Middlesex University	www.mdx.ac.uk	London, GB	Animation, 3D Animation and Games, Multimedia Computing, Computing, Graphics and Games
Mildred Elley - School of Digital Media Arts	www.mildred-elley.edu	Albany, NY	Game Design & 3D Animation, Digital Graphics & Multimedia Design, Digital Graphics & Multimedia Design
Milwaukee Area Technical College	www.matc.edu	Milwaukee, WI	Animation
Minneapolis Media Institute	www.mediainstitute.edu/minneapolis-media-institute	Edina, MN	Game Art & Animation
Missouri State University - West Plains	wp.missouristate.edu/Academics/default.htm	West Plains, MO	Computer Graphics & Programming
Mohawk Valley Community College	www.mvcc.edu/academics/departments/art/dgtlmtn.cfm	Utica, NY	
Monash University - Berwick School of Information Technology	http://www.berwick.monash.edu.au/	Berwick, Victoria, AU	Bachelor of Information Technology and Systems - Multimedia Applications, Bachelor of Information Technology and Systems - Games Development
Montgomery College	www.studygaming.com	Rockville, MD	Computer Gaming and Simulation - ProgrammingTrack, Internet Gaming and Simulation - Certificate, Computer Gaming and Simulation - Art & Animation Track, Computer Gaming and Simulation - Production & Design Track
Montgomery County Community College	www.berwick.monash.edu.au/	Blue Bell, Pennsylvania	Software Engineering, Electronic Game and Simulation Design, Digital Audio Production, Digital Design: Computer Graphics, Digital Design: Multimedia
Motherwell College	www.motherwell.ac.uk/	Motherwell, North Lanarkshire, GB	National Certificate/Diploma
Mount Ida College	www.mountida.edu	Newton, MA	BS in Game Art and Animation
Mt. Sierra College	www.mtsierra.edu	Monrovia, CA	Game Arts & Design, Media Arts & Design
Murdoch University	www.games.murdoch.edu.au/	Perth, Western Australia, AU	Games Technology, Games Software Design and Production
Musitechnic	musitechnic.com/	Montréal, Quebec, CA	Audio production technique
Napier University	i-media.soc.napier.ac.uk/bsc_imd/index.html	Edinburgh, , GB	Interactive Media Design, Interactive Media Design

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TITLE	URL	LOCATION	PROGRAM OFFERED
National Centre for Computer Animation, Bournemouth University	ncca.bournemouth.ac.uk	Poole, Dorset, GB	Computer Visualisation & Animation, BA [Hons], Computer Animation Arts, BA [Hons], Software Development for Animation, Games and Effects, BSc [Hons], 3D Computer Animation, MA/PD, Digital Effects, MA/PD, Computer Animation & Visual Effects, MSc
National Film and Television School	www.nfts.co.uk/	Beaconsfield, Buckinghamshire, GB	MA Games Design and Development
National University - School of Media & Communication	www.nu.edu/Academics/Schools/SOMC.html	La Jolla, CA	Video Game Production and Design, Digital Entertainment and Interactive Arts
NBCC Miramichi	www.nbcc.ca/miramichi	Miramichi, NB, CA	Applied Arts - Electronic Game - 3D Graphics, Applied Arts - Electronic Game - Design [programming], Applied Arts - Animation and Graphics, Applied Arts - Media Studies [Art Fundamentals], Applied Arts Diploma of Advanced Studies
Nescot - National Diploma Game Development	www.nescot.ac.uk/	Epsom, Surrey, GB	National Diploma Game Development
Neumont University	www.neumont.edu	South Jordan, UT	Computer Science
New England Institute of Technology	www.neit.edu	East Greenwich, RI	Video Game Design, Graphics, Multimedia and Web Design, Video and Audio Production Technology, Digital Recording Arts, Game Development and Simulation Programming Technology , Software Engineering Technology
New Jersey Institute of Technology	www.njit.edu	Newark, New Jersey	Information Technology
New York University - School of Continuing and Professional Studies	www.scps.nyu.edu/dcom	New York, NY	Digital Communications and Media
NHTI Concord Community College	www.nhti.edu/academics/academicprograms/degaggp.html	Concord, New Hampshire	Animation and Graphic Game Programming
NHTV Breda University of Applied Science	www.nhtv.nl/made	Breda, NL	International Game Architecture and Design
North Carolina State University - College of Design	www.design.ncsu.edu/	Raleigh, NC	Multimedia & Digital Imaging, Interactive Design, Game Design, 3D Animation, Ideation & Illustration
Northeastern University - College of Professional Studies	www.northeastern.edu/cps/digitalmedia	Boston, MA	3D Animation, Digital Video, Game Design, Interactive Design
Northeastern University - Creative Industries [Game Design & Interactive Media]	www.northeastern.edu/ci/	Boston, MA	Creative Industries Minor, Interactive Media and Computer Science, Interactive Media and Music Technologies, Interactive Media and Graphic Design, Interactive Media and Digital Art, Game Design and Computer Science, Game Design and Graphic Design, Game D...
Northern Oklahoma College	northok.publishpath.com/	Tonkawa, OK	3D Animation and Post-production
Northumbria University	www.northumbria.ac.uk/sd/academic/ceis/	Newcastle upon Tyne, Tyne & Wear, GB	Computer Games Design & Production, Games Programming
Norwegian School of Information Technology	www.nith.no	Oslo, NO	Game design, Game programming
Norwich University College of the Arts	www.nuca.ac.uk/courses/undergraduate/games-art-and-design	Norwich, Norfolk, GB	

TITLE	URL	LOCATION	PROGRAM OFFERED
Norwich University College of the Arts	<a href="http://www.nuca.ac.uk">www.nuca.ac.uk</a>	Norwich, Norfolk, GB	Games Art and Design
Nova Scotia Community College	<a href="http://www.nscc.ca">www.nscc.ca</a>	Truro, NS, CA	Interactive & Motion Graphics - Game Design, Interactive & Motion Graphics - 3D Modelling & Motion Capture, Interactive & Motion Graphics - Visual Effects
NTI Birmingham	<a href="http://www.bcu.ac.uk/">www.bcu.ac.uk/</a>	Birmingham, GB	Gamer Camp: Nano
NTI Birmingham	<a href="http://www.bcu.ac.uk/">www.bcu.ac.uk/</a>	Birmingham, GB	Gamer Camp: Mini - PgCert/PgDip/MA/MSc
NTI Birmingham	<a href="http://www.bcu.ac.uk/pme/nti/gamercamp/courses/pro">www.bcu.ac.uk/pme/nti/gamercamp/courses/pro</a>	Birmingham, GB	Gamer Camp: Pro, Video Games Development - MA / MSc
NYU Game Center	<a href="http://gamecenter.nyu.edu/">gamecenter.nyu.edu/</a>	New York, New York	Game Design Minor, Game Design M.F.A
Ohio University	<a href="http://www.tcomschool.ohio.edu/">www.tcomschool.ohio.edu/</a>	Athens, OH	Digital Media: Special Effects, Games, and Animation
Oklahoma Christian University	<a href="http://www.oc.edu/art">www.oc.edu/art</a>	Edmond, OK	Oklahoma Christian U. Gaming + Animation
Oklahoma City Community College	<a href="http://www.occc.edu">www.occc.edu</a>	Oklahoma City, Oklahoma	Computer Aided Technology- Game Design Option
Oklahoma Panhandle State University	<a href="http://www.opsu.edu">www.opsu.edu</a>	Goodwell, OK	BFA Computer Graphics, BTEC Game Art Design
Otis College of Art and Design - Digital Media Department	<a href="http://www.otis.edu">www.otis.edu</a>	Los Angeles, CA	game design, animation, interactive design, motion graphics, visual effects
Parsons the New School of Design: School of Art, Media and Technology	<a href="http://cdt.parsons.edu">cdt.parsons.edu</a>	New York, NY	Design & Technology
Pennsylvania College of Technology	<a href="http://www.pct.edu">www.pct.edu</a>	Williamsport, PA	Information Technology Sciences: Gaming & Simulation
Pennsylvania College of Technology	<a href="http://pct.edu">pct.edu</a>	Williamsport, Pennsylvania	Gaming & Simulation
Pennsylvania State University	<a href="http://ist.psu.edu">ist.psu.edu</a>	University Park, PA	
Pensacola State College	<a href="http://www.pensacolastate.edu/">www.pensacolastate.edu/</a>	Pensacola, FL	Simulation and Game Design
Piedmont Community College	<a href="http://www.cpcc.edu/">www.cpcc.edu/</a>	Roxboro/Yanceyville, NC	Digital Effects and Animation Technology
Pinnacle College	<a href="http://www.pinnaclegcollege.edu">www.pinnaclegcollege.edu</a>	Alhambra, CA	Audio for Games and Interactive Media
Platt College - Digital Media Design	<a href="http://www.platt.edu">www.platt.edu</a>	San Diego, CA	Web Design, Media Arts (Video Production), Graphic Design, Media Arts, Media Arts (3D Animation), Multimedia/Animation, Media Arts (Web Design), Media Arts (Visual Effects & Compositing)
PlaygroundSquad	<a href="http://www.playgroundsquad.com">www.playgroundsquad.com</a>	Falun, SE	Programming, Game Design, 3D Graphics
PowerUp Games	<a href="http://www.powerupgames.com/game-tester-course.html?cid=7&amp;pid=5">www.powerupgames.com/game-tester-course.html?cid=7&amp;pid=5</a>	Jacksonville, FL	Game Testing Certification
Pyramind: the Institute for Advanced Digital Audio Training	<a href="http://www.pyramind.com">www.pyramind.com</a>	San Francisco, CA	
QANTM College - Australia	<a href="http://www.qantmcollege.edu.au">www.qantmcollege.edu.au</a>	Brisbane, QLD, AU	Diploma of Screen and Media (Animation), Bachelor of Interactive Entertainment (with a Major in Animation), Bachelor of Interactive Entertainment (with a Major in Games Programming), Bachelor of Interactive Entertainment (with a Major in Games Design)
QANTM College - Munich	<a href="https://www.sae.edu/en-gb/content/37/QANTM_College/">https://www.sae.edu/en-gb/content/37/QANTM_College/</a>	Munich, Bavaria, DE	Bachelor of Science, Games Programming, Bachelor of Arts, Interactive Animation
QANTM College London	<a href="https://www.sae.edu/en-gb/content/37/QANTM_College/">https://www.sae.edu/en-gb/content/37/QANTM_College/</a>	London, England	

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TITLE	URL	LOCATION	PROGRAM OFFERED
Queen's University Belfast - School of EEECS	www.qub.ac.uk/eeeecs	Belfast, Antrim, GB	Computer Games Design and Development
Queensland University of Technology - Kelvin Grove, QLD	www.creativeindustries.qut.edu.au	Kelvin Grove, QLD, AU	
Queensland University of Technology - Brisbane City	www.qut.edu.au/scitech	Brisbane, QLD , AU	Bachelor of Games and Interactive Entertainment, Master of Information Technology - Games Design/Production
Quinnipiac University	www.quinnipiac.edu/	Hamden, CT	
Rasmussen College	www.rasmussen.edu/degrees/technology-design/game-design/	Online and at 25 campuses in 5 states	Digital Design and Animation, Multimedia Technologies, Information Systems Management, Game & Simulation Programming
Ravensbourne College Of Design & Communication	www.rave.ac.uk	Chislehurst, kent, GB	Computer Visualisation and Animation, Animation, Interactive Digital Media*
Recording Arts Canada	recordingarts.com/programs/game-design	Toronto, Ontario, CA	Game Design
Rensselaer Polytechnic Institute	www.gsas.rpi.edu	Troy, NY	Game and Simulation Arts & Sciences
S4G School for Games	www.school4games.net	Berlin, DE	Online Game Engineering, Online Game Graphics, Online Game Development
Sacred Heart University	www.sacredheart.edu/pages/35_computer_science_information_technology.cfm	Fairfield, CT	Game Design and Development
SAE Institute Amsterdam	amsterdam.sae.edu	Amsterdam, Noord-Holland, NL	Audio Engineering Course
SAGE	www.sageinfolabs.com	New Delhi, New Delhi, IN	Game Programming
Sam Houston State University	www.shsu.edu/~animate	Huntsville, TX	Computer Animation
San Jacinto College Central	www.sanjac.edu/	Houston , TX	3D Animation courses (I,II, and III)
Santa Ana College	www.sac.edu/	Santa Ana College, ca	3D Animation Certificate
Santa Monica College - Academy of Entertainment Technology	academy.smc.edu	Santa Monica, CA	Visual Effects, Post Production, Game Development, Animation
Savannah College of Art and Design	www.scad.edu	Savannah, GA	Visual Effects, Sound Design, Animation, Interactive Game Design & Motion Graphics
School of Animation, Communication University of China	animation.cuc.edu.cn/	Beijing, CN	Animation Design direction of Animation, Animation Writing and Directing direction of Animation, Game Art direction of Game Design, Game Programming direction of Game Design, Animation, Digital Media Art, Game Design, Media Art Online direction of Digital...
School of Arts and Humanities, University Campus Suffolk	www.ucs.ac.uk	Ipswich, Suffolk, GB	Computer Games Design
School of Computer Science, University of Windsor	www.cs.uwindsor.ca	Windsor, Ontario, CA	Game Development Specialization
School of Computing & Mathematical Sciences, Liverpool John Moores University	www.cms.ljvm.ac.uk/	Liverpool, GB	Animation for Film and Games, Computer Games Technology, Interactive Media Design
School of Computing and Intelligent Systems, Faculty of Computing and Engineering, University of Ulster	www.ulster.ac.uk	Ballymena, County Antrim, GB	BSc (Hons) Multimedia Computer Games, BEng (Hons) Computer Games Development
School of Multimedia Systems	www.multimedia.monash.edu.au	Berwick, Victoria, AU	Games Development
School of Video Game Audio	www.monash.edu.au/	Vancouver, CA	FMOD Demo Reel, Wwise Demo Reel

TITLE	URL	LOCATION	PROGRAM OFFERED
School of Visual Arts	www.sva.edu	New York, NY	BFA Animation, MFA Computer Art, BFA Computer Art, Computer Animation and Visual Effects
Seamedu - Media School	www.seamedu.com	Pune, Maharashtra , IN	Diploma in Game Development, BTEC Level 5 HND Creative Media Production (Computer Game Design)
Seattle Central Community College	www.learnatcentral.org	Seattle, WA	3D Animation / Design & Gaming Program
Seneca College - Game Art & Animation	www.senecac.on.ca/	Toronto, Ontario, CA	3D Gaming Graduate Certificate Program [GAM], Animation Advanced Diploma Program, 3D Animation Graduate Certificate Program [dan]
Serious Game Design Institute	sgdi.sbcc.edu	Santa Barbara, CA	Serious Game and Simulation Design
Sessions College for Professional Design	seriousgamedesigninstitute.org/	Tempe, AZ	Accredited Game Art Certificate
Shawnee State University	www.shawnee.edu	Portsmouth, OH	Game Programming, Game Graphics
Sheffield Hallam University	www.shu.ac.uk/multimedia/games/	Sheffield, South Yorkshire, GB	MSc Game Software Development, MA Animation for Computer Games, BSc Game Software Development
Sierra College	www.sierracollege.edu/	Rocklin, CA	Computer Science
Simon Fraser University - School of Interactive Arts and Technology (SIAT)	www.siat.sfu.ca	Surrey, British Columbia, CA	Undergraduate Program: Media Arts, Design & Informatics Concentrations, Graduate Program
Southbank Institute of Technology	www.southbank.edu.au	South Brisbane, QLD, AU	Games Development, Diploma of Information Technology
Southbank Institute of Technology	www.southbank.edu.au	Brisbane, Queensland, AU	Diploma of Interactive Digital Media - Game Design
Southern Adventist University - School of Visual Art and Design	art.southern.edu/	Collegedale, TN	Interactive Media, Graphic Design, Fine Art, Film Production, Animation
Southern New Hampshire University - SNHU	www.snhu.edu	Manchester, NH	Business Studies - Game Design & Development, Game Design & Development, Information Technology - Game Design & Development, Computer Information Technology - Game Design & Development
Southern Polytechnic State University	games.spsu.edu/	Marietta, GA	Information Technology, Computer Science, Software Engineering, Computer Game Design and Development
Sprott-Shaw Community College	www.sprottshaw.com	Calgary, AB, CA	
Springfield College	www.spfldcol.edu/	Springfield, MA	Game Design
St. Edward's University	www.stedwards.edu/business/graduate/mbad/index.htm	Austin, TX	Digital Media Management
St. Petersburg College-Seminole Campus	www.spcollege.edu/se/	Seminole , FL	Video Game Foundations, Digital Media Production, Digital Media Video production
Staffordshire University	www.staffs.ac.uk	Stafford, GB	Computer Games Programming, Computing: Games Development, Multiplayer Online Games Programming
Stony Brook University	www.cs.stonybrook.edu	Stony Brook, NY	Computer Science Specialization in Game Programming
Stroud College in Gloucestershire	www.stroud.ac.uk/	Stroud, Gloucestershire, GB	Multimedia - BTEC National Diploma
Swansea Metropolitan University - School of Digital Media	www.uwtsd.ac.uk/	Swansea, Swansea, GB	

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TITLE	URL	LOCATION	PROGRAM OFFERED
TAFE - Tea Tree Gully	<a href="http://www.tafesa.edu.au/game-art-studies.aspx">www.tafesa.edu.au/game-art-studies.aspx</a>	Modbury, SA, AU	Game Art Program, Game Art VET
TAFE N.S.W. Hornsby	<a href="http://infotech.hornsby.tafensw.edu.au/">infotech.hornsby.tafensw.edu.au/</a>	Hornsby, New South Wales, AU	19050 - Games Development (Diploma), 7872 - Digital Media, 19010 - Programming
TAFE NSW - Wollongong West	<a href="http://www.illawarra.tafensw.edu.au">www.illawarra.tafensw.edu.au</a>	Wollongong, NSW, AU	
Tallahassee Community College	<a href="http://www.tcc.fl.edu/">www.tcc.fl.edu/</a>	Tallahassee, Florida	Computer Game Design
Temasek Polytechnic (Temasek InfoTech School)	<a href="http://www.tp.edu.sg/">www.tp.edu.sg/</a>	Singapore, Singapore, SG	Game & Entertainment Technologies
Texas State Technical College	<a href="http://www.waco.tstc.edu">www.waco.tstc.edu</a>	Waco, Texas	Game & Simulation, Game Programming and Design
The Academy of Entertainment and Technology at Santa Monica College	<a href="http://www.smc.edu/">www.smc.edu/</a>	Santa Monica, CA	Game Design, Animation
The Art Institute of Vancouver	<a href="http://www.artinstitutes.edu/vancouver/">www.artinstitutes.edu/vancouver/</a>	Vancouver, British Columbia, CA	Visual & Game Programming, Game Art & Design
The College of Westchester	<a href="http://www.cw.edu">www.cw.edu</a>	White Plains, New York	Multimedia Development & Management
The Game Assembly - Game Art	<a href="http://www.thegameassembly.com">www.thegameassembly.com</a>	Malmö, SE	Game Art
The Game Assembly - Game Programming	<a href="http://www.thegameassembly.com">www.thegameassembly.com</a>	Malmö, SE	Game Programmer
The Game Assembly - Leveledesign	<a href="http://www.thegameassembly.com">www.thegameassembly.com</a>	Malmö, SE	Level Design
The Rydan Workshop	<a href="http://www.therydanworkshop.com">www.therydanworkshop.com</a>	North Vancouver, BC, CA	2D Matte Painting, Real-Time Environments with Unreal Engine, Intro Digital Concept Art, Game Character Pipeline, Introduction to ZBrush, Intro to Maya Rigging, Digital Character and Creature Design, Photoshop Intro for the Entertainment Industry
Train2Game	<a href="http://www.train2game.com">www.train2game.com</a>	Nationwide, United Kingdom, GB	TIGA Diploma in Games Development, TIGA Diploma in Games Design
Training Center Alcance Digital	<a href="http://www.alcancedigital.com">www.alcancedigital.com</a>	León, Guanajuato , MX	Visual Effects, Digital Musical Composition, Digital Design, Video Games Programming, 3D Animation, Digital Cinematography
Trinity College Dublin	<a href="http://www.cs.tcd.ie/courses/msciet/5">www.cs.tcd.ie/courses/msciet/5</a>	Dublin, IE	MSc in Interactive Entertainment Technology
triOS College	<a href="http://www.getintothegame.ca">www.getintothegame.ca</a>	London, Kitchener, Hamilton, Mississauga and Toronto, Ontario, CA	Video Game Design and Development + Internship
Tulsa Tech	<a href="http://tulsatech.edu/">http://tulsatech.edu/</a>	Tulsa, Oklahoma	Information Technology-3d Design & Animation
Tyler Junior College	<a href="http://www.tjc.edu">www.tjc.edu</a>	Tyler, TX	Gaming and Simulation Development—Programming, Gaming and Simulation Development--Graphics
Universidad Iberoamericana Leon	<a href="http://www.leon.uia.mx">www.leon.uia.mx</a>	león, Guanajuato, MX	DIGITAL DESIGN
Universidade Anhembi Morumbi	<a href="http://www.anhembi.br">www.anhembi.br</a>	São Paulo, São Paulo, BR	Game Design
Universidade do Vale do Rio dos Sinos	<a href="http://www.unisinos.br/">www.unisinos.br/</a>	São Leopoldo, Rio Grande do Sul, BR	Digital Games
University Campus Oldham	<a href="http://www.uco.oldham.ac.uk/">www.uco.oldham.ac.uk/</a>	Oldham, Greater Manchester, GB	Digital Arts Practice (Games Art)
University for the Creative Arts at Farnham	<a href="http://www.ucreative.ac.uk/index.cfm?articleid=22622">www.ucreative.ac.uk/index.cfm?articleid=22622</a>	Farnham, Surrey, GB	BA Computer Games Arts

TITLE	URL	LOCATION	PROGRAM OFFERED
University of Abertay Dundee	www.abertay.ac.uk	Dundee, Scotland, GB	Computer Games Technology, Computer Game Applications Development, Creative Sound Production, Game Design & Production Management, Game Art & Animation, Computer Arts, Games Development
University of applied sciences Salzburg / FH Salzburg	www.fh-salzburg.ac.at	Puch bei Hallein , Salzburg, AT	Master MultimediaTechnology, Master MultiMediaArt / visual content creation, Master MultiMediaArt / Producing, Master MultiMediaArt / audio - content creation
University of Baltimore	www.ubalt.edu/	Baltimore, MD	Simulation and Digital Entertainment
University of Birmingham	www.cs.bham.ac.uk	Birmingham, UK, GB	
University of Bradford - School of Informatics	www.inf.brad.ac.uk/	Bradford, West Yorkshire, GB	Artificial Intelligence for Games , Design for Computer Games, Interactive Systems and Video Games Design
University of California , Santa Cruz	games.soe.ucsc.edu	Santa Cruz, CA	Computer Game Design Ph.D., Digital Arts & New Media / Playable Media, Computer Game Design
University of California San Diego   Extension Digital Arts Center	dac.ucsd.edu	San Diego, CA	Mobile Applications Development, Video & Editing, Graphic & Web Design
University of California, Irvine	www.ics.uci.edu	Irvine, CA	Digital Arts, Computer Science, Computer Game Science
University of Central Florida [FIEA]	www.fiea.ucf.edu	Orlando, FL	Art Track, Programming Track, Production Track
University of Central Lancashire	www.uclan.ac.uk	Preston, Lancashire, GB	Computer Games Development, Games Design
University of Colorado, Colorado Springs	www.uccs.edu/	Colorado Springs, CO	Bachelor of Innovation(TM) in Game Design and Development, Game Design and Development Minor
University of Denver	www.gamedev.cs.du.edu	Denver, CO	Electronic Media Arts Design, Digital Media Studies, Computer Science, Animation and Game Development, Studio Art
University of East London	www.uel.ac.uk/	London, GB	Computer Games Design (Story Development)
University of Glamorgan	www.southwales.ac.uk/	Pontypridd, RCT, GB	Computer Game Development
University of Houston	games.cs.uh.edu	Houston, TX	Game Development
University of Houston-Victoria	www.uhv.edu/asa	Victoria, Texas	BS Computer Science-Digital Gaming and Simulation, BAAS Digital Gaming Simulation
University of Hull - Department of Computer Science	www.net.dcs.hull.ac.uk/	Hull, E Yorkshire, GB	Games Programming
University of Lincoln	www.lincoln.ac.uk/dci/	Lincoln, UK, GB	Games Computing, Advanced Games Programming
University of Maryland, Baltimore County	gaim.umbc.edu/	Baltimore, Maryland	Computer Science + game development track, Visual Arts + animation and interactive media
University of Miami - Music Engineering	www.music.miami.edu/programs/mue/	Coral Gables, FL	Music Engineering
University of Michigan - EECS Department	www.eecs.umich.edu	Ann Arbor, MI	Computer Science, Computer Engineering
University of Montevallo	www.montevallo.edu/	Montevallo, AL	Game Studies and Design
University of Montreal	www.umontreal.ca/	Montreal, Quebec, CA	Graduate Diploma in Game Design

# Game School Directory

TITLE	URL	LOCATION	PROGRAM OFFERED
University of Ontario Institute of Technology	<a href="http://www.uoit.ca/">www.uoit.ca/</a>	Toronto, Ontario, CA	Game Development and Entrepreneurship
University of Otago	<a href="http://www.otago.ac.nz">www.otago.ac.nz</a>	Dunedin, Otago, NZ	Software Engineering, Artificial Intelligence, Computer Graphics, Computer Game Design
University of Pennsylvania	<a href="http://www.cis.upenn.edu/grad/cggt/">www.cis.upenn.edu/grad/cggt/</a>	Philadelphia, PA	Human Modeling and Simulation, Digital Media and Design, Computer Graphics & Game Technology
University of Portsmouth - School of Creative Technologies	<a href="http://www.port.ac.uk/games">www.port.ac.uk/games</a>	Portsmouth, Hampshire, GB	Computer Games Technology
University of Prince Edward Island	<a href="http://www.upei.ca/csit/">www.upei.ca/csit/</a>	Charlottetown, PE, PEI, CA	BSc CS with Specialization in Video Game Programming
University of Skövde	<a href="http://www.his.se">www.his.se</a>	Skövde, Västergötland, SE	Serious Games, Media, Aesthetics and Narrative, Programming, Sound/Music, Graphics, Design, Game Writing
University of Southern California - Interactive Media Division	<a href="http://cinema.usc.edu">cinema.usc.edu</a>	Los Angeles, California	Interactive Media, Interactive Entertainment
University of Technology Sydney (UTS)	<a href="http://www.uts.edu.au/">www.uts.edu.au/</a>	Sydney, NSW, AU	Master of Interactive Multimedia, Master of Animation, Bachelor of Science in Games Development
University of Teesside	<a href="http://www.tees.ac.uk/">www.tees.ac.uk/</a>	Middlesbrough, Cleveland, GB	Computer Games Design, interactive Computer Entertainment, Visualisation, Computer Games Art, Computer Animation, Virtual Reality
University of Texas at Austin	<a href="http://gamedev.utexas.edu">gamedev.utexas.edu</a>	Austin, TX	Game Development Program
University of Texas at Dallas - Arts and Technology program	<a href="http://atec.utdallas.edu">atec.utdallas.edu</a>	Richardson, TX	Arts and Technology
University of the Philippines IT Training Center	<a href="http://ittc.up.edu.ph">ittc.up.edu.ph</a>	Quezon City, NCR, PH	Game Development Track
University of Utrecht	<a href="http://www.uu.nl/">www.uu.nl/</a>	Utrecht, NL	Game and Media Technology
University of Verona	<a href="http://www.mastergamedev.it/">www.mastergamedev.it/</a>	Verona, Italy, IT	Master in Computer Game Development
University of Wales, Newport	<a href="http://www.newport.ac.uk/">www.newport.ac.uk/</a>	Newport, South Wales, GB	Computer Games Design
University of Washington - Bothell	<a href="http://www.bothell.washington.edu">www.bothell.washington.edu</a>	Bothell, WA	
University of Washington - Professional and Continuing Education	<a href="http://www.pce.uw.edu">www.pce.uw.edu</a>	Seattle, WA	Virtual Worlds, 3D Animation for Games & Digital Media, Game Development
University of Waterloo	<a href="http://www.cs.uwaterloo.ca/">www.cs.uwaterloo.ca/</a>	Waterloo, Ontario, CA	Computer Science and Computer Engineering
University of West Scotland	<a href="http://www.uws.ac.uk/">www.uws.ac.uk/</a>	Paisley, Renfrewshire, GB	Computer Game Technology
University of Western Ontario	<a href="http://www.csd.uwo.ca">www.csd.uwo.ca</a>	London, Ontario, CA	Computer Science with Minor in Game Development
University of Winnipeg - Professional, Applied and Continuing Education	<a href="http://www.UWinnipegCourses.ca">www.UWinnipegCourses.ca</a>	Winnipeg, Manitoba, CA	
UPC School of Professional and Executive Development	<a href="http://www.talent.upc.edu/esp/">www.talent.upc.edu/esp/</a>	Barcelona, ES	Videogame Design and Creation
Utrecht School of the Arts/ Faculty of Art, Media & Technology	<a href="http://www.hku.nl/">www.hku.nl/</a>	Hilversum, CL, NL	Game Design & Development
Vancouver Animation School	<a href="http://www.vanas.ca">www.vanas.ca</a>	Vancouver, British Columbia, CA	Concept Art, 3D Computer Character Animation
Vancouver College of Art & Design	<a href="http://www.vancouver.VCAD.ca">www.vancouver.VCAD.ca</a>	Vancouver, British Columbia, CA	3D Modelling Animation Art & Design

TITLE	URL	LOCATION	PROGRAM OFFERED
Vancouver Institute of Media Arts (VanArts)	<a href="http://www.vanarts.com">www.vanarts.com</a>	Vancouver, BC, CA	Visual Effects, Game Art & Design, 2D/3D Character Animation, Web Development & Interactive Design
Victoria University	<a href="http://computergraphics.ac.nz">computergraphics.ac.nz</a>	Wellington, NZ	Computer Graphics
Virtual Technology & Design	<a href="http://www.uidaho.edu/">www.uidaho.edu/</a>	Moscow, Idaho	Virtual Technology and Design
Wake Technical Community College	<a href="http://www.waketech.edu/">www.waketech.edu/</a>	Raleigh, NC	Modeling and Animation Certificate, Production Certificate, Simulation & Game Development - Art Track, Simulation & Game Development - Programming Track, Mobile Game Development
Westwood College	<a href="http://www.westwood.edu">www.westwood.edu</a>	14 locations in five states	Software Development: Major in Game Software Development
Westwood College - Anaheim Campus	<a href="http://www.westwood.edu">www.westwood.edu</a>	Anaheim, CA	Game Software Development
Westwood College - Chicago O'Hare Campus	<a href="http://www.westwood.edu">www.westwood.edu</a>	Chicago, IL	Software Development: Major in Game Software Development
Westwood College - Denver North Campus	<a href="http://www.westwood.edu">www.westwood.edu</a>	Denver, CO	Software Development: Major in Game Software Development
Westwood College - Los Angeles Campus	<a href="http://www.westwood.edu">www.westwood.edu</a>	Los Angeles, CA	Software Development: Major in Game Software Development
Westwood College - Online Campus	<a href="http://www.westwood.edu">www.westwood.edu</a>	Denver, CO	Software Development: Major in Game Software Development
Wits University	<a href="http://www.wits.ac.za/">www.wits.ac.za/</a>	Johannesburg, Gauteng, ZA	Game Design
Worcester Polytechnic Institute	<a href="http://imgd.wpi.edu/">imgd.wpi.edu/</a>	Worcester, MA	Interactive Media and Game Development
Yoobee School of Design	<a href="http://www.yoobee.ac.nz">www.yoobee.ac.nz</a>	Christchurch, Canterbury, NZ	Diploma of Interactive Design, Diploma of Web Development, Diploma in Advanced 3D Graphics, Diploma of Computer Graphic Design, Diploma of Animation & Digital Video
Zurich University of the Arts	<a href="http://www.zhdk.ch">www.zhdk.ch</a>	Zurich, ZH, CH	Game Design, Interaction Design
Örebro University	<a href="http://www.oru.se">www.oru.se</a>	Örebro, SE	Simulation and Game Technology



USC's interactive media lab

# SUBMIT YOUR GAME!

WHY YOU SHOULD ENTER YOUR GAME INTO AS MANY FESTIVALS AS POSSIBLE

Rami Ismail

## visit a lot of independent game developers around the world.

I've been to places where game development is a new and emergent territory, and places where the industry is at its strongest. I've given talks at universities and conferences, and I'm doing so again at GDC Europe this year. The one piece of advice I give everybody is to go to events, and submit your game for awards.

The reason for that is simple: We here at Vlambeer owe a large part of what we're able to do to that Independent Games Festival nomination we got for our game Super Crate Box in 2011. We submit talks and games to pretty much every award ceremony that we can find. It allows us to see what's happening in the industry first-hand, and makes us visible to the industry itself.

Some time before September 2010, we were two game design university students in the Netherlands, and we decided to drop out of school. Without any money or industry experience beyond having made small, awful games for a decade, we decided to try and get a grant from the city of Utrecht — a grant that would fund a single trip to the European Game Developers Conference in Köln, Germany. It's where we made our first contacts in the industry, and where we met with members of the press for the first time.

We submitted our debut title, Super Crate Box, to the Independent Games Festival awards. The submission fee came in at a hefty \$100, but we felt confident about our game. Within a few months, we had launched into the global spotlight. As nominees at the Game Developers Conference, we learned very rapidly to talk to the press. We were asked the same questions over and over enough times that we learned how to pitch our game, and we got enough shady offers that we ended with a keener sense for identifying dishonest business people.

The contacts we made and the attention we got put us on the path to where we are now. We got

commissioned to do a Serious Sam game by people that noticed Super Crate Box, and we accidentally pitched it as a turn-based RPG that launched a few months later. The attention from the resulting game, Serious Sam: The Random Encounter, helped when we launched Ridiculous Fishing, and the success of Ridiculous Fishing in turn helped with launching LUFTRAUSERS, and that's helping now that we're working on Nuclear Throne.

Of course, there are certain festivals that are more or less appropriate for certain games. That doesn't mean that you shouldn't submit to as many as you can — but some of them have an entry free. So if you need to pick, here are some personal recommendations:

The IGF and PAX10 are both U.S.-based, large-scale events with a lot of attention from the industry and the press. Indie MEGABOOTH is far more expensive, but offers space at game events around the world. In the UK, GameCity offers a great podium for games for public spaces or with non-traditional input, while the BAFTAs are an amazing showcase in the UK with a lot of mainstream audience attention.

If what you're making is a bit more leftfield, Indiecade is actively searching for games that try to push the boundaries of the medium or a particular genre, and the appropriately named Leftfield Collection showcases interesting games at UK events. Some events, like the U.S.-based Fantastic Arcade, focus on a feeling or aesthetic — like action / arcade / music.

There are many more events that you can find on sites like Promoter's calendar ([promoterapp.com/calendar](http://promoterapp.com/calendar)) or at sites like Gameconfs.com. Use those, find meetups and festivals near where you live, and submit your games to every single one, or see if you can exhibit there. If there is an entry fee you can't afford, see if there's a program at the event that can help you out instead. Don't be afraid to reach out: events are organized by people, and can generally be rather flexible for edge cases.

After you've submitted, there are obviously two

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SUBMIT YOUR GAME!\_Rami Ismail



Luftrausers

major ways things can go: You can get admitted or nominated, or you can not be admitted or nominated. We've been on the good side of things dozens of times, we've been on the bad side of that one hundreds of times.

If your game gets turned down, ask if you can get some feedback from the audience or judges. Antichamber's Alexander Bruce famously submitted to every single event he could find, using the feedback on his turned down builds to improve the game. "The game didn't grab me" didn't mean the game was bad — it meant it needed to grab people's attention sooner. A lot of people walking by your booth means there's something up with the presentation.

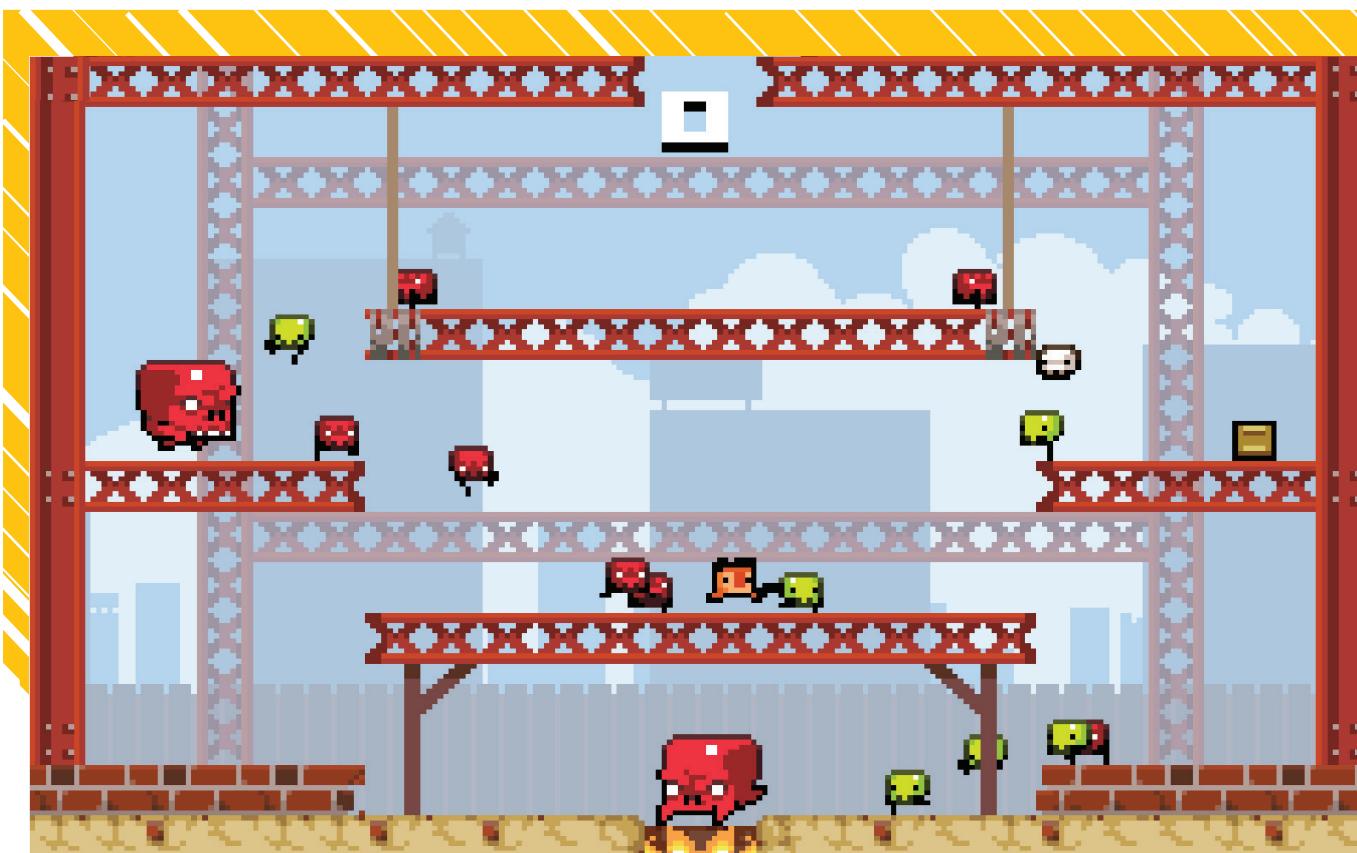
If your game is allowed entry, it's time to look at the expenses. Indieboothcraft.com has a great overview of expenses and consideration you should make when going to exhibit. In general, banners, business cards, and cards with codes for your game are considered good (and relatively cheap) expenses.

Regardless of whether you get to showcase or not, it might be a good idea to just go to the event. If you're short on money, just being in the vicinity of larger events is a great way to get in touch with

people. Make sure to stay up to date of meetups, parties, and food through social media, reach out to your heroes, learn to identify press badges if you need to talk to press, and have a good time.

The game industry is smaller than you might think. We like to think of this industry as a technical one – one of code and games, but like any industry, the game industry is a community first and foremost. Getting to know your peers, finding likeminded people and getting in touch with the industry at large is extremely worthwhile – and you can do it all while getting feedback on your work.

**Bio:** Rami Ismail is half of Dutch independent game studio Vlambeer. He travels a lot and does much of his work on the plane. You can follow him on twitter at [@tha\\_rami](#).



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