# Cinematography in Video Games

## Senior Seminar Thesis Book
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Senior Project
Senior Seminar
Final Project

# About the Author

Earl Dube is a graduate student of Lawrence Technological University. He spent 5 years at this university studying the major of Game Art and recently gained a passion for video editing. Now he is looking onto past college to get a job as a video editor or a 3D artist. His senior project displays his prowess in both fields by showing a short mental ray enhanced 3D animation of his own designs, concepting, and work. He not only had to put his 3D animation skills to work but also his video editing in order to accomplish his senior project. His senior project named Bioweapon Wars revolved around showing a trailer for a fake video game that was going to come out and using audio and visuals to evoke emotion so as to keep the viewers attention throughout the entire video. In this thesis book you will find his various research he did into the cinematography of video games that which guided his decision making when developing Bioweapon Wars.

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# Introduction

    In the gaming industry today it is important for developers, that are under the eye of publishers and corporations, that they try their best at creating games with movie production level graphics. This sometimes leads to them forgoing properpractices with cinematography, instead for more pleasing aesthetics. However, when it comes to marketing a video game it is vitally important that you show one's game in the best way possible to attract a wide audience. When making a video game it becomes an important endeavor to make informed decisions on video editing for cutscenes and cinematography for gameplay. To find the correct camera angles and the most hype inducing b-roll that is aesthetically pleasing to a large audience is essential to marketing the game efficiently. In addition to this the games that do focus on cinematography in their games would too often give the player complete control over the camera during gameplay rather than using a robust system or dynamically programmed camera to draw the player more into the environment of the game world. In contrast the only times these games display unique cinematography is during cutscenes which are separate from the gameplay in general. In particular for the first-party, triple AAA games this needs to be fixed as with technology growing more and more powerful there will be little excuse to say a game cannot be an interactive 4K movie or vice-versa. Games like the recent Quantum Break could be the catalyst to blurring the line between gaming and TV (Harvervold, 2016).
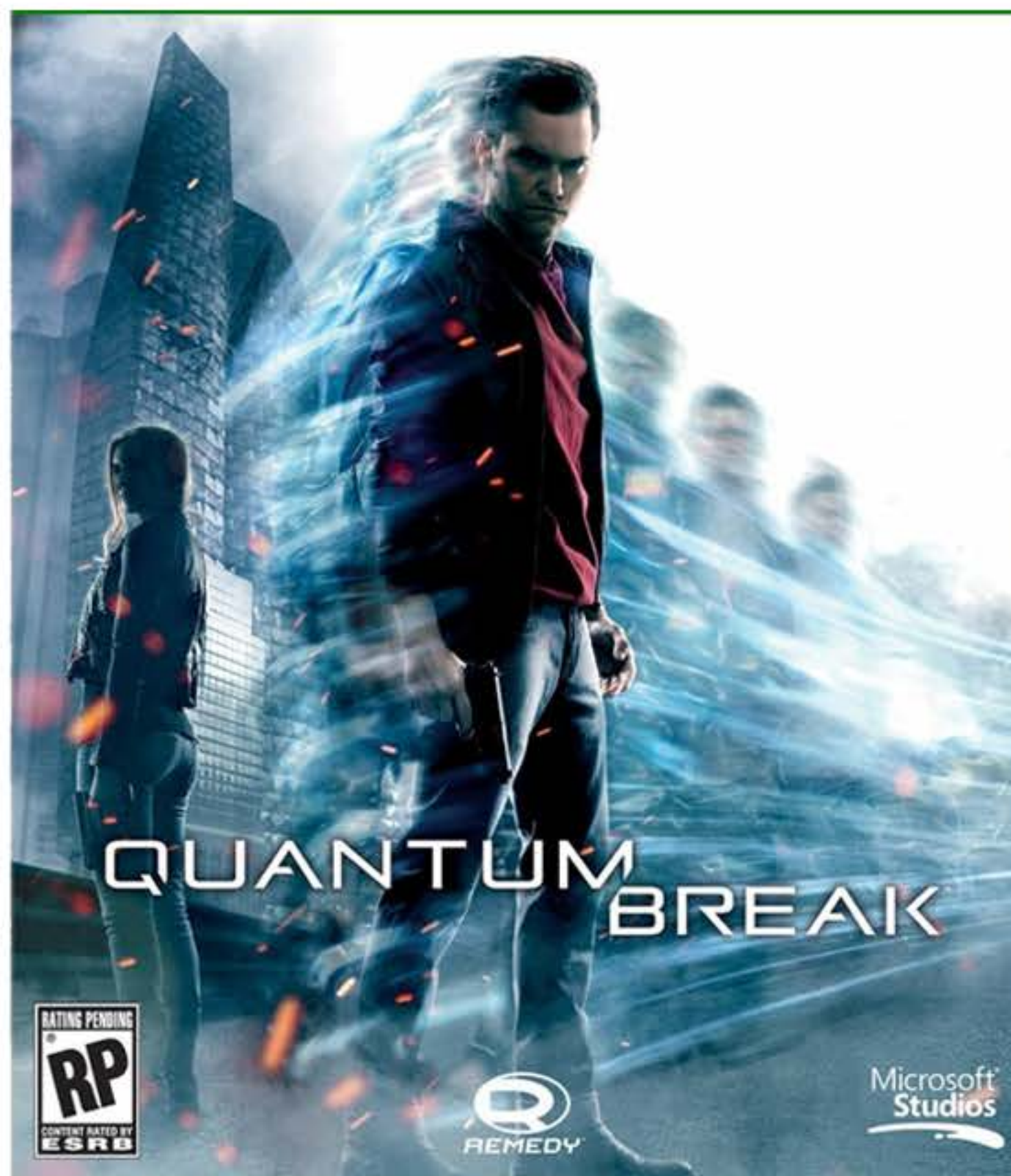


## Quantum Break
## Final Box Art Cover
**(revealed by Amazon)**

# Screenshots from Quantum Break

## Rule of Thirds

## Beautiful framing for Vistas

## Real Actors during Cutscenes

# Why Cinematography?

   To improve cinematography in video games is not an easy task. There are many video games that are completely made without the consideration for cinematography and yet are very successful. Indie video games are particularly low-budget games that often do not have the resources or time to contribute to putting cinematography into their games. However, for such games that are made with budgets staggering over 2 million dollars. It becomes a bit unrealistic that there would not be merit put behind achieving unique cinematography for certain situations throughout the game. Especially when it comes to marketing that said triple AAA game. Games like Assassin's Creed: Syndicate, and Call of Duty: Black Ops 3, and Halo 5 have so much money poured into them that marketing them becomes a major requirement if the developers even hope to make a fraction back on what they spent making it. "Because there are absurd amounts of money on the line with these major game releases, much like with Hollywood blockbusters, the trailers are absolutely essential, maybe even make-or-break, part of the marketing of any given game. With so much on the line, and with compelling cinematic visuals being paramount to success, it makes sense to bring in cinematographers in order to oversee image creation." (Hardy, 2014) The most profitable solution to this these developers have is to show off their triple AAA games through trailers released on television and the internet. This is why it becomes imperative that well-done trailers are created to drive home the hype, with visuals and audio that evoke emotion being a requirement in order to perform well in today's market. Professional cinematography is needed in this situation in order to get the viewer's attention and motivate them to buy that video game.

Minecraft is an example of a game that started out as an indie project with little to no TV or Internet advertising. Yet with the help of its online community ballooned to become one of the highest grossing games in history. It was sold by its creator Notch to Microsoft for $2.5 billion. (Matysczczyk, 2015)

# Box Art for Triple AAA Games
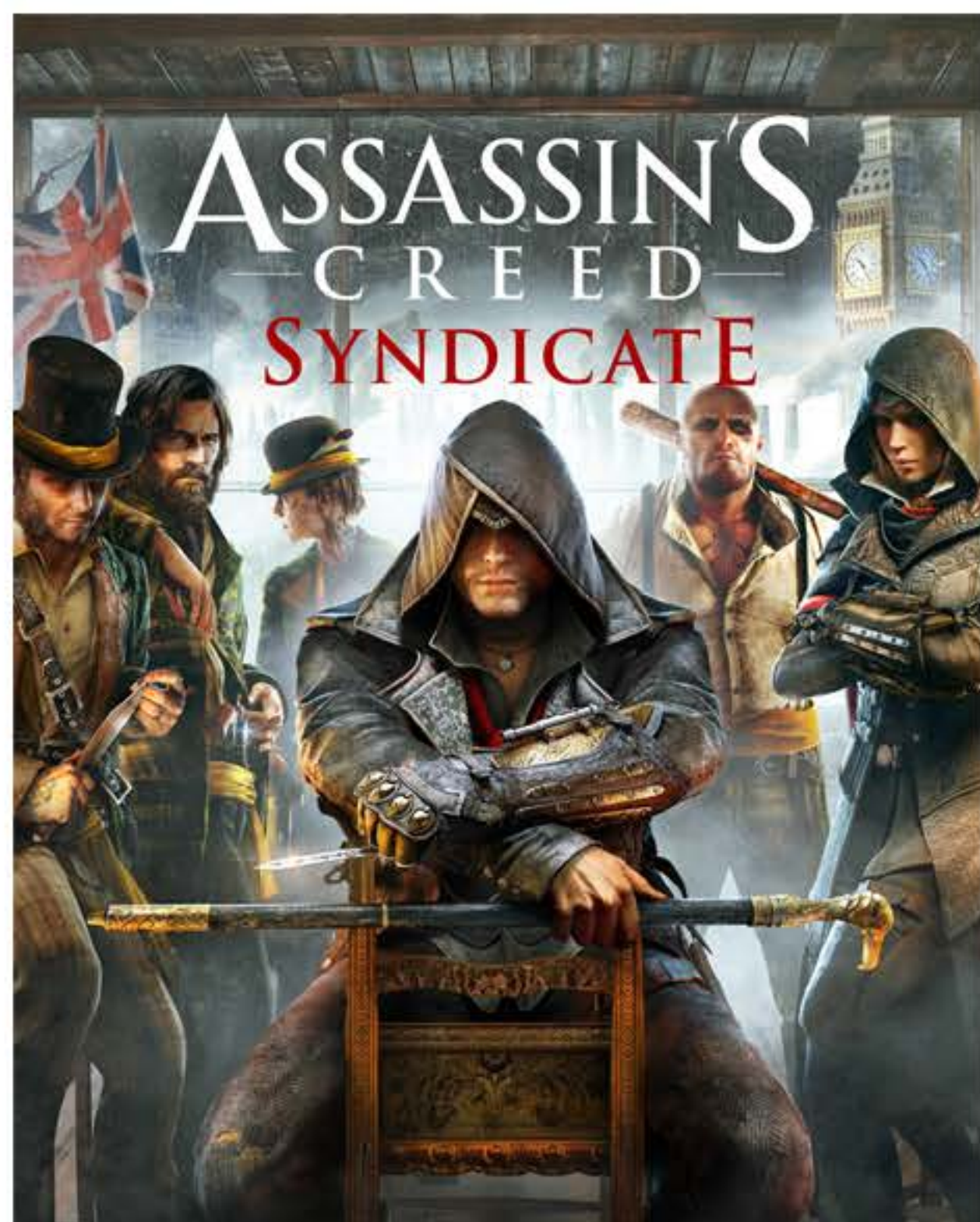
# The First Use of Cinematography in Video Games

Cinematography in videogames can be traced back to some of the first 3D games that ever came out, like 1974's Spasim, to when it became mainstream with Super Mario 64. With the advent of 3D graphics most games were hopping on the bandwagon of the next big thing for the industry to satisfy customers and give themselves a competitive edge. Games like Legend of Zelda: Ocarina of Time, Super Mario 64, Banjo-Kazooie, Donkey Kong 64, Crash Bandicoot, and Conker's Bad Fur Day, were all pushing the limits launching their games into 3D graphics even with the technology backing them was so expensive to use. A gamer can look back on games like Crash Bandicoot and see that some of the choices with their camera angles in some level segments were not well thought out. If one's choice of camera angle in a level obstructs the player's view, it hinders them from playing the game properly. An example of a segment in a game where bad cinematography was practiced would be Sonic 06 where, when controlling Sonic sledding down a mountain the camera angle shifted to be in front of Sonic, completely blinding the player from incoming obstacles. With the advent of the 3D graphics also came the perspective choice. Some minimalist games back in that era would rely on top-down perspective for camera control like Pokemon Red and Blue. Another common perspective for minimalist games was side-scrollers, for 2D platformers like Crash Bandicoot. Yet even unto this day for indie games top-down and side-scrollers perspective is a common choice because it is the easiest to program and the cheapest to produce. This is because all one has to do in an editor is parent the camera to the player sprite or model, distance it with some code as top-down or s idescroller view, and it's done with little headaches involved (Geig, 2016). Some more complicated camera controls were exercised in that era though like first-person and especially third-person. Famous games such as Goldeneye 007 for the Nintendo 64 paved the way for all first-person 3D shooter that came after it. One of the first games to offer an interactive camera system was Super Mario 64 (Wikipedia, 2016), it exercised a particular intuitive 3D camera that was programmed with AI with knowledge of how to orient itself as the player moved through the level and it gave the player complete control of the camera via button presses. You can see this kind of player controlled camera today in games like Hyrule Warriors and Xenoblade Chronicles X. Yet even with the advent of better technology there are still glaring problems that come with developing an intuitive camera for video games.
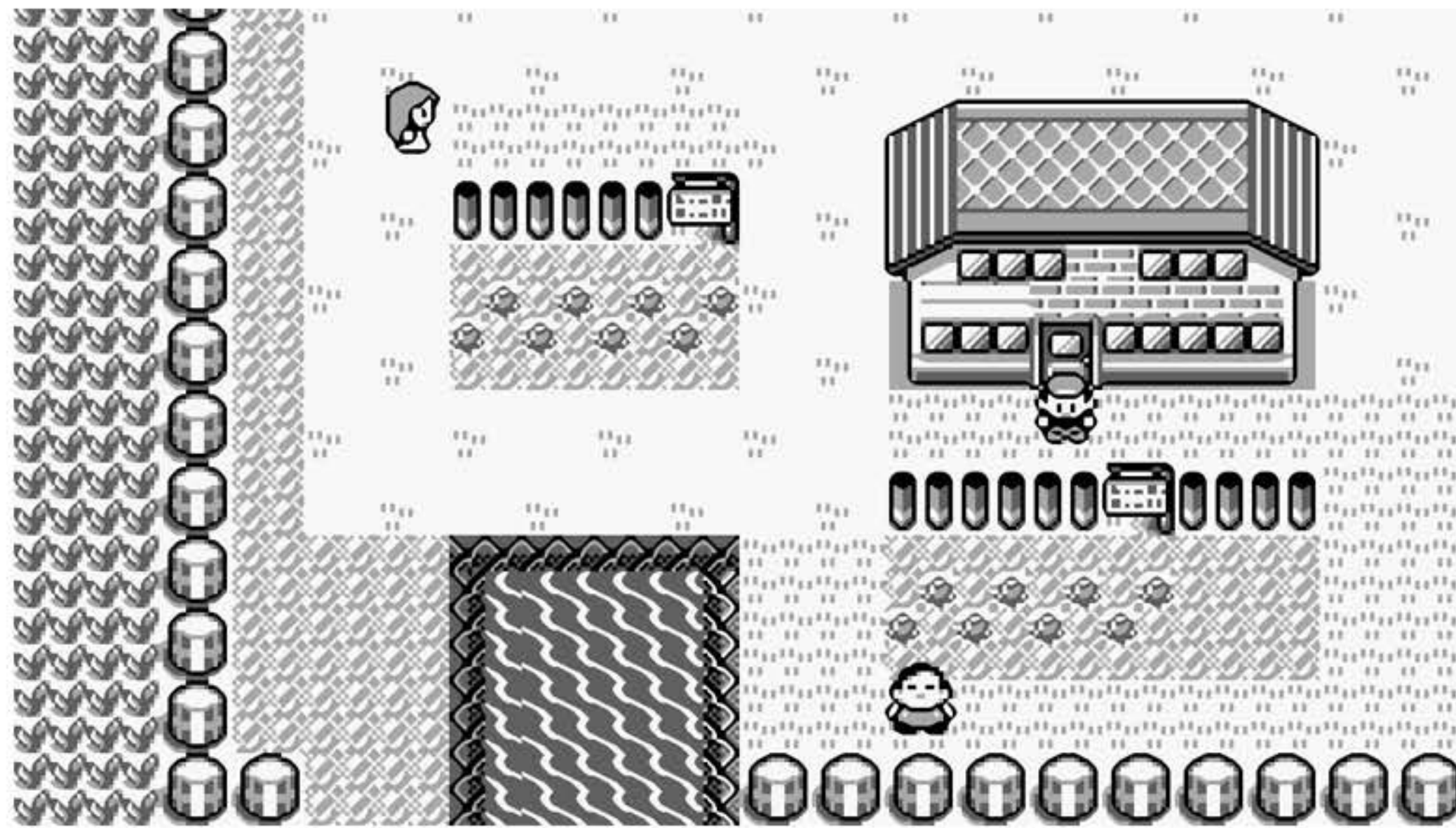
# First 3D game Spasim (1974)
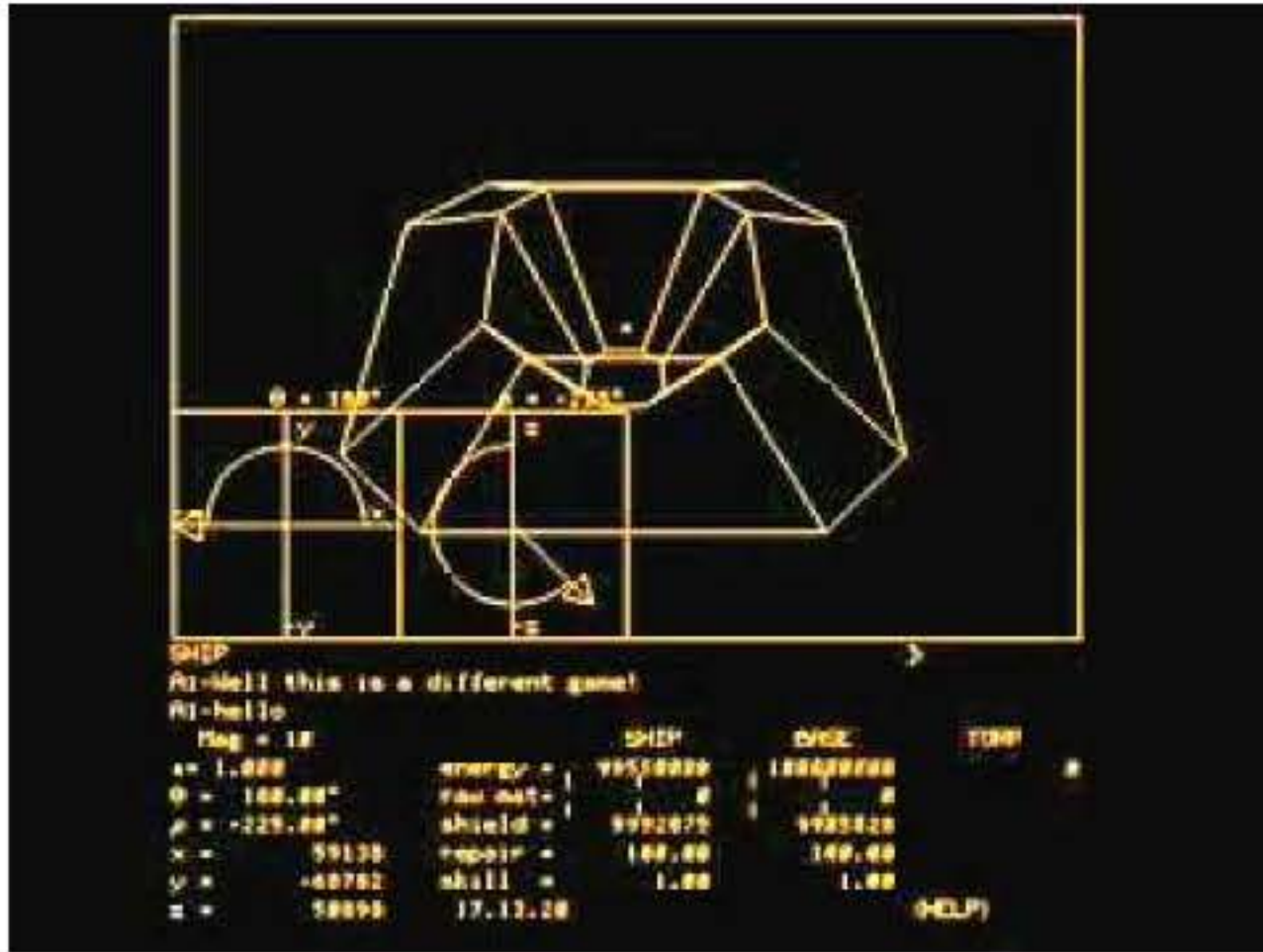
# First Intuitive First Person Camera Goldeneye 007 (1997)



Bond: Disable the security!

# First Intuitive and Interactive 3D camera Super Mario 64 (1996)

**Example of Top-Down Camera Perspective Pokemon Red and Blue (1996)**



10/146  Top Five Video Game Series That Need a Revival

8:30 / 10:22

**Crash Bandicoot (1996)**

**Screenshots from Let's Play videos where bad cinematography was practiced during gameplay of major games**



5/42  Let's Play Sonic 06 - Part 5 - Worst. Snowboard. Ever.

020
01'31"080
039
4

3:06 / 18:35

**Sonic the Hedgehog (2006)**

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# Positioning the Camera in Video Games

The most particular example of how 3D camera control in third person games can be obstructed is through the environment. A simple tree or bush can block the camera and therefore blind the player. In survival fighting games like Dark Souls, if the player is backed into a wall and the 3D camera does not adjust fast enough it can mean almost immediately certain death for the player. The easiest way games today fix this is by having the camera specifically fixate on a boss or enemy rather than the player during a big fight. In particular in games like Legend of Zelda: Ocarina of time there is an option where you can press the "L" button to focus the camera on a particular enemy to help with targeting and taking it down faster. This practice of locking the camera onto an enemy is called Z-targeting has also been practiced in games like Metroid Prime, Starfox Adventures, Kingdom Hearts, and Devil May Cry. However there are games that do not exercise this in their third person perspective like Xenoblade Chronicles X, Rise of the Tomb Raider, Gears of War, and Mass Effect. Those games rather rely on cover systems to taking down enemies and mechanics that make obstructions like trees or bushes fade out if they get in the way of the player's viewing area. Secret Legend a 2015 indie game made by Andrew Shouldice is making strides by referencing some famous style choices of puzzle solving and mechanics from Legend of Zelda, including Z targeting (Indie Games Radar, 2015). "Resident Evil actually offers another example of the importance that camera angles can have for games: Resident Evil 4's over-the-shoulder perspective. An attempt to strike a balance between the first-person viewpoint and the third-person history of the series, Resident Evil 4 left its camera hovering just over its protagonist Leon's shoulder. A small change in some respects, but one that has a major impact on the game, making enemy attacks feel more urgent and pressing, while still allowing you to see Leon and his position in the game world. This may have been a change that primarily impacted gameplay rather than changing the visual feel of the game, but it demonstrates the significance that small camera tweaks can have. (Preston, 2014)" Triple AAA games that relate to exploiting Hollywood movies they're based on will sometimes copy the cinematography of the original movies in their games, to better cement themselves as worthy products. Games like Resident Evil 5 by Capcom have even gone as far as their cinematography being replicated in Hollywood blockbusters such as Resident Evil 5's Wesker Fight cutscene (2009) being mimicked in Resident Evil: Afterlife Wesker Fight movie scene (2010). This way the movie and game both compliment each other to further boost sales and notoriety. But once again this is only something seen in cutscenes not in actual gameplay.
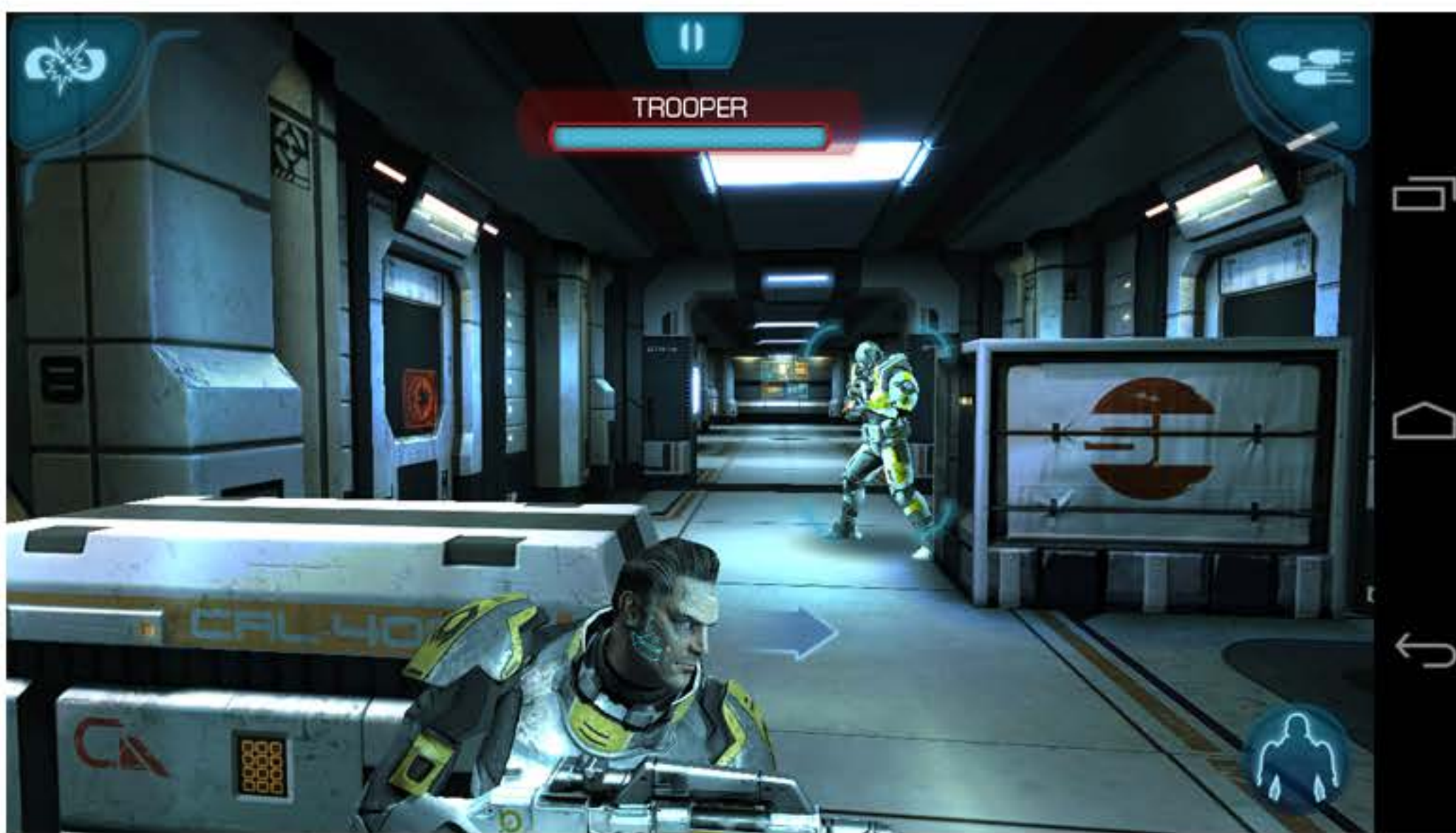
# Z-targeting in Video Games



Legend of Zelda: Ocarina of Time (1998)
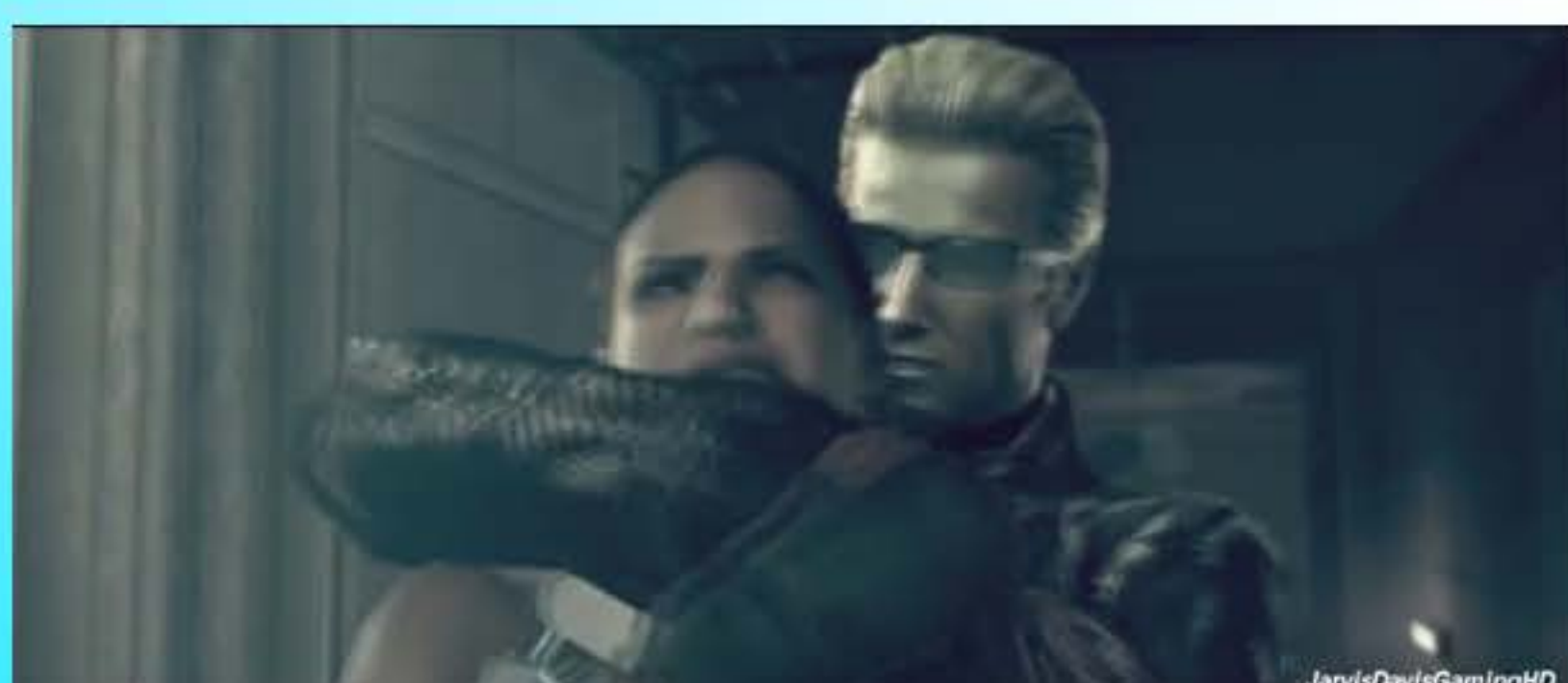
Metroid Prime (2002)



**Mass Effect's cover system camera shot**



**Resident Evil 4's unique Over the Shoulder camera shot**

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# Cinematography Comparison

**Resident Evil 5 – Wesker Fight (2009)**   **Resident Evil: Afterlife Wesker Fight (2010)**

# Positioning the Camera in Video Games (continued)

    One of the most recent 3D games to have a dynamic camera being used for storytelling and cinematography was Until Dawn. Players would often mention the camera being wonky during certain chase segments, and story conversations, but in fact it was designed that way to help the narrative. In early Resident Evil games made for the Playstation and Gamecube. The 3D camera was often fixed at a specific location in each part of the level. This would often help with scaring the player if a zombie came out from a certain angle the fixed camera did not display.  "One could imagine, for example, a game proposing a return to Resident Evil's fixed camera angles and pre-rendered backgrounds – these allowed the developers total control over the framing and lighting of every shot in the game. But this of course comes at the cost of interaction – it makes games more cinematic, but at the cost of part of what makes them games. Resident Evil's system was, of course, a compromise due to technology at the time – a way to have detailed and complex backgrounds without being too taxing for the Playstation to handle, and as the tech improved, the franchise dropped the stylistic quirk. (Preston, 2014)" Some players have even argued the emergence of player controlled cameras have made horror games less scary. By having a dynamic camera or using fixed camera angles in certain parts of levels you can essentially surprise the player with enemies coming from certain angles. The most recent horror game we can see fixed camera angles in is Five Night's at Freddy's where the player looks through several different fixed camera angles to spot scary enemies coming towards them in their hideout. Cinematography in games in most helpful in this way for defining a narrative which is why it is practiced so much in advertising and marketing the game. However, due to ease of gameplay always trumping good cinematography for the classic gamer there will rarely come a time where we see full use of unique camera angles in games especially if it hinders the player or the consistency of the game. But like stated before, when it comes to marketing the game via advertising over the internet and TV there is little excuse to let the video editor or cinematographer do their job.

# Fixed Camera Angles in Games

**Resident Evil Playstation (1996)**

**Five Night's at Freddy's (2015)**

# Moviemaking in Video Games

When it comes to advertising the said video game, video editors are hired to create trailers and cinematographers and movie directors are hired to create the best cutscenes. Some games such as Call of Duty: Black Ops 3, and mobile games like Clash of Clans, hire celebrity sponsors and real actors to be in their commercials fueling their influence on social media and consumer appeal. The most effective strategy to creating a trailer for a video game is to start big and end big. Give them a kickoff start with a shocker and then end on a quote that is memorable and riveting. Quotes such as "I'll be back (Arnold Schwarzenegger)" or "This message will self-destruct in 5 seconds (Mission Impossible)" though cliche, leave the viewer with hype and excitement for said movie. "Beginning in the late 1990s to early 2000s, video game trailers began to be produced as they became more mainstream. Used to entice viewers to go out and play the game, game trailers are very useful. The content and production process is similar to that for movies, complicated by the need to convey the way the game plays. (Wikipedia, 2016)" For video games, giving the main villain a classic killer line to induce tension in game is often seen in the trailer for said game. A famous example of this is Albert Wesker's line in the gameplay trailer for Resident Evil 5 "The right to be a God, that right is now mine." (Capcom, 2008) Of course hyped-up dialogue can't be the only thing gameplay trailers rely on to use audio to evoke emotion in the viewer. The gameplay trailer for Dead Space 3 used the song "In the Air Tonight by Phil Collins" (Visceral Games, 2013) and Gears of War Ultimate Edition used the song "Mad World by Gary Jules" (Microsoft, 2015) to get the viewer's attention. The Gear's of War Ultimate trailer in particular is a good example because it starts off with an opening shot of a destroyed city and the main character mourning the loss of lives and ends with a huge finisher of all the soldiers fighting off an onslaught of surrounding alien forces. This is a good example of a small start and big finish kind of trailer that keeps the viewer's attention. Use of popular pop culture songs in gameplay trailers is common today because the target market of people that play video games also have subscriptions to services like Pandora and Spotify music, and using their favorite song in your trailer gives you an edge the competition doesn't have. Ghost in the Shell: First Assault TV trailer incorporated not only the record hit song by Imagine Dragons "Radioactive" (Neople, 2015) but also showed past-faced and critical gameplay between players and cpu enemies. This is an example of a well done trailer to not only use a famous song to get the attention of the viewer but most importantly embed scenes of gameplay with it rather than cutscenes that are not part of the game.

# Box Art

## Dead Space 3 (2013)



## Gears of War:
## Ultimate Edition (2015)
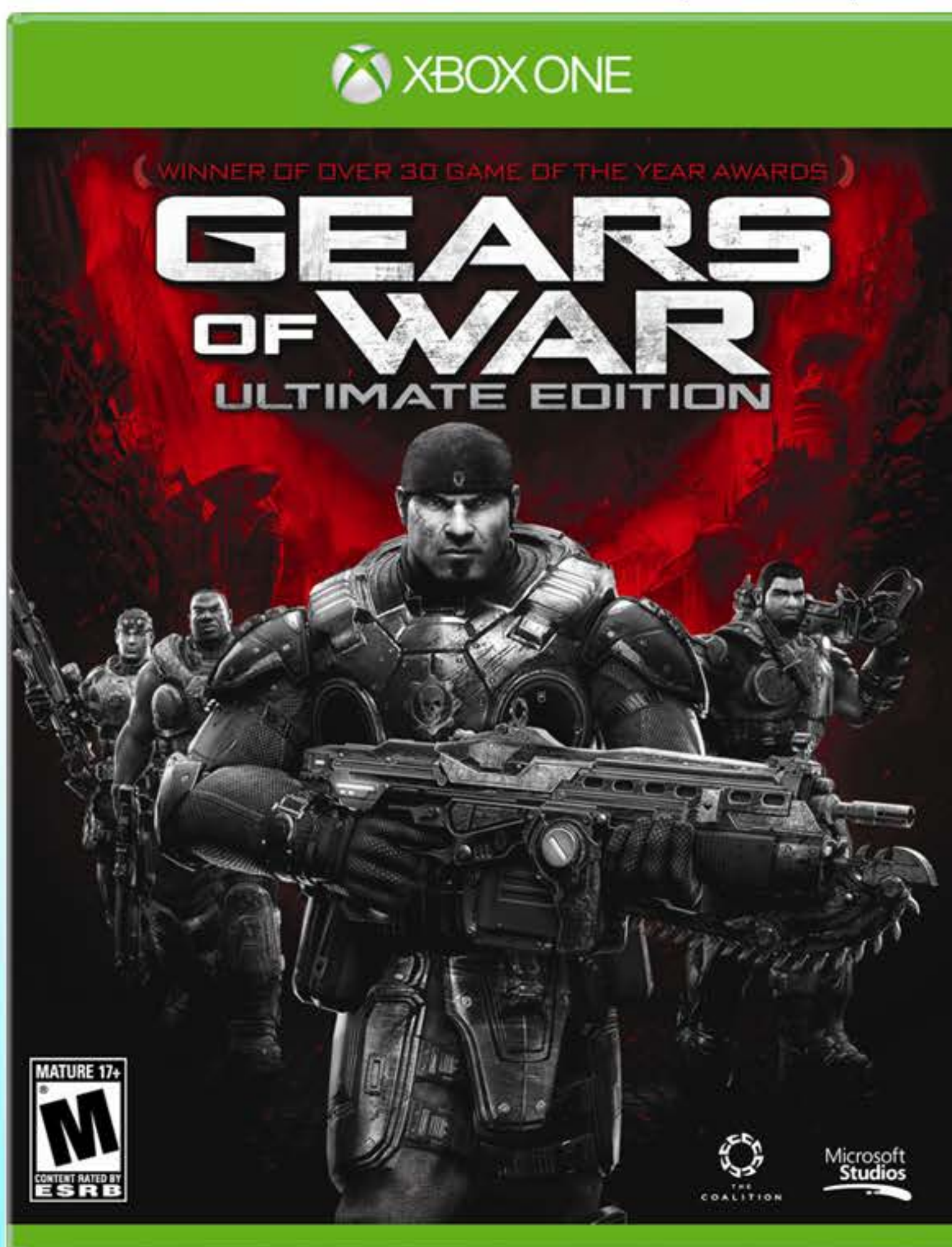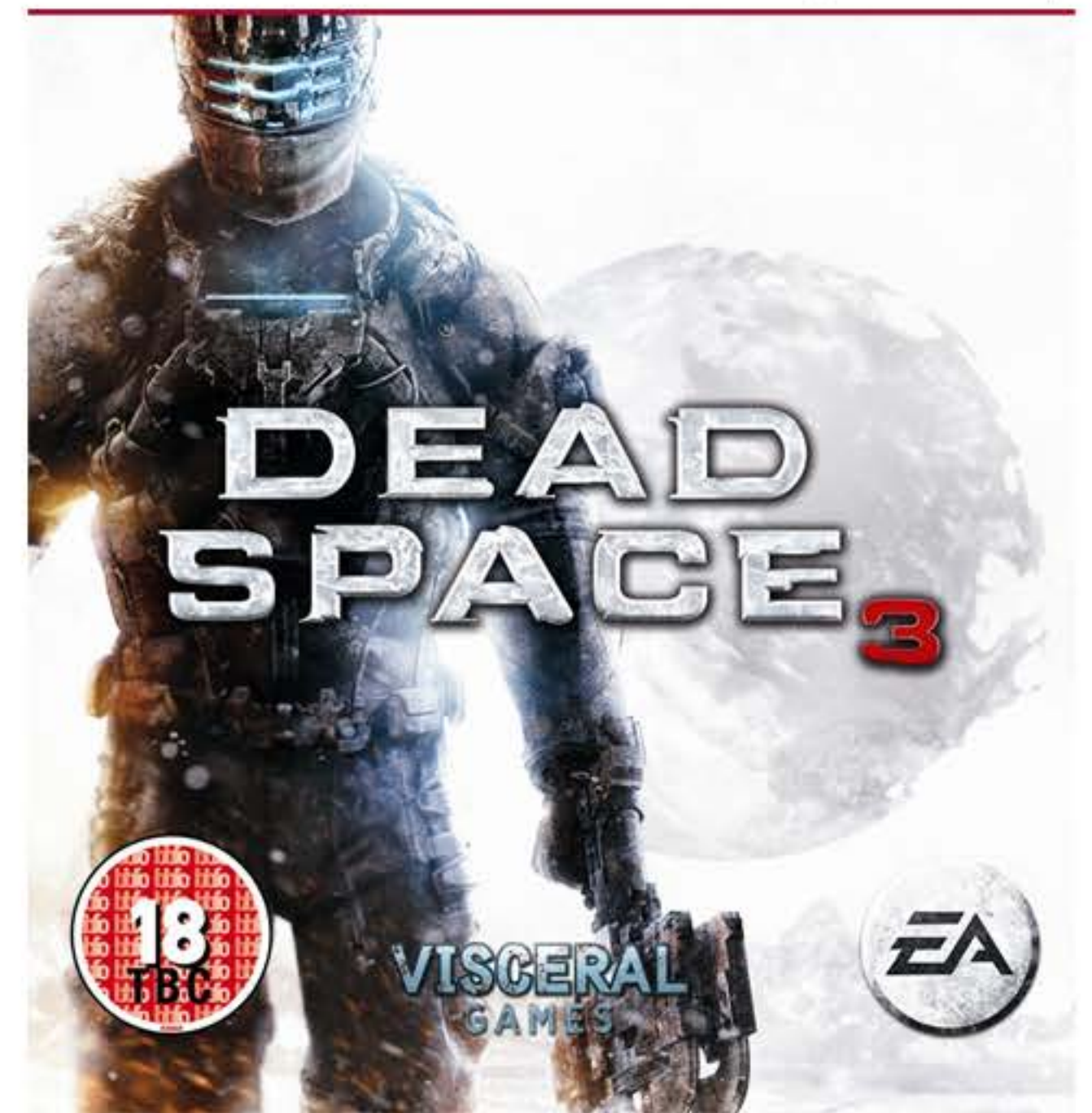


## Resident Evil 5 (2009)

# Advertising Games through Cinematography

Some franchised or corporate games with an international player base and Esports following like League of Legends can actually hire bands like Imagine Dragons to write songs for them for their tournaments to advertise themselves, such is the case with the song "Warriors by Imagine Dragons (2014)."(Riot, 2014) This draws to the fact the the amount of money poured into big budget triple AAA games is so absurd that competition for tv and internet spots is fierce. "Pokemon GO!" A new game to come out by Game Freak in 2016 actually reserved a TV spot during Super Bowl 50, costing them millions of dollars all to market their game to a wide audience and receive critical acclaim. Of course in that trailer they were keen to show educated video editing and classic lines such as "like no one ever was" from the original pokemon theme song (Gamefreak, 2015). Marketing for games is now more widely accepted and just as prominent as marketing for movies. Nintendo even reserved AMC theatres to advertise their upcoming games Splatoon and Pokken Tournament, in an environment where you would usually only see movie trailers it is now a place for video game trailers too. And in each trailer educated cinematography is a requirement to get the viewer's attention, and keep their eyes glued to the screen so they feel excited and motivated to buy that game when it comes out. Even in places like local Meijer's stores they pair up the new Call of Duty game and put it on the same shelf as a bunch of Mountain Dew and Doritos, this shows a change in the market where video game's partner with other companies to get more revenue for their marketing when they feel that tv and internet isn't enough.

Pokemon Go!
Superbowl 50 Commercial

League of Legends
International E-Sports
Tournament promotional
video



Box Art for Splatoon (2015) and Pokken Tournament (2016)





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# Technology bettering Cinematography in Video Games

   Recent technology has been further used to push cinematography into video games, making them more so interactive experiences. The best examples of this would be the newly released games being partnered with the new commercial version of the Oculus Rift. Horror games like Alien: Isolation and Lost in the Rift have hugely benefited from the new abundance of versatility in camera perspectives for the player this new device offers (VorpX, 2016). It's immersive experience in games like Elite: Dangerous and Project Cars is being used for space ship and car driving simulations that have the player looking into a virtual world (Wehner, 2015). Technological pieces like the Oculus Rift help further push cinematography into video games to really enhance the player experience. Graphic cards becoming more mainstream and more advanced in the consumer market have also benefited cinematography in games. Like how the the PS4's GPU Pitcairn has a fairly high SP count and is clocked reasonably high too. The GPU has access to 8GB of Shared GDDR5 memory clocked at 1375 Mhz (5500 Mhz effective) and boasts throughput of up to  176 GB/s (Usman, 2016). On the PC gaming side, the commercially successful brand of Nvidia graphics cards  like the boasting Titan X gpu that outperforms most of the competition in our world today (Makuch, 2015). These new breed of processors help to make games look and feel more and more like movies. New easily accessible game engines, such as CryEngine, and Unreal Engine have made it easier to produce quality games with easily programmable camera movement and pre-rendered cutscenes. As technology like this continues to advance the excuses as to why video games can't look and play like movies with informed cinematography, becomes less acceptable.

# Better Technology
# Better Cinematography

## Oculus Rift (2015)



## Nvidia Titan X Graphics Card GPU (2015)

# Conclusion

It is clear that marketing for video games is changing with the times. Corporations like Nintendo, Activision, and Riot are pouring more and more money into giving their upcoming games and e-sports tournaments more and more notoriety in order to attract bigger audiences and more revenue. They're using outlets like movie theatres, shopping stores, and celebrity sponsors in their ads to gain a wider following. In each of their advertisements they demonstrated well-educated and informed cinematography and video editing showing off some of the best gameplay footage or cutscenes and often combining it with witty dialogue or a famous pop culture song. The video editors and cinematographers these major video game developers are hiring are now playing a key role in overseeing camera implementation in video games as well as creating trailers and advertisements for tv and internet outlets. When the budgets of these developers becomes amounts staggering over 2 million it becomes imperative that money spent on marketing the video game in order to ensure you make profit on your investments. New pieces of technology like the Oculus Rift and better graphics cards for game consoles help push the boundaries of how far a developer can go to make their game look just as enjoyable as movies made by Hollywood. And as software developers help advance game engines it becomes easier to program cinematic sequences into games with pre-rendered cutscenes. Techniques such as AI, Z-targeting, and fading out obstructions are helping with creating huge worlds that camera can go through tracking player movement and helping them further enjoy the experience. Voice actors brought on board to give villains and protagonists in video games pieces of dialogue that can be used commercially in advertisements have become more apparent. And as technology keeps on advancing so will the budget of triple AAA games, which means more money will be spent on marketing them and developing them. The cost to develop the first Call of Duty Black Ops game for the Xbox 360 and PS3 was $28 million and as you can imagine only got bigger for its sequels like Call of Duty: Black Ops 3 for the PS4 and Xbox One. Using social media for these developers to market their game has also become apparent, just as movie actors like Dwayne Johnson takes to facebook to promote his upcoming movies. With these new perspectives and applications entering our society in the gaming industry it is clear that cinematography in marketing video games will continue to stay relevant for the foreseeable future.

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# Bioweapon Wars

3D Animated Final
Go To: http://www.youtube.com
Search: Senior Project Trailer 1 - Earl Dube
Song used: Renegade by Styx

Original 2D Animation
Go To: http://www.youtube.com
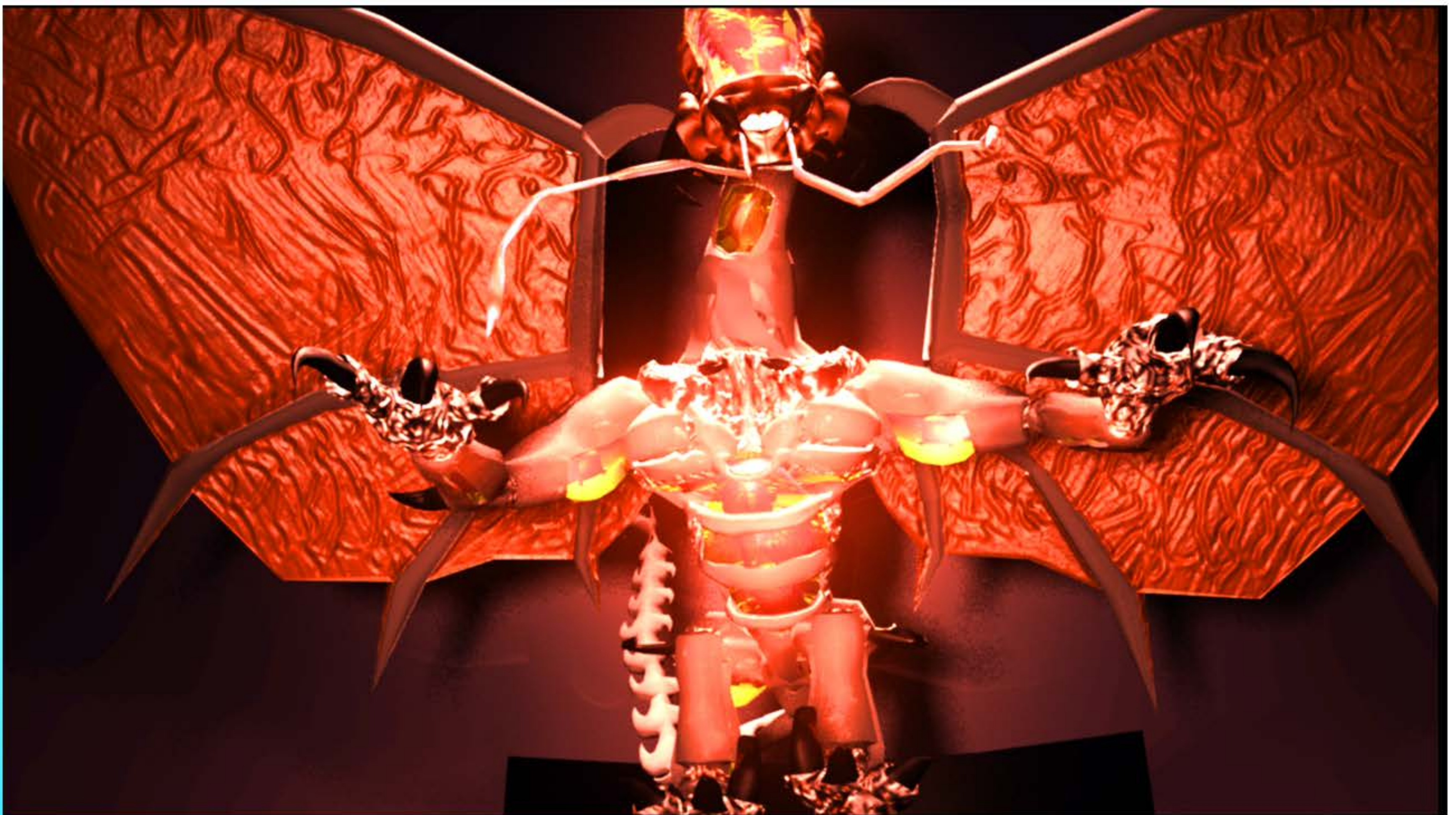Search: Animatic Test 1 - Earl Dube
Song used: Renegade by Styx

Army Solider voiced by Donovan James Smith
All extra SFX heard in the videos were royalty free
Custom Font was downloaded from Google Fonts

Go to: http://www.earldube93.com/project.php
For more information and details!