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Machinima

(_sjanger, _film, _dataspill) Ordet er en forkortet blanding av “machine” + “cinema” og brukes om digitale kortfilmer lagd hovedsakelig av kreative spillfans. Ordet “machinima” ble lagd av briten Hugh Hancock (<http://nt2.uqam.ca/fr/dossiers-thematiques/machinima>; lesedato 11.12.19).

Slike kortfilmene (som ofte er tilgjengelige på Verdensveven) blir lagd med komponenter fra spill. Å lage machinima kan kreve tilgang til et eller flere spills programmeringskoder.

“Machinima is a recent technology/performance/art/tool etc (conventionally born in 1996 with Quake demos) commonly defined as any kind of video artifact produced through real-time gaming graphic engines: in-game recordings, sandbox modes, hacked version of game engines or game-like professional tools are all valid sources to create machinimas. [...] *Diary of a Camper*, the Rangers clan, 1996, is considered the first example of machinima.” (Vincenzo I. Cassone i https://www.gamejournal.it/understanding_machinima/; lesedato 03.09.19)

“Machinima traces its history back to 1996, when a group of gamers called The Rangers created a short film titled, “*Diary of a Camper*.” The Rangers used a demo function in “Quake” to record their film. Developers designed the demo function to allow players to record gaming events to share with friends, and up to that point most gamers used it to record particularly impressive kills or speedy level completions. The Rangers’ film went a step beyond, using the demo function to tell a story. [...] In January 2000, two machinima filmmakers named Hugh Hancock and Anthony Bailey decided they needed a new term to describe all video game films, and the term machinima was born.” (Jonathan Strickland i <https://entertainment.howstuffworks.com/machinima3.htm>; lesedato 13.12.19)

De første machinimaene var filer som bare kunne spilles av på spillmaskiner/konsoller, mens de senere kunne ses på Verdensveven (<http://nt2.uqam.ca/fr/dossiers-thematiques/machinima>; lesedato 11.12.19).

“The early audiences of machinima films were mainly other gamers, particularly since almost all early machinima required the viewer to have a copy of the respective game engine in order to view it. In 2003, Rooster Teeth helped expand audiences’ awareness of machinima when they unveiled “Red vs. Blue.” The game’s developers and publisher, Bungie Studios and Microsoft, gave their blessing to the group and the series rapidly attracted viewers – even those who had never played “Halo.” “Red vs. Blue” ran for five seasons with 100 episodes and several short films. Rooster Teeth continues to produce machinima using other game engines.” (Jonathan Strickland i <https://entertainment.howstuffworks.com/machinima3.htm>; lesedato 13.12.19)

Produksjon av machinima skjer på tre nivåer: “As performance of technical exploits, as performance of game skills, and as a public performance for an audience” (Henry Lowood sitert fra <http://nt2.uqam.ca/fr/dossiers-thematiques/machinima>; lesedato 11.12.19).

“Players, for their part, have created tens of thousands of their own videos, ranging from saved replays and remixed screen captures of competitive games to story-based machinima pieces” (Harrigan og Wardrip-Fruin 2009 s. 410). Filmene lages med bilder og figurer fra dataspill, der figurene opptrer som skuespillere (Wirsig 2003 s. 285). At komponentene er hentet fra dataspill kan gjøre at personene i en machinima opptrer med farlige våpen og lignende i situasjoner der det ikke passer å ha våpen. “The content of machinima is often completely independent of the games used to make them, even when artistic assets and character models are used virtually without alteration.” (Harrigan og Wardrip-Fruin 2009 s. 424)

“Machinima. Its name a hybrid of machine and cinema, Machinima refers to 3-D digital animation created in real time using game engines. The Machinima movement started in 1993 when *Doom* was released with a program that supported the recording and playback of in-game actions. The idea was that people might want to watch their own game-play experiences as mini action movies. There is little evidence that this controversial first-person shooter generated school shooters, but there’s plenty of evidence that it inspired a generation of animators (amateur and professional). Subsequent games offered ever more sophisticated tools that allowed players to create their own digital assets, or put their own “skins” over the characters and features of the game world. Soon, people were playing the games with an eye toward recording the actions they wanted for their movies and even redesigning the games to create the characters and settings they needed for their own stories. These game engines would allow artists to dramatically lower the costs and decrease the production time of digital animation.” (Jenkins 2008 s. 156-157)

“Machinima has transgressed many conventional limits, first in cinema, video games and animation, then between art (underground) and the commercial (popular), and finally between industry (system) and the community (subversion)”

(Martin Picard sitert fra <http://nt2.uqam.ca/fr/dossiers-thematiques/machinima>; lesedato 06.08.19).

“Machinima can be produced in a couple of ways. It can be script-driven, whereas the cameras, characters, effects etc. are scripted for playback in real-time. While similar to animation, the scripting is driven by events rather than keyframes. It can also be recorded in real-time within the virtual environment, much like filmmaking (the majority of game-specific Machinima pieces are produced in this fashion). While both of these approaches have their pros and cons, they are both Machinima-making techniques.” (<http://www.machinima.org/machinima-faq.html>; lesedato 16.01.06)

“Traditional narrative machinima is created by scripting a story, recording game play within a real time 3D environment (either through the POV of an avatar or through a commonly offered in-game camera feature), using actors to create voice-overs and finally editing the game play and voices to reflect the script. Other techniques of machinima making include improvisation or reprogramming (also known as *modding*) which render scripting, and often voice over, unnecessary. When completed, machinima looks like 3D animation made through the use of a video game platform [...] While machinima is often technically in breach of copyright law with its appropriation of video game images, many companies have turned a blind eye because of the free publicity it gives their games or have created regulations to allow for machinima production. Microsoft was so excited about the use of the *Halo* game in the hit machinima show *Red Vs. Blue* (produced by Rooster Teeth Productions) that they created a special machinima license and a new controller command in the sequel *Halo 3* which allows players to lower their weapon, a feature “designed solely to make it easier for Rooster Teeth to do dialogue” as it has no other practical purpose for the game.” (Horwatt 2008)

“The emergence of machinima capitalizes on the rise of cheap digital tools for filmmaking inside video games and virtual worlds using computer software and hardware recently accessible for the amateur. Machinima blends a myriad of creative practices, for instance from multimedia art, animation, performance and cinematography (see Kelland et al., 2005). It is generally considered as started by fans making demo movies with the game *Quake* in the 1990’s. [...] There is a wide spectrum of machinimators online (fans, artists, professional filmmakers, etc.) who push the limits of current technologies for filmmaking in virtual worlds. Machinima attracts interest of game companies and creative industries (for promotion of architecture, fashion, music videos, documentation of international seminars, job training simulations). Machinimators can be described as a mix of amateurs, pro-ams (people with some professional background related to film) and professionals.” (Lisbeth Frølund i http://worlds.ruc.dk/public_uploads/2011/02/Lisbeth.pdf; lesedato 11.01.16)

“One way of describing the history of machinima during a three-floor elevator ride is to summarize it as the transformation of game engines into narrative engines, in the sense that players learn how to use this game technology to create linear stories, generally game-based movies. As machinima matured from its origins as *Quake* movies, ambitious players (some with backgrounds in film, television, or improvisational comedy) decided that game-based moviemaking could move beyond a self-reflexive game culture, and they began to tell stories that no longer referred back to the particular storyworlds associated with the game engines used to make movies” (Harrigan og Wardrip-Fruin 2009 s. 414). “[T]he creators show how machinima can provide new textual elements to fill in previously unexplored aspects of the gameworld’s history” (Harrigan og Wardrip-Fruin 2009 s. 422).

“Although it is a new phenomenon emerging from fans, machinima can be seen as part of an overarching development of user-driven contents on the internet, of computer generated imagery and of the diffusion of professional digital filmmaking tools to amateurs. The 3D animated or virtual stage has been used by the film industry for several decades to plan animated films (such as for making animatics, where storyboard images are synchronized with a soundtrack). The rise of 3D technologies and the mix of live action and computer generated “virtual puppets”, such as developed for the blockbuster film *Avatar*, 2009, are offering new digital tools to professionals. The developments in the professional tools and the emergence of pro-ams and amateurs altering tools for their purpose are innovating what, how and where audiences today view filmic texts. [...] Machinima can be said to hold unique potential for three reasons: the *access to authoring tools* that are cheap and available to all kinds of filmmakers, the *semiosis* of machinima with its special expressive qualities and embeddedness in computer generated “spaces” (such as *Second Life*, *The Sims*), and the *creative ownership* of the resulting films. Creative ownership is an economic as well as a legal issue, since the game spaces were initially designed by commercial companies and mainly for gaming or socializing purposes, rather than filmmaking.” (Lisbeth Frølunde i http://worlds.ruc.dk/public_uploads/2011/02/Lisbeth.pdf; lesedato 11.01.16)

“While machinima resembles found-footage filmmaking in its appropriation of extant images and sounds, there are some notable differences. Instead of full fledged cinematic appropriations, machinima employs digitally appropriated environments, avatars, background stories and even pre-rendered sequences. Unlike traditional found footage films, the content within the 3D environment is highly malleable and needs to be created.” (Horwatt 2008)

“While machinima appears at first glance to be an example of fan fiction, many works produced with the technique are radical critiques of video games, attempting to redefine the politics and ideology of video game culture rather than praise it. In this way, machinima appears to be a striking example of a grass-roots media resistance movement engaging critically with culture and production.” (Horwatt 2008)

Anna (2003) av Katherine Anna Kang brukte et førstepersons skytespill til å skape en machinima innen en helt annen sjanger. Kangs machinima er uten lyd og viser livet til en blomst, basert på *Quake III Arena* (<http://nt2.uqam.ca/fr/dossiers-thematiques/machinima>; lesedato 11.12.19).

“Machinima’s comic possibilities were exploited with the breakout machinima film *Male Restroom Etiquette* (Zarathustra Studios, 2006) which has received nearly 5 million hits on YouTube and is in the top 100 most viewed films on the site. The film is a sardonic poke at masculinity and gamer culture that has been widely attributed to a boom in the interest in making and watching machinima. *Red Vs. Blue*, a popular machinima show which ran 100 episodes and five seasons, uses absurdist humor to explore the lives of two groups of cynical soldiers engaged in a war without meaning or purpose. The characters pontificate in the appropriated style of Samuel Beckett about the pathos of their task and the triviality of their existence as soldiers. The show has subsequently been used by Microsoft to promote their game consol Xbox. Perhaps the most widely distributed machinima is the famous South Park Episode *Make Love Not Warcraft* which follows the South Park characters’ avatars in the Warcraft game.” (Elijah Horwatt i <http://cineaction.ca/issue73sample.htm>; lesedato 22.03.13)

Firmaet Blizzard etablerte nettstedet Warcraft Movies for å oppmuntre spillere av MMORPG-spillet *War of Warcraft* til å lage machinimaer (Gabriel Gaudette i <http://nt2.uqam.ca/fr/dossiers-thematiques/machinima>; lesedato 11.12.19).

“Most Machinima films remain deeply rooted in gamer culture – *My Trip to Liberty City* is a travelogue of the world represented in *Grand Theft Auto 3* (2001); *Halo Boys* involves boy bands in the *Halo* (2001) universe; someone restaged classic moments from *Monty Python and the Holy Grail* (1975) using *Dark Ages of Camelot* (2001). But not all. Some people have taken up the technical challenge of reproducing classic action films – everything from the *Matrix* to the Omaha Beach sequence in *Saving Private Ryan* (1998). More political filmmakers have taken this farther, using game engines to comment on the war on terrorism or to restage the siege of the Branch Davidians at Waco. Hugh Hancock and Gordon McDonald’s *Ozymandias* adopts a poem by Percy Shelley, and Fountainhead’s *Anna* depicts the life story of a flower. As with Pixelvision, the Machinima movement has launched its own Web community, critics, training programs, and film festivals. If Pixelvision has been embraced by the art world, Machinima’s greatest impact so far has been on the commercial culture. The History Channel, for example, has launched a successful series, *Decisive Battles* (2004), which restages events such as the Battle of Marathon using Creative Assembly’s *Rome: Total War* (2004) as its basic animation tool. MTV 2’s *Video Mods* program features music videos by groups such as Black Eyed Peas and Fountains of Wayne that are produced using look-alike skins of the performers inserted in the world of games as diverse as *Tomb Raider*, *Leisure Suit Larry*, *The Sims 2*, and *SSX3*.” (Jenkins 2008 s. 157-158)

Musikkvideoen “In the Waiting” (2001) av den engelske gruppa Zero7 er den første lagd etter machinima-prinsippet som ble vist på MTV (Gabriel Gaudette i <http://nt2.uqam.ca/fr/dossiers-thematiques/machinima>; lesedato 11.12.19). “Machinima-based music video for the band, Zero7. The first Machinima music video to air on MTV. From the MTV site: “... Layer Zero 7’s mesmerizing sound into the equation and you’re looking deep into an enigmatically experimental visual experience that tells the story of a lonely robot’s search for meaning and emancipation from the routine of daily existence in outer space.” Nominations: Best Picture, Direction, Virtual Performance, Visual Design, Sound, Commercial. Created with Machinimation/Quake III Arena” (<https://www.fileplanet.com/archive/p-39231/In-the-Waiting-Line>; lesedato 13.12.19). Dette ledet videre til MTV2-programmet Videomods, der kjente musikkvideoer ble “gjenspekt” med bruk av forskjellige dataspill fra firmaet Electronic Arts. “Video Mods was a television series that aired on MTV2. This show turned video game characters into musicians. It was created by Tony Shiff of Big Bear Entertainment in 2003. A pilot aired in Dec 2003, having been underwritten by Electronic Arts. It was a form of branded entertainment, as the pilot featured characters from their games SSX3, Sims, and Need for Speed. In 2004 MTV2 Head of Programming Alex Coletti commissioned four new episodes which aired that Fall. The pilot and all 2004 episodes were produced and directed by Shiff, with Animation Director Kris Renkewitz. In 2005, additional episodes were animated by IBC Digital.” (<https://www.imdb.com/title/tt0479851/>; lesedato 13.12.19)

Det har blitt lagd en reklame for varehuset Ikea med *The Sims 2*, en adaptasjon av et dikt av lord Byron, en parodi på spillet *Counter Strike* og science fiction-fortellinger (Gabriel Gaudette i <http://nt2.uqam.ca/fr/dossiers-thematiques/machinima>; lesedato 11.12.19).

“Machinima has been defined as “filmmaking within a real-time, 3D virtual environment,” and it means using game software and gameplay to create animated videos [...]. An example of such a *World of Warcraft* movie is the award-winning *Edge of Remorse*, produced by Riot Films and directed by Jason Choi. The story recounts how two brothers choose different sides in the war ravaging Azeroth (the world in which the game is set) and reveals the origins of their split as love for the same girl, with whom they grew up as an inseparable trio. In the end, rivalry and betrayal results in the tragic death of all three. Choi’s telling of the story in machinima form never makes direct reference to events of the game’s storyworld, nor does it present unadorned gameplay or settings from the game as a player would typically see them. [...] Lasting roughly eight minutes, with some 120 cuts and fades, *Edge of Remorse* is no replay or continuous recording of gameplay, but an intricately composed piece of visual storytelling. Nonetheless, players recognize it unmistakably as a story set in the world depicted by the *World of Warcraft*.” (Harrigan og Wardrip-Fruin 2009 s. 409) “The awards that *Edge of Remorse* has received include “best overall film” of the Xfire Summer Movie Contest 2006 as

well as “best direction” and “best visual design” at the 2006 Machinima Film Festival.” (Harrigan og Wardrip-Fruin 2009 s. 426)

“By using an existing video game’s graphics and characters, and sometimes its sounds and music, an amateur machinimist can create what looks like a reasonably high quality, computer-animated film at a relatively low cost. However, this powerful mechanism is also machinima’s greatest liability: by incorporating existing copyrighted assets, machinimists are creating derivative works, and thereby possibly infringing the copyright holders’ rights under the Copyright Act. While some machinima may be protected under the doctrine of fair use (a highly fact-specific affirmative defense), the economic risk inherent in relying on the doctrine – not to mention the up-front costs of defending a lawsuit or seeking a declaratory judgment – would require most machinimists to yield to a cease and desist notification if a copyright holder objected. Alternatively, fear of liability could cause budding machinimists to abandon their work altogether. Fortunately for machinima, video game publishers seem to have recognized that suppressing machinima would not be in their best interests.” (Christina J. Hayes i <http://jolt.law.harvard.edu/articles/pdf/v21/21HarvJLTech567.pdf>; lesedato 22.03.13)

“[P]layers adopted digital games as a medium for expressing their creativity. Making machinima (and watching it) was one of the ways that players learned to be creative with digital games. This rhetoric of creativity and agency has helped the history of machinima move from a peripheral to a central topic in game studies, as the creativity of players, to me at least, is the most interesting and perhaps the most significant aspect of game culture today. [...] The Machinima Archive was founded in 2003. It was launched as a cooperative effort of Stanford University’s How They Got Game Project, the Internet Archive, the Academy of Machinima Arts and Sciences, and Machinima.com. Nearly five years later, the Machinima Archive has secured a significant collection of game-based performance, more than 500 machinima pieces in all. Galen Davis, a Stanford graduate student, and I made the initial selections of machinima pieces, beginning with a small group of seminal works we had compiled for the Bang the Machine exhibition at the Yerba Buena Center for the Arts in San Francisco. The inaugural collection includes early works such as “Diary of a Camper,” a speedrun from the Quake Done Quick project, and movies from the Ill Clan, Jake Hughes, and Strange Company, to name only a few titles and artists.” (Henry Lowood i http://www.tft.ucla.edu/mediascape/Spring08_GameCapture.pdf; lesedato 16.04.13)

“*Anachronox* the game was published by the troubled Ion Storm in 2001 and bombed on its release. The cinematics were created by Jake “Strider” Hughes and, not wishing the work he had spent so long in making to go entirely to waste, he decided to cut them together, using in-game footage to link the scenes up. The result is *Anachronox: the Movie*, a two and a half hour production that tells the entire story of the game without the need to play it. This DVD contains two sequences from it, one totalling eight minutes and the other just over one. The first

scene depicts the destruction of an entire solar system due to some experiment mishap, and follows a group of characters who are able to get away. Although there is way too much zooming camera work, the general direction is excellent, the pacing of the scenes fast paced with good dialogue (bar an excess of technobabble in the first couple of minutes) and contains an extremely amusing sequence that depicts how the travellers spend their time while adrift in space. The second scene deals with a car chase. Significantly shorter than the first, it's slightly weaker as well but once again direction is exemplary. Both sequences look very good, making the most of the game's engine to produce striking scenes. No one would ever be fooled into thinking it was created from anything other than a video game, but there is enough entertaining stuff here to make that not a big problem. The only let down is when in-game footage is clearly used – although used extremely sparsely, it is still jarring to see, and is easy to spot by anyone who has ever played a third person game before. The voice acting is okay, let down only by the bored-sounding lead female character – there's nothing striking here, but the actors certainly do enough.” (James Gray i <http://film.thedigitalfix.com/content/id/12536/machinima-film-festival-2002.html>; lesedato 23.04.13)

Clara og J. Joshua Diltz's *Rise of the Living Dead*-trilogi “is on the the most ambitious machinima projects set in the *World of Warcraft*, running nearly eighty minutes in length altogether.” (Harrigan og Wardrip-Fruin 2009 s. 423)

Den 13 minutter lange *The French Democracy* (2005) av Alex Chan dreier seg om opprørene i Paris' forsteder i 2005 og tematiserer diskriminering og sosial undertrykkelse. “Produced in just a week and released Nov. 22 (movies.lionhead.com), his short film has been hailed as a breakthrough for the obscure technique known as machinima – the use of characters, sets and scenes culled from video games to create an original film. “There has never been a machinima with such a clear and prominent political message,” said Xavier Lardy, founder of the French specialist website machinima.fr. The characters move stiffly and the English subtitles are riddled with mistakes, but the 13-minute animated “The French Democracy” is turning the 27-year-old Chan into a poster boy for a budding trend in home moviemaking. An industrial designer with no previous filmmaking experience, he saw his film as a way to bypass traditional media and send a message of tolerance to young people, using video images they could relate to easily. But even Chan is surprised his fledgling effort has made such a splash. The film tells the story of three black youths who suffer from racial discrimination and end up throwing bombs at cars and buildings. “They become angry, and maybe they have no other way to express themselves, and finally this is the only way they have of getting heard. That's why I picked this title, ‘The French Democracy,’ Chan told The Associated Press. Chan, born in Paris of Chinese parents, said he has also experienced discrimination because of his appearance. His film is strongly inspired by real-life events, with one character representing Interior Minister Nicolas Sarkozy calling for a crackdown against the rioters, while another right-wing politician advocates kicking foreigners out of France. This makes it different

from previous machinima efforts, geared mainly at gamers. This kind of filmmaking previously was confined to skilled programmers, but it has become accessible to anyone with a computer thanks to the video game “The Movies,” in which players run a Hollywood studio and make their own films. Since it began in October, fans have been posting an average of one film per minute on the website of Lionhead Studios, the game’s developer. “People are beginning to find uses for it that we didn’t even think about when we designed the game,” Lionhead’s chief designer and chief executive Peter Molyneux said. “There’s a lot of movies that are coming online that have been inspired by ‘The French Democracy’ that are actually commentaries about society in America, society in the U.K.,” he added. “It’s almost as if this has opened a floodgate.” ” (<https://www.denverpost.com/2005/12/14/the-french-democracy/>; lesedato 03.09.19)

“Machinima’s comic possibilities were exploited with the breakout machinima film *Male Restroom Etiquette* (Zarathustra Studios, 2006) which has received nearly 5 million hits on YouTube and is in the top 100 most viewed films on the site. The film is a sardonic poke at masculinity and gamer culture that has been widely attributed to a boom in the interest in making and watching machinima. *Red Vs. Blue*, a popular machinima show which ran 100 episodes and five seasons, uses absurdist humor to explore the lives of two groups of cynical soldiers engaged in a war without meaning or purpose. The characters pontificate in the appropriated style of Samuel Beckett about the pathos of their task and the triviality of their existence as soldiers.” (Horwatt 2008)

“An experimental machinima contingency began to develop with the creation of both *The Academy of Machinima Arts and Sciences*, an organization devoted to promoting the use of machinima and heading the Machinima film festival, and *Machinima.com* which provide forums, articles and a film archive for machinima lovers.” (Horwatt 2008)

“Moviestorm is a free machinima tool created by UK based developer Short Fuze Limited. It allows aspiring film-makers to prototype an idea into film quickly and with ease. [...]

- Suitable for users with little knowledge of animation and/or film-making.
- Robust multi-camera system with depth of field and focus.
- A library of pre-defined characters, movements and behaviors
- Animations, such as breathing, blinking, and lip synch, is fully automated, allowing users to focus on the interesting aspects of the creative process.
- Film and edit scenes within the program (in beta)

- Allows user-generated voice, sounds and music
- Support Cel-shading rendering
- A community web site
- Create movie files suitable for upload to any of the major video-sharing sites (Google Video, YouTube, etc)
- Expansion/content packs

Regular upgrades and expansion packages designed to enhance every aspect of movie making are already in development. Some of them will be free to all Moviestorm users, others can be purchased separately. Free upgrades will be available for download on a monthly basis. Moviestorm consists of a core product, suitable for making a limited range of movies. However an expanding range of content packs, consisting of more props, sets, and characters will enable you to create different types of movies. These will come out every month and will deliver mainly themed assets based on movie genres. The features of each expansion pack will be different for each pack. However, they will normally contain some or all of the following:

- New models (sets, props or characters)
- New animations
- New core elements (e.g. cars, dance choreography, fight moves etc)” (<https://machinima.fandom.com/wiki/Moviestorm>; lesedato 03.09.19)

Verdens første machinima-“filmfestival” fant sted i 2002. “The Academy of Machinima Arts & Sciences [is] an organization that provides advocacy, education and community building awareness for the entertainment medium known as Machinima [...] host the first Machinima Film Festival on Saturday, Aug. 17, at the Trail Dust Restaurant in Mesquite, Texas [...] include screenings of Machinima films, workshops hosted by Machinima filmmakers, special screenings, talks with award-winning independent filmmakers and kiosks where attendees can take a crack at making their own Machinima films. [...] Designed to recognize excellence in Machinima filmmaking, entrants’ work will be judged in 10 categories: Best Picture, Best Direction, Best Writing, Best Acting, Best Sound, Best Editing, Best Visual Design, Best Independent Film Effort and Best Technical Achievement (software/hardware vendor-oriented). An Honorary Award will also be given to an individual whose contributions have significantly impacted the Machinima arts. Award guidelines are available at www.machinima.org.” (<http://www.thefree library.com/>; lesedato 23.04.13)

“Animation and Opera – Why Low Budget Composers choose Machinima Animation [...] With the global depression, art budget cuts, and innovations in technology, contemporary composers have embraced new ways of presenting opera using digital media in the last twenty years. Digital art projects like *The Creator’s Project* (<http://www.thecreatorsproject.com/>) encourage and promote modern projects like virtual operas, digital art, gaming-inspired art, and multimedia design projects. From the Chicago Opera Cabal ensemble to William Antoniou’s *Turing Opera* and Alice Shield’s *Apocalypse*, composers have combined the theatrical spectacle of opera with the unlimited innovation of technology. Choosing to create an animated opera over a traditional live opera has several advantages, including working with a diverse range of artists worldwide, low production cost, unlimited stage possibilities, and easy distribution. An animated opera allows the composer to collaborate with numerous musicians and artists worldwide. Initially artists offered their help from Australia, Argentina, and the United Kingdom, but in the end the primary cast and crew lived in the United States. Because this opera is not dependent on a single location, overall production costs are minimal when compared to hosting a large-scale opera, and crew members work on the opera from home.” (Sabrina Pena Young i <http://newmusicresource.blogspot.com/2017/05/animation-and-opera-why-low-budget.html>; lesedato 03.09.19)

“Machinima continues to grow in popularity, and has even been used to storyboard more traditional films. The New Zealand company Regelous created a special-effects program called Massive for Peter Jackson’s “Lord of the Rings” movies. The program generated digital crowds, with each member of the crowd having its own set of behaviors, allowing the character to make their own choices. Steven Spielberg used machinima as a tool in pre-visualization for his movie “A.I.” A modified version of the Unreal game engine served as a platform to create animatics in pre-production.” (Jonathan Strickland i <https://entertainment.howstuffworks.com/machinima3.htm>; lesedato 13.12.19)

“ILL Clan Machinima produces improvisational comedy shows where performers control video game characters and the action is projected on a large screen in front of the audience. The performance takes place in real time and no two shows are the same. [...] Games like “The Movies” or the virtual world of “Second Life” are making machinima films more accessible and user friendly than ever before.” (Jonathan Strickland i <https://entertainment.howstuffworks.com/machinima3.htm>; lesedato 13.12.19)

Alle artiklene og litteraturlista til hele leksikonet er tilgjengelig på <https://www.litteraturogmedieleksikon.no>