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How *Back to the Future* Shaped Modern Technology

In the immortal words of Christopher Lloyd's character Dr. Emmett Brown, "Roads? Where we're going, we don't need roads." These words, presented in the resolution of the original 1985 *Back to the Future* film, ignited future decades of both, technology invention and innovation. The first feature film of the *Back to the Future* trilogy stars Michael J. Fox as the time-traveling teenager, Marty McFly. In the film, Marty takes Dr. Brown's homemade 1980 DeLorean time machine back to the less sophisticated time of 1955. Once there, he witnesses some of the archaic technology present during the time period in which his parents were teenagers in high school, such as monochrome black and white television sets. Later, in the second film *Back to the Future Part II*, Marty and Doc, along with his future wife, Jennifer, take the time machine to the unfamiliar future of 2015 and witness a fascinating world with thirty years of technological innovation. These films are perfectly juxtaposed as the first film shows the technology featured in the previous thirty years in 1955 while the second film features Marty's and Doc's thirty year leap to 2015 and all of the new technology along with it. The 1989 *Back to the Future Part II* film correctly foreshadows some technologies that we have today, and some technologies that have not been invented yet, as well as some mispredicted technologies that we no longer use.

Robert Zemeckis, the director of the *Back to the Future* trilogy, made several correct predictions about our present technological time period. This is especially evident in the family

dinner scene at the 2015 McFly residence. According to the scholarly journal, "THE FUTURE IS NOW: Revisiting the Present in *Back to the Future*," by Myke Bartlett, "These future McFlies live in a familiar sort of suburban squalor. Their home is packed with consumer gadgets (each member of the family is occupied by their own personal device), but the place is a dump." In this dinner scene, each member of the McFly family is distracted by their own technological agendas. This suggests that the director, Robert Zemeckis, knew that eventually mankind would fall victim to its own technological advances. As the technology progressed from when this movie was originally released in 1989, more people have become dominated by their personal devices, such as smartphones and laptops. Furthermore, with the invention of the Internet and the widespread popularization of social media platforms, including Twitter, Facebook, Instagram, and Snapchat this problem has only continued to exacerbate today. Most of peoples' family dinners also contain other parallels to the dinner scene featured in the film. Today, people no longer communicate with each other at the dinner table and instead choose to dine in silence as they live out their virtual reality lives on their smartphones. Moreover, this often occurs when families dine at restaurants or other public food venues, which do not include their own households. As a result, families have lost a sense of comradery, much like Marty's future family from 2015. Robert Zemeckis's dinner scene ultimately shows that technological advances would lead to our own downfall with the loss of familial ties and relationships.

Another aspect that was foreshadowed in *Back to the Future Part II* includes, wearable technology. The Quartz Magazine article, "What 'Back to the Future II' got right about tech in 2015," by Mike Murphy states, "In the film, several characters appear to be wearing smartwatch-styled gadgets on their wrists, and Marty's future kids wear headsets at the dinner table. They can make and receive calls, as well as watch TV. While it may not have the 80s-chic of those

video glasses, Google Glass was released in 2013-with a new version expected this year-and Facebook's Oculus Rift virtual reality headset... hit the market later this year." The headsets featured in the film appear very similar to today's available virtual and augmented reality goggles. Like the goggles in the movie, the Google Glass and Oculus Rift can play television shows, video games, movies, and can be used as a cellphone to either make or receive messages. This can be achieved through a phone call or a text-to-talk text message or email. An additional feature that these goggles have, which we take for granted today includes caller identification. For example, Marty Jr. is able to view the caller identification of someone trying to reach his father through his virtual reality goggles. Furthermore, smartwatches and other physical activity equipment have also become prominent in the past several years. Today, smart watches have become almost universal with the release of the Apple Watch and Samsung watches. These smartwatches, as well as FitBits and Nike activity trackers are currently very popular among the technology consumer community. Nike first sparked the trend in wearable technology with the 2006 release of its first step tracker. FitBit later launched its first product in 2011 with the watch known as the Ultra. Over the past few years, Samsung has joined the competition with the release of multiple wrist watches, wristbands, and virtual reality headsets(Murphy.) The second film first predicted this new wave of wearable technology by showcasing both, smartwatches and virtual reality goggles.

Likewise, large wall-mounted flat-screen televisions and video conferencing were correctly predicted in the second film of the franchise. In the film, Marty's future 2015 residence features a large flat-screen television as the focal point of the living room. In the words of Mike Murphy, "The McFly residence has a massive flat-screen TV where Marty Jr. can watch multiple channels at once. We've got that. Multichannel picture-in-picture viewing has actually been

around since the 70s, but today we have taken sensory overload to the extreme, with channels like NFL Redzone, and functions like the Xbox One's ability to have a TV channel running while you play a videogame." As a result, televisions have become the centerpiece of millions of American households. Furthermore, the television present in the film appears very similar to the flat screen televisions that decorate many people's homes. These televisions also share some of the same capabilities. For instance, when Marty communicates with his boss, Mr. Needles, he does through a video conference via his television. Some 2017 televisions have communication platforms as a standard feature, much like Marty's 2015 television. One such video communication platform is Skype, which is built into today's smart televisions. In addition, cable providers and other television services like Directv offer picture-in-picture viewing abilities. This means that people can partition their television screen to watch multiple channels at once. These predictions the film made are astonishing because during the time of its release in 1989, people were still "watching television programs via boxy, unwieldy cathode ray tube sets. They had to be placed, ideally, in a corner due to their physical dimensions"(Clayton-Lea). Today, plasma or LCD flat-screen televisions are everywhere, but in the 1980s it was incredible to view large screens mounted on walls. The film not only predicted the larger sizes of the televisions of today, but also their slim physical stature. As a result, our televisions are very similar to those in the 1989 film.

Hands-free gaming was also foreshadowed in *Back to the Future Part II*. When Marty travels to the unknown future of 2015, he visits a 1980s-themed cafe called Cafe 80s. Once there he boasts his video game skills to a pair of young children. However, one of the children, played by Elijah Wood, ridicules Marty for using his hands to play the game and says, "That's like a baby's toy!"(Clayton-Lea). This suggests that the children of this era do not use controllers, or in

this instance gun remotes, to play videos anymore. According to Mike Murphy, “While we don’t see it in the film, kids at Cafe 80s mock Marty for having to use his hands to play an arcade game, implying that Xbox Kinect-style gaming is the norm in their 2015” reality. Microsoft may have used this scene from the film to draw inspiration when creating their Xbox Kinect system. The Xbox Kinect is a component of the Xbox 360 and Xbox One that allows players to use body and hand motions in the place of traditional push-button controllers. This means that when people play video games they no longer need to be restricted by a remote controller, but instead can implement their entire body into the virtual world of the game. During the 1980s, video games were much simpler than today’s cutting-edge high definition, three dimensional games. Those games required the use of a remote and did not feature this futuristic hands-free gaming ability. Due to the large presence of this movie, Microsoft and other technology companies may have used the film to make hands-free gaming a reality. As a result of its widespread use, hands-free gaming has become ubiquitous.

Other correctly predicted technologies featured in the second film include, smart programmable homes and biometrics. There were several scenes where smart programmable homes and biometrics were used throughout the film. This is evident in the scene when 1985 “Jennifer is escorted to her future 2015 home by the police, the cops mention that she should really have the lights programmed to turn on when she comes home”(Murphy). This implies that lights in the McFly residence can automatically turn on when a person enters the home. This is similar to some of the smart programmable home technologies offered by Google and Philips. Google produces a product called the Nest thermostat, which is a smart home thermostat that is connected to the Internet. This allows the homeowner to access their home temperature information on their smartphone and then adjust the temperature at their will from any location

on Earth with a wireless signal. The Philips Hue light bulb is a smart light bulb that has Internet connectivity and works similar to those found in the McFly's household. With this light bulb, homeowners can access the lights on their smartphone and activate a feature called geofencing. Geofencing gives the light bulbs access to your current location in order to turn on the lights when you enter your home and then turn them off when you leave. In addition, when Jennifer is brought home by the police, they use her thumb print to unlock her front door. This is relatable to the product offered by Yves Behar's August Smart Lock System. This system replaces "physical keys with a smartphone app" and "mirrors another technology predicted in the film, which features computer-operated and fingerprint-responsive locks"(Winston). The system effectively takes the place of traditional key locks and instead uses fingerprint scanning locks. Lastly, in the film, Biff actually pays for a taxi using his fingerprint. Today, people can also do this through platforms like Apple Pay and Samsung Pay. These platforms allow credit cards and other payment methods to be stored on smartphones. With this, consumers can purchase goods and services with the authorization from their fingerprint. The second film correctly predicted these smart technologies that would not be invented until decades later.

However, Back to the Future II also mispredicted some technologies. This includes the widespread adoption of biofuel dependent vehicles. In the film, Doc converts the DeLorean to run on garbage, which it then converts to energy. This process is completed in the system known as the Mr. Fusion Home Energy Reactor. According to the scholarly article, "'A Look at the Predictions of 'Back to the Future Part II,'" "When returning to 1985 from the future to pick up Marty, the DeLorean is now powered by a home energy reactor called 'Mr. Fusion,' which converts garbage into the 1.21 gigawatts necessary to fuel the time machine.... Doc's new energy converter acts more like a compressor on steroids, as you can toss waste into, and it

automatically converts it into mechanical energy.” While biofuel does not exist in the mass market today, there are other alternative fuel vehicles, such as hybrids and electric cars. Hybrid cars, like the Toyota Prius, utilize both, a fossil fuel feed combustion engine in conjunction with electric motors powered by lithium ion battery packs. However, electric vehicles, such as the Tesla Model S, solely depend on electricity as an energy source. While these two variations of vehicles do not rely on biofuel, they do have features that allow them to be environmentally friendly, or otherwise known as partial zero emissions vehicles. One system shared by the Prius and the Model S includes, regenerative braking. When the driver of a vehicle applies brake pressure, the brake pads squeeze the car’s four rotors to decelerate the it or bring it to a complete stop. During this process, energy is lost in the form of heat and friction. However, when a driver applies the brake pedal on a hybrid or electric car, the regenerative brakes transfer that wasted kinetic energy back into the car’s batteries, thus increasing gas mileage and ensuring a more efficient trip. Even though the movie wrongfully depicted biofuel cars, it did give people insight into a future full of alternative energy vehicles.

Another technology that the film incorrectly predicted includes, hoverboards. In the film, Marty and several other characters are seen floating above the ground on skateboard-styled devices called hoverboards. However, today's hoverboards do not share the same practicality as the ones featured in the film. This is because the hoverboards in 2017, or otherwise known as self-balancing scooters, travel on the ground much like a traditional scooter. These “hoverboards” cannot travel above the ground, and as a result they resemble more closely to a scooter rather than the hoverboards featured in the film. Although, since the hoverboards in the 1989 film are considered one of its most iconic feats, many companies have attempted to recreate this technology as well as its functionality. For example, in 2015, car manufacturer Lexus “built

a prototype hoverboard that's able to glide a few centimeters above the ground, giving frictionless movement of a kind that had been thought impossible. The force is strong enough to allow an adult rider to stand and even jump on the board. It does work, though it requires a magnetic track laid down on the surface. For now it's just a concept, so don't expect it in your local sports or toy store any time soon"(Droppa). While Lexus did manage to recreate a hoverboard with actual hovering capabilities, it failed to recreate the practicality of the ones in the film, which led them to be so iconic. The Lexus hoverboard essentially operates as a giant magnet and requires a magnetic track to propel the board upward. Therefore, this board is unable to travel on land and other surfaces, like the ones in the movie. Due to the hoverboards' acclaimed status in the 1989 film, it inspired many companies, such as Lexus to make this technology a reality.

Furthermore, the film also mispredicted the prominence of automatically adjusting clothes. In the beginning of the *Back to the Future Part II*, Doc gives Marty a jacket that has self-adjusting and self-drying features. This means that the jacket can not only dry itself, but it also can change its size depending on the stature of the person wearing it. Unfortunately, this technology does not exist yet in our 2017 reality, but may be invented in the future. However, Nike has made several attempts to reproduce the unique shoes called the Nike Air Mags. In the second film, Marty wears shoes known as the Nike Air Mags, which have self-tying abilities. This feature no longer requires people to manually tie their shoes. Although, the scene in the film is actually misleading, since these Nike's were controlled with "a behind-the-scenes set-up of wires"(Winston). In 2011, "Nike released a short-run version of Marty's iconic Nike Air Mags... but they did not feature the self-lacing feature seen in the film"(Murphy). Later, in 2015, Nike created 89 limited edition pairs from the movie with self-lacing abilities to commemorate the

30th anniversary of the film franchise. These shoes were then auctioned off in 2016, with all the proceeds given to the Michael J. Fox Foundation for Parkinson's Research(Murphy). Even though, the film falsely foreshadowed a future with automatically-adjusting clothing, it did push the boundaries of the design and clothing industry.

Lastly, the second film failed to recognize the paradigm shift from mechanical based technologies to software and electronic based technologies. This is because "the 1980s saw a boom in household gadgetry and electronic devices, as epitomized by the Walkman"(Bartlett). The franchise's filmmakers used the technologies available in the 1980s, such as the Walkman, as the foundation for their 2015 future. Therefore, some technologies were based on the continuation and innovations of the ones present in 1989, rather than the invention of new ones. These filmmakers did not realize the start of the transition towards the Information Age, which was dominated by "Moore's Law - more computing power, more information processing, and more possibilities"(Dignan). As a result, the film failed to mention the presence of the Internet. This is evident in several scenes, which include when Marty is fired via a fax machine and when he reads about his son's arrest in the newspaper instead of social media. Due to this, Robert Zemeckis and other people involved in the film overestimated the presence of equipment such as fax machines and underestimated the presence of computers. Furthermore, in the 2015 version of the film, smartphones or even cell phones were not mentioned. Instead, the film relied on pay phones and other land line connected phones. In addition, with the missing presence of the Internet, the film did not include the technology known as artificial intelligence, or AI. In the words of Peter Diamandis, "We are in the early days of Artificial Intelligence. Tens of billions of capital are being poured into an AI 'arms race' over the last decade. One fun recent example is Tesla's 'autopilot' software upgrade that just came out. It can drive you autonomously on the

highway.” Other companies besides Tesla have also begun to utilize AI. Some of today's artificial technology includes, Apple’s Siri, Amazon’s Alexa, and IBM’s Watson. As more companies develop artificial intelligence technologies, their presence and dependency continues to grow in our everyday lives. Therefore, since the film failed to mark the shift towards electronic and software based products, it failed to recognize our increasing reliance on artificial technology.

The 1989 film, *Back to the Future Part II* played a pivotal role in shaping today’s modern technological innovations and advancements. The film showcased some of the common technologies that exist today, such as smartwatches and high-definition flat-screen televisions while it also predicted some technologies that have yet to be invented, such as automatically adjusting clothes and mass produced biofuel vehicles. Furthermore, the film incorrectly predicted a technological future that remained more mechanical based, rather than our technological environment that has begun to shift towards a software based future. This movie showed that with both, the progress and advancements brought about by time, how improvements in technology dramatically impact our society. In the next thirty years, the unrealized technologies present in the second film may ultimately become a reality as technology continues to evolve and develop through time and innovation, therefore leading to a far more prosperous cultural society.

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Reference Analysis

"A Look at the Predictions of "Back to the Future Part II". This article is reliable because it is a peer reviewed news article that was published by the Campus Press from the University of Colorado at Boulder, Boulder Colorado. This article depicts some of the futuristic technology present in the *Back to the Future Part II* film. I used the section about the Mr. Fusion reactor to compare the DeLorean time machine to the alternative fuel vehicles that we have today.

"THE FUTURE IS NOW: Revisiting the Present in Back to the Future." This article is a scholarly journal that I found on ProQuest. It was published by The Australian Teachers of Media Inc., therefore it is reliable. The article explores how the technology from the film was inspired by the technology from the time in which it was produced. I utilized this article to explain how the future of technology was predicted using the technology of the 1980s.

"What *Back to the Future* Got Right... and Wrong." I located this article from the ProQuest Database, therefore it is a trustworthy source. This is also from a reputable news source, The Huffington Post. The author, Peter Diamandis had co-authored several bestsellers featured in The New York Times. Furthermore, he is an engineer, physician, and entrepreneur. This article is relevant to my topic because it showcases the technological predictions featured in the film. I incorporated the section of artificial intelligence into my exploration of future technological advances that the film failed to predict.

"'Back to the Future' Set Course for October 21st 2015: Now it's Time for a Reality Check." This article is a scholarly news article that I found on the ProQuest Central Database. The article is a credible source because it is from the news outlet, The Irish Times. This article explores how accurate the film was in predicting the future of technology. I need the article to further develop my analysis of the advancements of televisions. The article also describes the hands-free gaming scene.

"Back To The Future? We're Already There." This article explores some of the technology that the film correctly and incorrectly predicted would exist in the future. I utilized this article in order to obtain information about what the film incorrectly predicted, such as the widespread use of the fax machines. The article also discusses how the film failed to predict the Internet and the growing presence of digitization. The article is reliable because it is from The Huffington Post. The author, Aaron Dignan, is the founder of The Ready, which is a design company based in New York City, as well as the former CEO of Undercurrent, which is a business firm. He is the author of the book, Game Frame: Using Games as a Strategy for Success and is a member of the digital-advisory boards General Electric, American Express and PepsiCo.

"Deja Vu for Back to the Future Movie Fans." This article is about some of the technologies that came true and drew inspiration from the *Back to the Future Part II* film. Some of the technologies this article describes includes, flying cars and hoverboards. I used the information about the current development of flying automobiles to in comparison with the flying cars in the film. I also compared Marty's hoverboard to the Lexus prototype hoverboard. This article is trustworthy because it is from a news source called, The Daily News. Lastly, this is a scholarly news article that I found on the ProQuest Central Database.

"What 'Back to the Future II' got right about tech in 2015." This article describes the technology that *Back to the Future Part II* correctly predicted that we would have today. I require this article from Quartz Media in order to describe certain technologies from the film and

to draw parallels between those technologies and those present in 2017. Some of these technologies from the article include, wearable technology, wall-mounted flat-screen televisions, video conferencing, smart programmable homes, biometrics, power-lacing sneakers, and hands-free gaming. This is a trustworthy source because it was recently published with accurate information in 2015 and the author, Mike Murphy is a reporter for Quartz, who specializes in technology. Furthermore, Murphy graduated with journalism degrees from the Medill School of Journalism at Northwestern and the University of Pennsylvania.

“Did *Back to the Future* influence the real future of design?” This article discusses *Back to the Future Part II* the perspective of a design standpoint. The article is from Dezeen, which is a magazine for architecture, interiors, and design. Even though this is not a scholarly article, I felt that it was important to use in order to obtain another approach to my topic. The author, Anna Winston, is an award-winning editor, curator, and writer. She is a former editor of Dezeen and Bdonline and has over a decade of experience in working in the field of design and architecture. I used this article in order to compare today’s alternative fuel cars to the Mr. Fusion Home Energy Reactor found in the DeLorean. The article also includes information about smart locks for homes and Nike’s self-lacing shoes.