
FUTURE
PARK

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INSPIRATION

Before Future Park was incorporated in 2020, The Founder, Leah Kallen, was a part of a small speculative design studio who was investigating the tension between nature and technology. At the time electric mountain bikes (eMTBs) were gaining in popularity, however the mountain biking community was divided on their opinions towards eMTBs access to traditional mountain bike trails. At the core of the argument was a more fundamental debate about certain technologies not belonging in natural spaces. The following article addresses some of the fundamental issues surrounding the adoption of new technologies in nature.

The Electric Mountain Bike Debate

October 2019

Leah Kallen

The first time I rode a mountain bike, I felt like I was going to die. I thought to myself as sweat was dripping down my face and my lungs wanted to explode, what a studpid sport! My attitude changed as soon as I got to the top and it was finally time to ride down. After experiencing the adrenaline rush of flying downhill, I was hooked. I started training and riding every chance I could. Slowly but surely the climbs became easier and the downhill got a lot more fun. Now I gladly suffer through thousands of feet of climbing for that brief but amazing rollercoaster ride down. Other than lift assisted parks and shuttle rides, the struggle of climbing has always been a mandatory part of the sport. Now a new breed of bikes are challenging the status quo. In 2016, the Sea Otter Classic hosted their first ever electric mountain bike race. The Sea Otter Classic, being considered one of the largest biking festivals in the world, validated that electric bikes are here to stay and took the first step in legitimizing them as a part of the sport.

In the past few years I have noticed more electric mountain bikes (eMTBs) on our local trails. I began thinking how nice it would be to not have to struggle uphill, and how many more times I could go downhill if I had one of those bikes. I finally was able to demo one from Pivot Cycles this year and it absolutely blew my mind. The eMTB made uphills actually fun and I was able to do triple the amount of laps I could have done on a normal mountain bike in the same amount of time. While I was riding, I met a couple people on the trail and the first thing they said to me was: "Cheater!" They then asked if I was even aloud on the trail. I came back from the ride with a big grin on my face despite the negative comments from people on the trail. This experience made me question why so many people hate eMTBs? The haters cry out that eMTBs are "cheating" and will ruin our trail access. The supporters claim eMTBs will take our sport to a new level of mainstream acceptance and give more people the opportunity to enjoy the sport. There are valid points on both sides and some more pressing issues that need to be addressed.

I had the chance to interview Tom Crenshaw, Co Owner of Frame Up Bikes, who is an eMTB supporter and competed in the eMTB race at the Sea Otter Classic. When asked what are some of the positive impacts eMTBs have had on the mountain bike community he stated: "It lets older people ride how they used to ride... I passed a guy on Shell Ridge once. He was 72. He was like this has changed my life because now I can ride... He was able to power through rocks at Castle Rock like it was nothing. At 72, nobody can do that on a regular mountain bike." On the issue of "cheating," Tom responded: "Some people say that it's cheating your fitness and I'll show them a heart rate graph that shows that it doesn't... It's all in how you ride." We discussed how a big part of the negativity around eMTBs is largely based on jealousy. There have been many advances in mountain biking technology that have allowed us to go faster and farther, but nobody has complained in the past. Tom gave the analogy: "I always point to a cassette that has a 50 tooth cog and say Dude you're riding 12 speeds. Why don't you go back to riding a 7 speed with a 30 (tooth cog)."

With that logic, if we truly wanted to be non cheating purists we would need to go back to riding balloon tired "clunkers," wearing jeans, flannels and hiking boots like the original riders did back in 1976 (Guroff 148). I challenge anyone who claims eMTBs are cheating to try riing the original 1981 Specialized "Stumpjumper" down a modern day World Cup Enduro track. How can we draw a line between what technology is necessary for the development of a sport? Although many of the anti eMTB arguments are rooted in Jealousy and stubbornness, there are some valid points of concern. Trail access and eMTBs' impact on the environment are still an open debate.

Writer for Pinkbike, Richard Cunningham, in the article "Opinion: A Secret Trail and an Argument Against E-Bikes" has some very strong opinions against eMTBs. His biggest concern is that electric mountain bikes could create an association between mountain bikes and motorized off-highway vehicles (OHV) such as dirt bikes and ATVs. In the early days of mountain biking, organizations like the International Mountain Biking Association (IMBA) had to fight hard for mountain bikers to have access to public lands. Cunningham argues that our access to trails was; "hinged upon the notion that we were human-powered users with the same rights to the back country as those who practiced other self-powered tech sports like skiers and kayakers (Cunningham)."

Although mountain bikers currently have access to trails, this is still an open debate that can be voted on by land managers. Cunningham believes that a combination of rouge trail building, Strava fueled competition, and the rise in available bike only trails has reopened the argument against mountain bikers having access to multi use trail systems (Cunningham). With eMTBs becoming more powerful and new classes having throttles which do not require pedaling at all, we need to make sure that non motorized mountain bikes don't get lumped in with eMTBs as regulations begin to change. Cunningham states; "In the minds of anti-bike people, if one mountain biker can have a motor, it won't be long before they all do (Cunningham)." Batteries and motors that power eMTBs are becoming much smaller. Over time it will become even more difficult to tell the difference between an eMTB and a normal mountain bike just from first glance. Since policing an electric mountain bike versus

a normal mountain bike on a trail is becoming more difficult, it could be a legitimate concern that anti-mountain bike advocates could use the danger of throttle assisted electric bikes entering multi-use trails as an excuse to ban all mountain biking.

Cunningham's article was written in 2014 and since then I have not seen any significant changes in trail access in Northern California. We will have to wait and see if Cunningham's fear will become true as the eMTB community continues to grow. Another big concern is the impact the batteries used to power eMTBs will have on the environment. EMTB batteries currently use lithium and mining lithium has a negative impact on the environment. In Dirt Mountainbike's article "Should We Be Worried About Ebike Batteries, The ethics of e," They explain how lithium is mined from salt flats in North and South America and the process requires tons of water while also polluting local water sources (Smurf). Friends of the Earth Europe stated: "the release of such chemicals through leaching, spills or air emissions can harm communities ecosystems and food production. Moreover, Lithium extraction inevitably harms the soil and also causes air contamination (Smurf)." In addition to the environmental problems of mining lithium, according to Dirt Mountainbike, only 5% of batteries on the market in Europe are being recycled and the other 95% are either incinerated or in the landfill (Smurf). Although lithium extraction is improving and companies are pushing for better recycling systems, the fact is that eMTB's production will always be more taxing on the environment compared to a normal mountain bike.

The big question for me is if eMTBs are more trouble than they are worth? Although they are a huge help to the dissabled and elderly, young and healthy riders are starting to favor them too. With the support continuing to grow I am afraid that eMTB will become the new standard and increase the negative impact mountain biking has on the earth. The mountain bike community has always been on the front lines fighting for the protection of the environment. With this in mind, it feels a bit hypocritical to support the adoption of a technology known to have a more negative impact on the environment. As a healthy 27 year old, I personally feel that having an eMTB is not necessary for me, but who am I to tell the 72 year old that he shouldn't have one either. After much contemplation I currently align more with Cunningham's philosophy that: "mountain bikes are a form of human-powered locomotion with which to experience the wonders and challenges of the natural world. Engines and motors have no place in that equation (cunningham)." However, I am 27... ask me again when I am 72.

Work Cited

Crenshaw, Tom. Personal interview. 9 October 2019.

Cunningham, Richard. "Opinion: A Secret Trail and an Argument Against E-Bikes." Pinkbike, 25 July 2014, https://www.pinkbike.com/news/opinion-a-secret-trail-and-the-argument-against-e-bikes2014.html

"eMTB Access and Management." IMBA, 2019, https://www.imba.com/education/emtb

Guroff, Margaret. The Mechanical Horse: How the Bicycle Reshaped American Life. , 2016. Print.

Hadland, Tony, Hans-Erhard Lessing, Nick Clayton, and Gary W. Sanderson. Bicycle Design: An Illustrated History. Cambridge, MA: Massachusetts Institute of Technology Press, 2014. Print.

Lockwood, Jeff. "Elephant In The Room: The Great E-Bike Controversy." Dirt Rag, Dirt Rag Contributor, 22 January 2015, https://dirtragmag.com/articles/elephant-in-the-room-the-great-e-bike-controversy

The Noblest Invention: An Illustrated History of the Bicycle. Emmaus, Pa.: Rodale, 2003. Print.

Smurf. "Should We Be Worried About Ebike Batteries: The ethics of e." Dirt Mountainbike, 19 March 2018, https://dirtmountainbike.com/features/worried-ebike-batteries.html

Evolving Park Issues

By early 2020 the entire world was trying to manage and cope with the Covid-19 Pandemic. Everyone was searching for ways to safely engage with other people and as a result, outdoor recreation increased in popularity.

The Pandemic caused a dramatic increase in popularity in outdoor recreation, and the influx of interest put a strain on National Parks. People were trying to find ways to safely socialize with friends and family, so many began visiting National Parks for the first time. Parks were having difficulty managing the amount of vehicle traffic within the parks and increased environmental impact.

On one hand, the increased popularity of the great outdoors was seen as positive, as the more people interested in natural spaces, the more public support there would be for issues surrounding climate change. On the other hand, many of the newcomers to National Parks and other preserves had questionable motives and etiquette, and were contributing to issues like littering and causing disturbances to wildlife. Some parks had to begin limiting the number of guests allowed at the park and requiring reservations. Others began discussing the idea of implementing QR scans at trail heads as a form of tracking trail congestion to give real time data to their guests to encourage them to seek out less trafficked areas of the park.

In November 2020, the National Park Service overturned their ban on electric bikes in National Parks stating, “The intent of this action is to address an emerging technology in a manner that accommodates visitors and increases opportunities for the public to recreate within and travel through the National Park System, while at the same time protecting the resources and values that draw millions of visitors each year (National Park Service).” This statement made it clear that the National Park Service was beginning to open their minds to emerging technology and rethink what forms of recreation could be allowed within the parks. As technology continued to advance rapidly, Future Park was interested in finding novel ways to engage with nature.



Photo By: Outside, 2018
https://www.outsideonline.com/outdoor-adventure/environment/have-50-years-over-crowded-parks-taught-us-nothing/

We began looking into ways to direct people towards lesser known parks and preserves. One of the biggest contributors to climate change is the fossil fuel industry, and by flying or driving far distances to seek out these National Parks, guests were contributing to the deterioration of our environment. We asked ourselves, how could we encourage people to engage more with their local parks. What are some of the underlying motivations driving people to National Parks? How could we build more meaningful experiences within the average park or preserve that inspires a similar sense of wonder and excitement that the National Parks offer?

Site Specific AR

Future Park was established in 2020 and began our journey by researching site specific augmented reality. We were interested in the potential to bring augmented reality art installations to local parks. There was already an established history of sculpture parks and we believed that augmented reality art had similar potential, without physically altering the landscape.

Technical Experiments

We began by experimenting with a variety of different techniques to map and trigger content on site. The use of image targets as triggers proved to be the most reliable way to accurately place content.

In the fall of 2021, Facebook announced they would be rebranding and changed their name to Meta. Their public display of interest in the Metaverse at their Facebook Connect virtual conference had everyone talking about the future of extended reality (XR). We were especially inspired by the potential of augmented reality (AR) art and providing new opportunities for artists to display their work. This led us to launch an investigation of best practices around site specific AR art and assess the technological limitations at that time.
The goal was to bring AR art installations to parks and preserves to entice new user groups, and make the average park more exciting and engaging. We began testing image target recognition by collecting photos at parks and uploading them to Vuforia's image recognition database to see what types of images made for reliable AR triggers. Photos of nature although would sometimes score high on image recognition were not actually triggerable on location. This made the use of already existing signs in parks ideal candidates as triggers for AR art.

We were interested in assessing the limitations of mobile AR ince AR glasses were not commercially accessible at the time. We ran a series of experiments using an Android device and a digital 3D model of a Jeff Koons balloon dog to test the use of signs as triggers on location. Signs as image targets yielded mixed results and were not always stable. We then experimented with using 360 photos and the gyroscope within mobile devices to map the AR content to its correct location. Due to the inaccuracies of gyroscopes in mobile devices, this experiment also had mixed results. Our overall impression at that time was site specific mobile AR needed further development to create compelling experiences.



On site testing of placing a Jeff Koons digital replica in the environment using an already existing park sign.



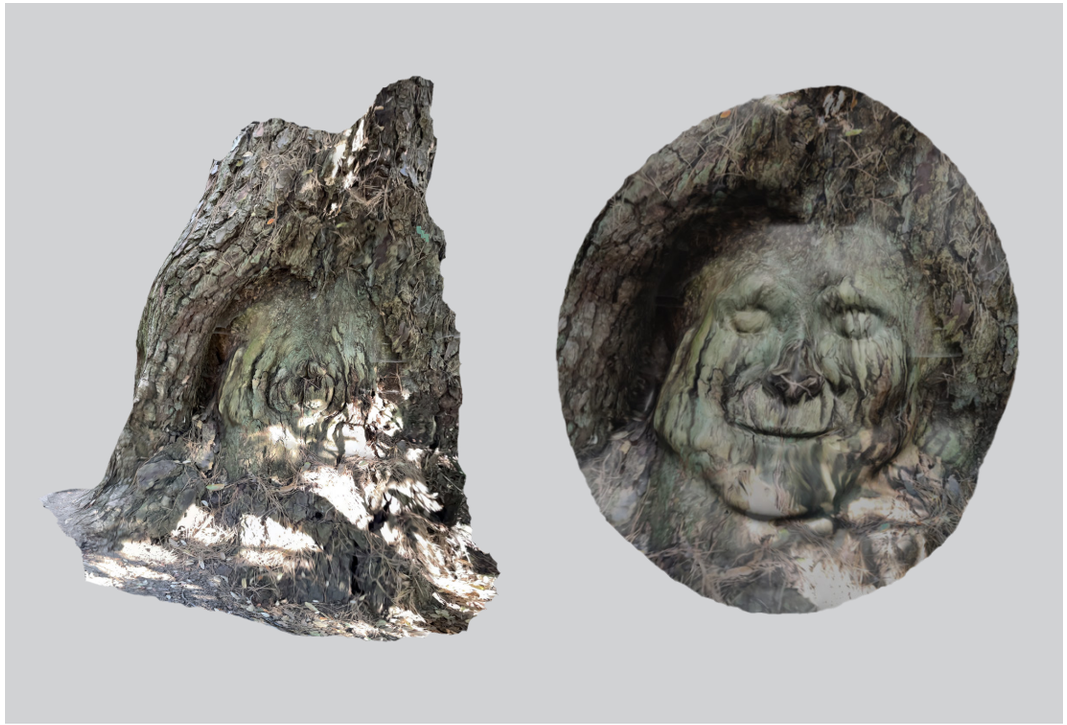
The autofocus of the phone's camera had trouble focussing when presented with a vista view. The constant shifting of focus was distracting.



Using image targets allowed for perfect placement of digital content, but was not desirable due to the need for permanent physical installations.



Using the phone's gyroscope to place content proved to be unreliable. Although content would initialize in the correct location, the content was prone to drifting away from its origin.



Lidar scans of a tree were taken into a 3D sculpting software called Blender. We were able to use the original scan's mesh to sculpt and animate the face while retaining the base texture map.

Plant Harm Prevention AR

After our onsite technical experiments, we wanted to address growing concerns around responsible content creation and find more practical use cases for AR content. We created Plant Harm Prevention AR to deter guests from damaging plants.

As we were conducting our technical experiments, we became concerned with the ethics around digital content in natural spaces. Should content creation designed for natural spaces abide by a certain code? One that highlights and enhances nature rather than covers up or distracts a viewer from their surroundings? Is it even fair to say that certain types of content do or do not belong? Who would we exclude by creating these boundaries?

These questions led to an investigation of what content could look like if everything had to be collected on location. There was already an abundance of ways that photographs, 3D scans, and 360 capture could be transformed, translated, and combined to create inspiring XR installations. We were curious if limiting ourselves to only using images and scans gathered on location could lead to content that felt more natural and appropriate for the landscape.

Lidar sensors opened up new possibilities for 3D scanning objects with phones. We used this technology to gather scans of trees, rocks and ground surfaces. After experimenting with different processing techniques, Future Park was searching for a more practical use case for AR content in Nature. The experiments with The Jeff Koons balloon dog left Future Park feeling like AR art in nature was disconnected from the reasons we seek out natural spaces and felt if they were going to implement AR content in nature it had to have some functional application.

Many first time park goers and children often engage in activities that can be harmful to plants such as plucking flowers and leaves, or carving their names into trees. We created an app called Plant Harm Prevention AR to deter guests from these behaviors. By personifying the plants, guests were less likely to follow through on actions that could have a negative impact on the plants.



The prototype for the app used placed image targets to accurately map the content. Once AR technology improved we were able to use geolocation to trigger the content.



When the app detected that a plant was under threat of harm, the AR content of the animated tree's face would trigger with audio saying "Are you sure you want to do that."

Trail Navigtion

Continuing with a functional approach to site specific AR, we investigated ways we could assist guests in trail navigation. We created an app that allowed guests to preview particular sections of trails to help guests better assess which routes they wanted to take.

When hiking, it is common to come across a fork in the trail and not know which way you want to go. Without a map, first time guests have to guess which route to take. Although it can be entertaining to wander without knowing the destination, it can be easy to get lost in areas with complex trail networks. If you are visiting a park far away from home and it may be your only opportunity to experience the trail, it can be reassuring to know the path you are taking is your desired route.

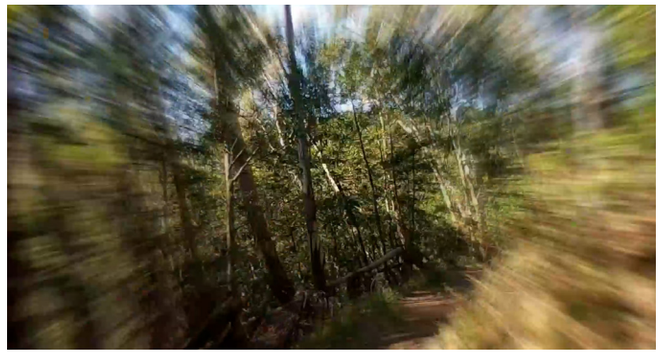
We created a trail preview app to assist guests while on the trails. We pre recorded high interest sections of trails and experimented with different speeds and viewing angles to find an optimal experience for previewing the route. We aspired to find a balance between a quick enough preview that would not lose our guests' attention, while also providing important details about the trail.

By slowing down the footage in particular sections of the trail we could highlight special areas of interest. We found that a slightly higher than human height with a downward angled camera view provided our guests with a general sense of the trail atmosphere while also being able to see the difficulty of the terrain. In 2023, we began offering our trail mapping services to parks all across the USA.



When guests approached a fork in the trail, they could select which direction they wanted to preview.









After selecting a direction to preview, a pre-recorded video of the trail would play and at the end of the section of trail, the guest could look around a 360 view of the end of the trail.



We also gave our guests the opportunity to check out far away points in particular locations to see if they wanted to hike down to explore further.

REALITY FILTERS

In 2024, AR glasses were beginning to become more accessible and were heading towards mainstream adoption. We began investigating different types of reality filter effects that could be used in parks.

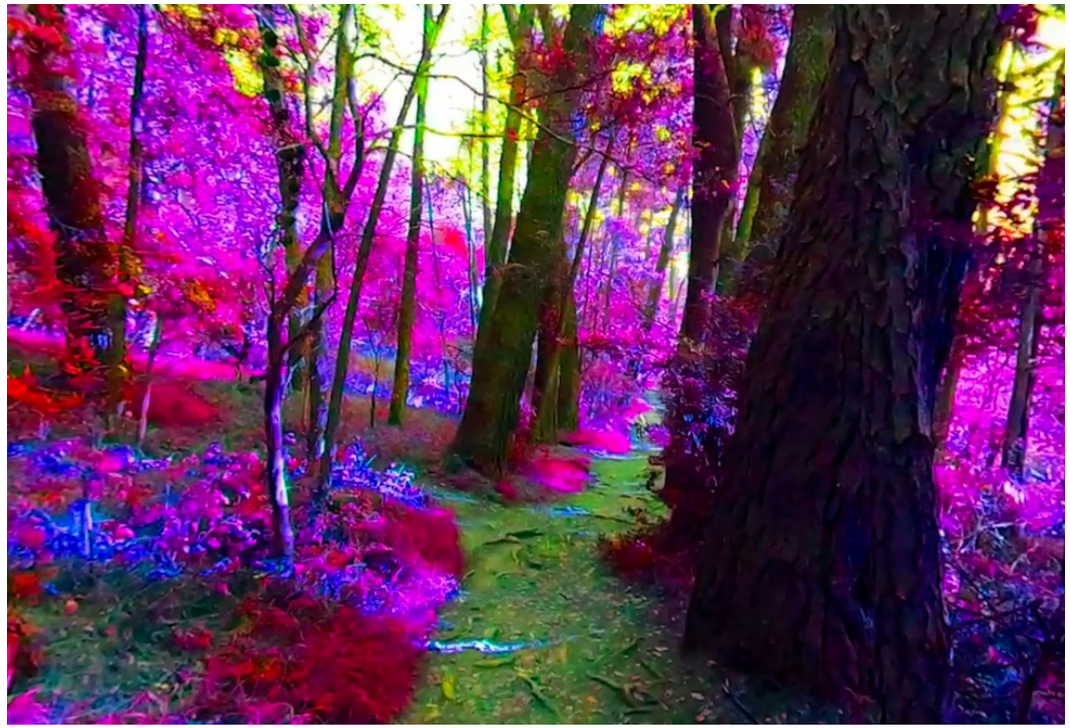
Hyper Nature

As more people started adopting AR glasses, we began experimenting with filter effects. The first round of experiments looked into forms of hyperreal and surreal effects for a more interpretive view of nature.

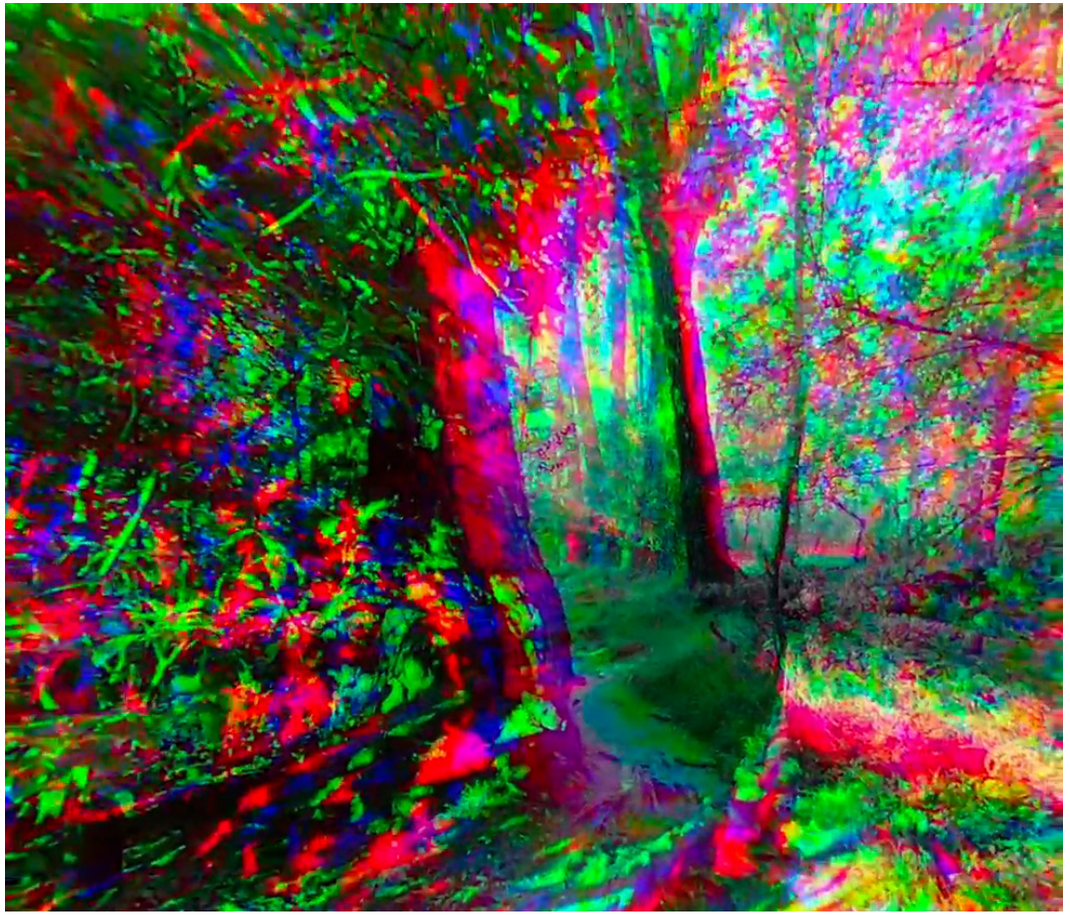
After we explored functional uses of AR, we wanted to explore the use of filters to augment the environment in a fantastical way. We were inspired by Keiichi Matsuda's Hyper Reality video made in 2016. The video shows how too much AR could quickly become overwhelming, but at the same time could transform really mundane spaces into exciting and energetic environments. We wanted to see how far filter effects in natural spaces could be pushed before they became too overwhelming. To prototype and test out our ideas, we used 360 video with different filter effects in VR. Quickly, we learned that too much motion effects although fun while standing or sitting could make actual hiking too difficult. We determined that simpler filter effects like increased saturation, black and white, and painterly textures allowed for a different experience without impeding on the user's ability to move through the space.

Although these filters were entertaining, they were very much on the fantastical end of the spectrum of experiences and we wanted to explore something a bit more practical. There are many situations where you go on a hike and the weather is not so ideal. If you are on a trip for a limited time, it is not always possible to reschedule a hike and there are many places you may only get to experience once in your life.

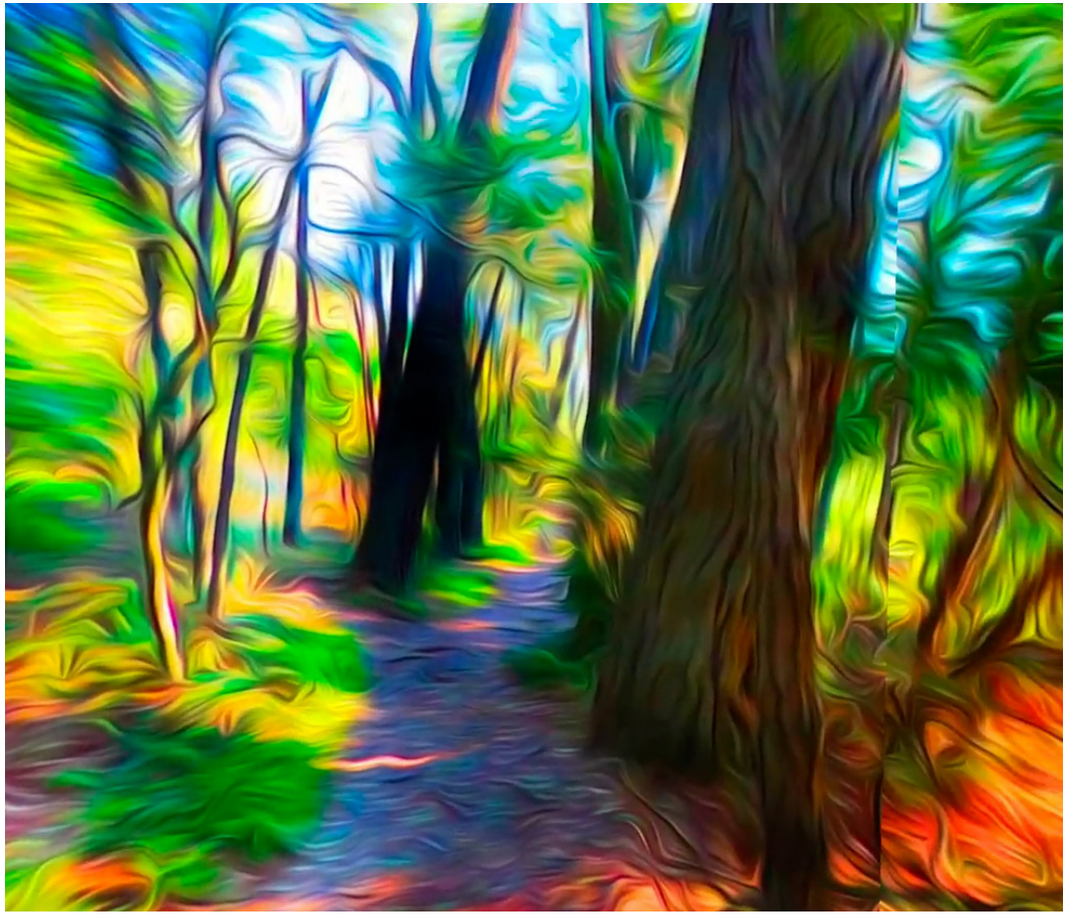
We created prototypes to demonstrate the potential to filter a guest's view so they could see the park during different times of day and weather conditions. By capturing several 360 videos and photos at a specific location, park users could stand in that particular location and view the different conditions with a 360 degree view. An additional feature allowed guests to enjoy a timelapse of the sunset during any time of day. These experiences began to shift us to think more about what the natural experience of being in nature is and how XR could make a not so secluded park feel more "wild."



Adjusting the hue of a scene over time created a sense of movement in the space, but was not as overwhelming as other movement based effects.



Adjusting the chromatic aberration of a scene over time created an extreme sense of movement and was deemed too disorienting to experience while hiking.



An oil painting filter effect created a more interpretive view of the environment, but distorted guest's sense of depth perception.

Wilderness Filter

With overcrowded parks, nature sites can feel far from wild. Signs, human made structures, and other people detract from the experience of being surrounded by nature. Our AR filter eliminates these distractions to allow our guests to have a pure wilderness experience.

The Wilderness Act was passed in 1964 in an attempt to preserve designated wilderness areas for future generations to have the freedom to experience undisturbed nature. The Wilderness Act defines nature as, “A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain (The Wilderness Act, 1964).”

This definition places humans outside of the realm of nature and essentially deems us the opposite of natural. The point of view that human made creations are outside or independent of the natural world distances us from our animal relatives and connection to the earth. This ideology acts as a form of acknowledgement that we have been working in opposition to the natural world, attempting to control it and manicure it for our desires. Through this lens, one could define wilderness as the opposite of civilization.

With this in mind, we became interested in the idea of filtering out human made features in parks such as signs and buildings to create a more “wild” experience for guests. We then took it one step further and gave guests the ability to filter out other people at the park so they could experience what it would feel like to be alone, completely surrounded by wilderness.

We created an AR app that used advanced AI technology to filter out unnatural distractions. Guests could choose which filters they wanted to enable and disable them at any time. With all the filters enabled, a crowded park just outside of the city could feel like the backcountry of a National Park.



Human made structures like microwave towers detract from the natural landscape. Our Wilderness Filter allows you to eliminate them from view.







This sequence demonstrates the removal of people and signs from view.





By selecting the buildings filter option, guests can remove unwanted structures like microwave towers.

OWL DRONES

A new generation of silent drones were in development and promised to solve many of the pain points that current drones had in parks. Drones had the potential to prevent wildfires, assist in search and rescue, as well as provide unique trail experiences for park guests.

Drone Research Experiments

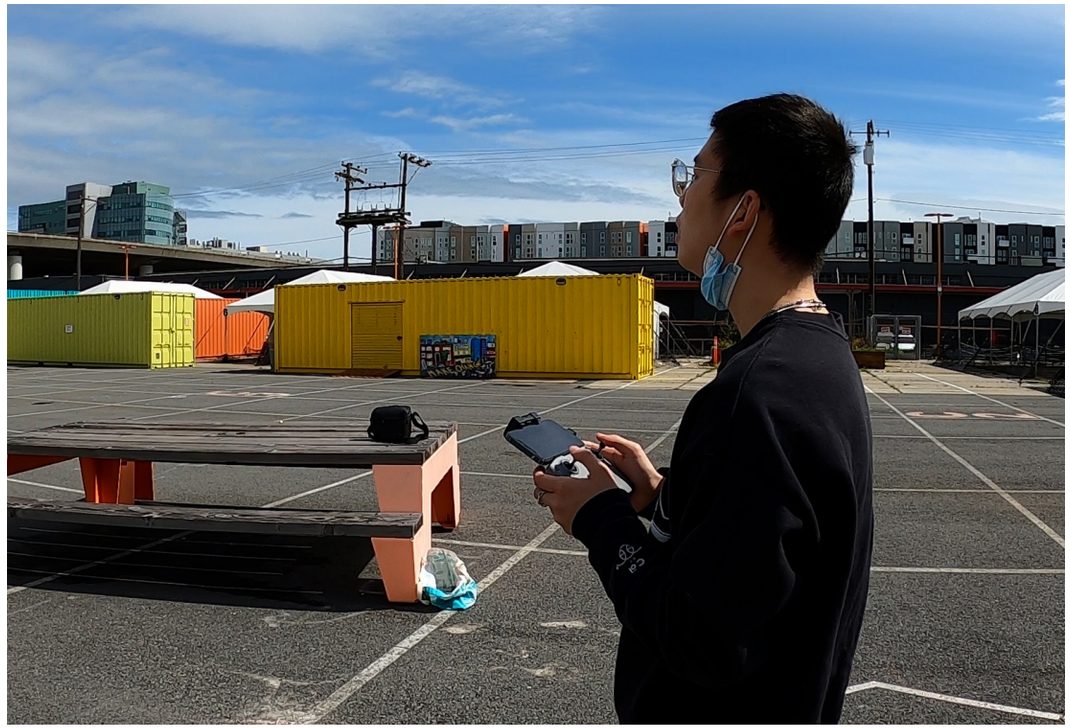
In preparation for a new class of drones that could safely be used in parks, we began envisioning a controller free way to pilot drones. We conducted user testing experiments to assess different methods for controlling a drone with your body.

We were interested in assessing if there was an intuitive way to fly a drone using only the body. A group of volunteers participated in an experiment to determine if there was a trend between different users. We started by having the participants free fly a drone outside using a standard controller. Once they were comfortable, we had them fly the drone through a simple obstacle course.

The first time through the obstacle course, participants were instructed to only look at the drone while flying. For their second attempt, participants could only fly using the on drone camera view on the controller's display. We observed that all the participants had a significantly more difficult time flying the drone while only looking at the camera's view. When interviewed, several participants noted that it was more difficult because the camera view did not provide the same sense of depth perception as compared to looking at the physical drone.

After the drone flying tests, participants were brought inside and were instructed to simulate flying a drone with their whole body. Commands were called out and participants had to respond instinctively. We then prompted the participants to only use their arms and repeated the same set of commands

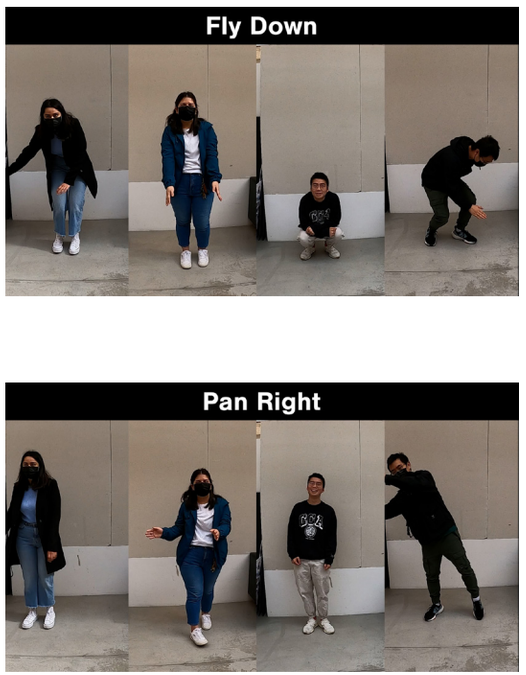
After comparing the recorded videos of each participant we notice a few trends in how people responded to the commands. We noticed that participants had difficulty creating distinctively different movements for translating left and right as compared to rotating left and right. The results of the experiment led us to believe that although there were some commonalities between participants' movements for each command, interviews revealed that we needed to think more about the practicality behind the movements.



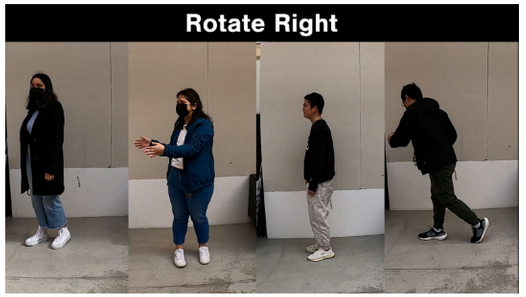
Participants began our drone research experiments by learning to fly a drone outside, and after they were comfortable navigated through a simple obstacle course.

Fly Drone with Body

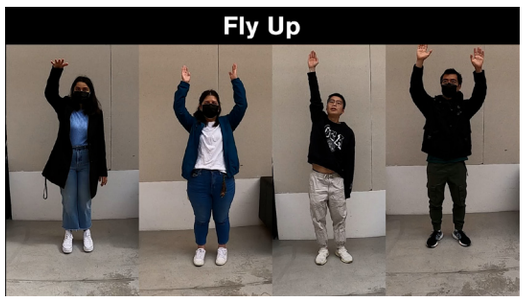




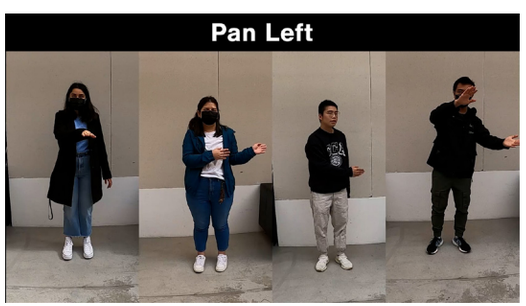




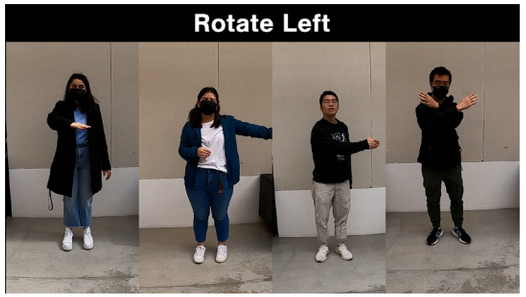
Fly Drone with Arms

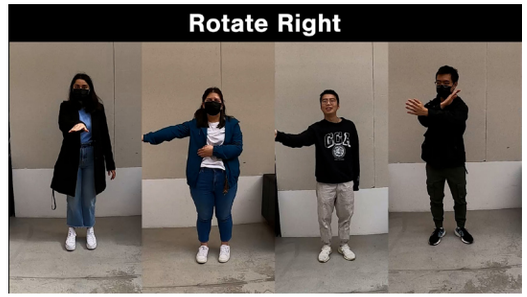












Hand Gesture Drone Control

Through our drone flying research experiments we learned that participants desired more fine tuned control over the drone's movements. We decided to move forward with creating a gesture based system using only hands.

After reviewing the videos and listening to the interviews from our drone research experiments, we decided that using only hands to fly a drone would offer desired fine tuned control over the drones movements. The Owl Drones that were in development were being designed to interface with AR glasses, but they were not ready for testing at that time. To get a jump on development, we created a VR prototype in Unity to test out different hand gestures that could be used to control particular drone movements.

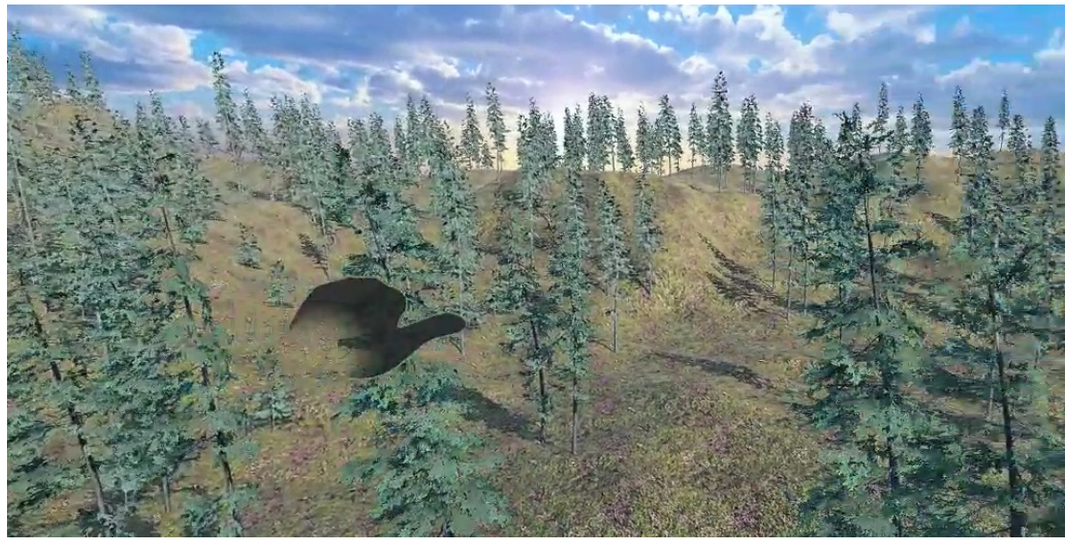
Since the drones would interface with AR glasses that had built-in positional tracking, we determined that head tracked movements could be used to control the rotation of the drones, and the hand gestures would only need to control translation movements. We landed on using the index finger pointed forward to move forward in the direction that the user was looking. Thumbs up and down was used to control vertical translation, and thumbs pointing left and right controlled horizontal translation. Pointing the thumb back allowed for backwards translation.

After testing in our VR simulation, we were able to calibrate an existing drone to test our gesture controls in a park. The end results felt very intuitive and the use of head tracking was a welcomed change to first person view drone flying.



Our VR simulation allowed us to test several different hand gesture configurations for flying a drone with hands and head tracking as well as improve hand gesture recognition.





The Oculus Interaction SDK allowed for rapid prototyping of different hand gestures and fine tuning recognition.





We used a pre-existing drone to test our hand gestures in a park while waiting for our Owl Drones to further develop.

Owl Drone Adoption

In 2030, our Owl Drones were finally complete. We teamed up with Cal Fire to deploy a fleet to assist in fire prevention. In addition to preventing fires, the Owl Drones assisted in search and rescue.

As forest fires continued to threaten the West Coast, the Future Park and Cal Fire teamed up in 2030 to deploy an experimental fleet of owl drones in California to assist in early detection of fires. This decision sparked controversy as California residents were concerned about their privacy rights being violated by the Owl Drones recording video while surveying the land. Many outdoor enthusiasts were outraged at the idea of flying robots invading the natural landscape. After 2 year of the Owl Drones being out on patrol the statistics showed that their presence reduced the risk of forest fires by 80 percent. In addition to the reduction in first fires, crime in California National Parks was at an all time low.

To help ease concerns, the next fleet of Owl Drones were made completely silent by adopting a similar technology used in Dyson's famous Ring Fan, which eliminated the need for propellers. This design decision also eliminated the potential harm to birds. To address privacy rights, Owl Drones used AI technology to determine if they were observing an emergency situation that needed to be saved for later review. In all non-emergency situations the live video feed would not be saved. After reviewing the



Owl Drone's silent propeller free design was inspired by the Dyson Ring Fan.

overwhelmingly positive data surrounding Owl Drone usage, Oregon and Washington deployed their own fleets.

Many people still didn't feel comfortable with video being recorded in public settings. To improve transparency, Owl Drones could change their LED light colors to indicate whether they are recording video that is being saved. If an Owl Drone is green, that would mean it is only using the video for AI analysis and is not being viewed by another person. Yellow could mean that the video is live and under review by an official such as a firefighter or the police. Red could indicate that video is being recorded and saved for future review. Owl Drones could assess if video recording is required based on if a threat is detected. For example, if an Owl Drone observes a crime in progress such as a fight or theft, it would then begin recording video for review by law enforcement. By having a color identification system, park guests could have more transparency around when video is being recorded.



Owl drones could survey the land searching for abnormally hot areas. If a temperature is discovered that seems abnormally hot, the Owl Drone can investigate further to assess the cause of the heat.

Hoverpod

Hoverpod technology improved trail accessibility in parks for those with limited mobility without disrupting the ecosystem. They offered a unique opportunity to leave nature truly untrammeled by humans.

Hoverpod Inspiration

As hoverpod technology continued to advance rapidly, we began to research what a hoverpod experience could feel like at a park. We were interested in hoverpos's potential to improve trail accessibility without damaging the ecosystem.

In order to make trails more accessible for those with limited mobility, parks had to resort to pouring concrete or creating wood infrastructure to create ADA accessible trails. As hoverpod technology was advancing rapidly, we became interested in how hoverpods could remove the need for these specially built trails that often harmed the environment.

Muir Woods was a perfect example of how hoverpod implementation could not only improve the park's aesthetic experience, but also be better for the ecosystem. Packed down trails hurt Redwood trees' ability to absorb water through their roots. Muir Woods' approach to this problem was to create elevated wood trails to not disturb the ground underneath. This system made it so a guest's view was cluttered by man made wood structures and left the park feeling more like an attraction rather than a nature preserve.

With hoverpods, Muir Woods would be able to remove their wood infrastructure and still allow for the ground to be untrammeled by humans. This idea really excited us so we began envisioning what a hoverpod experience in a park could feel like. For safety reasons we determined that for hoverpods to be implemented in public parks they would need to run on pre-programmed tracks, so we researched already existing examples of this type of experience in nature. We took a research trip to the Tilden Park Steam Train to gain first hand experience of how a preset tracked vehicle felt in nature.



An inspiring view of how beautiful Muir Woods ground flora looks when left untrammeled by humans.





The Tilden Park Steam Train has been operating since the 1960s and is still a popular retro attraction for families.

Hoverpod VR Prototype

We created a VR hoverpod simulation to assess people's level of interest of hoverpod experiences in parks. Our simulation incorporated a variety of audio and visual filters to gain further insight into possible desired features of a hoverpod experience.

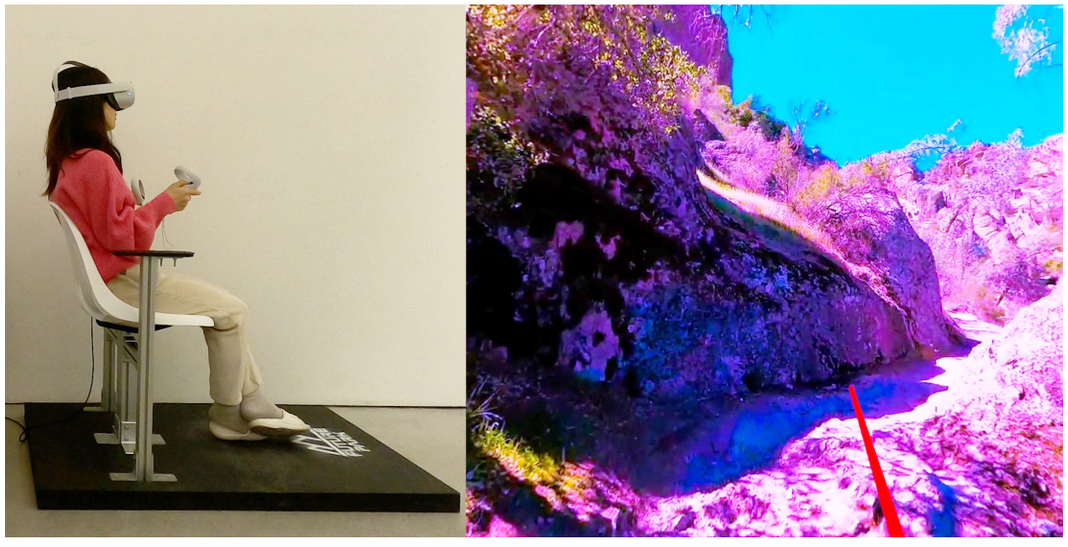
After our research with the Tilden Park Steam Train, we created a VR hoverpod simulation to conduct user testing. We were interested in assessing the overall interest in the adoption of hoverpods in natural spaces. We created a simple AR interface that allowed users to play with different visual and audio filters. Visual filters included increased saturation, black and white, sepia toned, and hyperreal color. We had a variety of audio filters to test different types of music as well as an audio tour option that gave information about the park. There was also the option to hide the entire interface to enjoy the scenery without any obstructions.

After participants experienced our VR hoverpod simulation, we interviewed them to learn more about what interested them the most about the experience and their overall level of interest in having hoverpods in parks. Levels of interest for this experience at real parks varied, however most users expressed interest in having access to the virtual experience at home. Many participants also stated that although the music and visual filters were entertaining at first, after a few minutes of being in the VR simulation they preferred to turn off all the filters and enjoy the ambient nature sounds and natural scenery. Based on the feedback, we released the VR hoverpod experience to the public in hopes of gaining more support for the future adoption of hoverpods in parks in the near future.

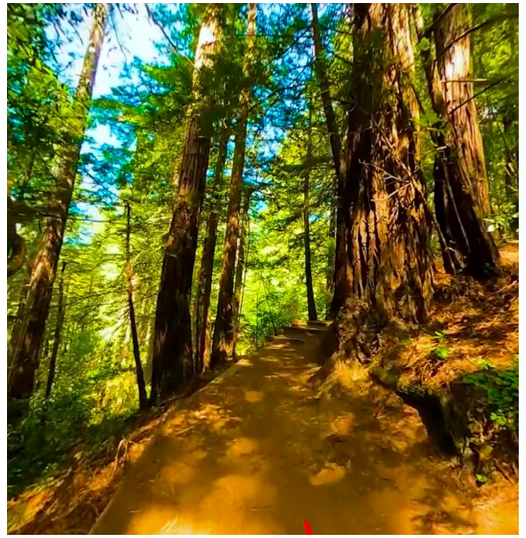


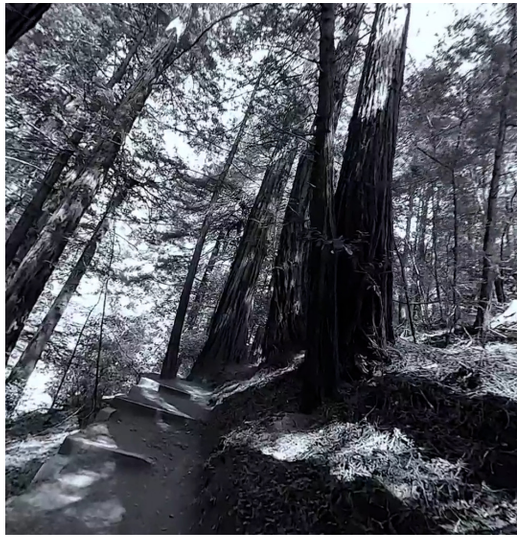
We created a simulation chair and matched the virtual hovepod's seat scale to create a fully immersive experience.

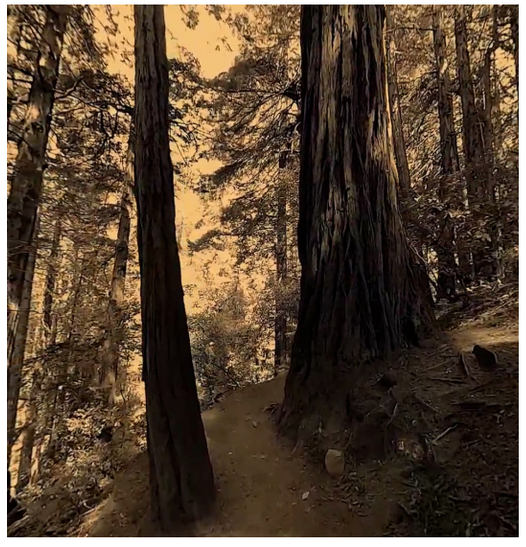


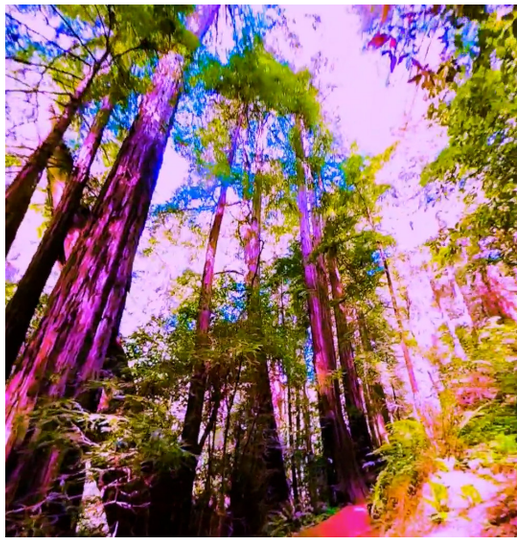


We recorded video of the participants as well as recorded their virtual experience for further analysis.









JMP PARK PASS

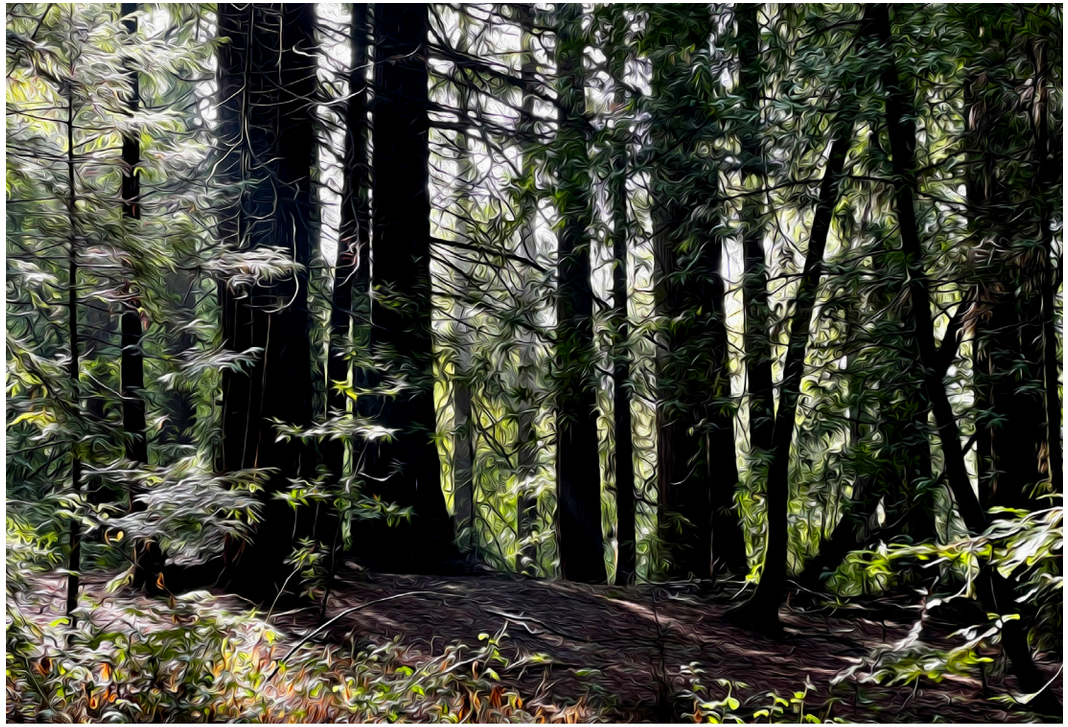
By 2045 hover based technology was in widespread use and parks needed to create new systems to manage all the emerging forms of recreation. Many parks began opting for mandatory orientations to educate guests on the new protocols.

JMP Park Pass

In 2045 we were commissioned by Joaquin Miller Park (JMP) to create a park orientation to educate guests on the new park regulations.

In 2045, hoverpod technology gained mainstream popularity and parks began to incorporate all forms of hover based technology. With so many different forms of recreation taking place at the parks, many parks began implementing park pass orientations and fees to control the number of guests and improve overall safety. Joaquin Miller Park was one of the first parks to implement strict rules in order to better manage the increased popularity of the park. The park management approached us to create an orientation slideshow to illustrate and articulate the new rules of the park.

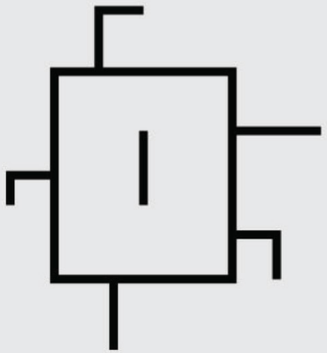
The following is a collection of the slides and corresponding speech that was given at each orientation. Although many were outraged by the new rules and fees at first, the new regulations helped improve park safety and better space out guests for an improved park experience. The implemented drone police put an end to the constant theft and car break ins. Eventually people embraced the new system and recreational opportunities.



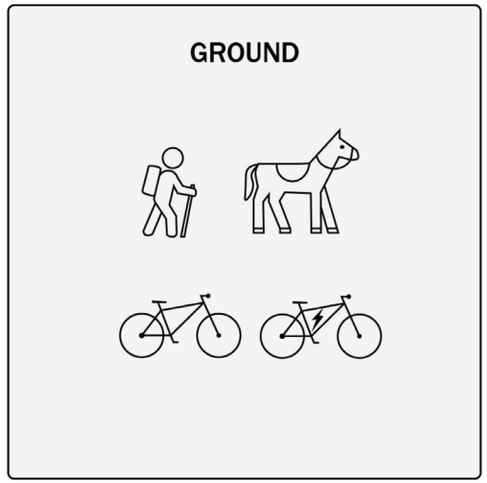
Joaquin Miller Park used to be a quiet escape in Oakland until it became overcrowded. New regulations helped to better disperse guests in the park and brought back a more tranquil experience.

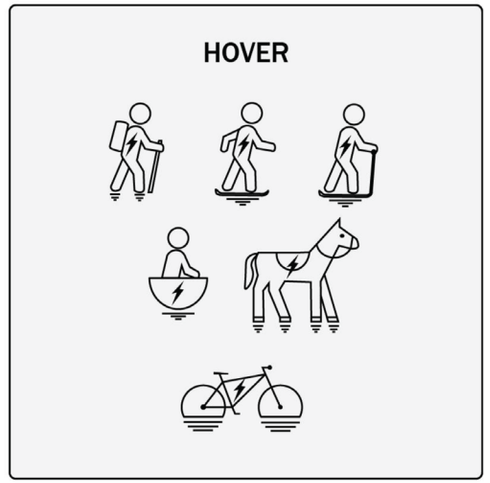
JOAQUIN MILLER PARK

2045
ANNUAL PASS ORIENTATION



APPROVED RECREATION





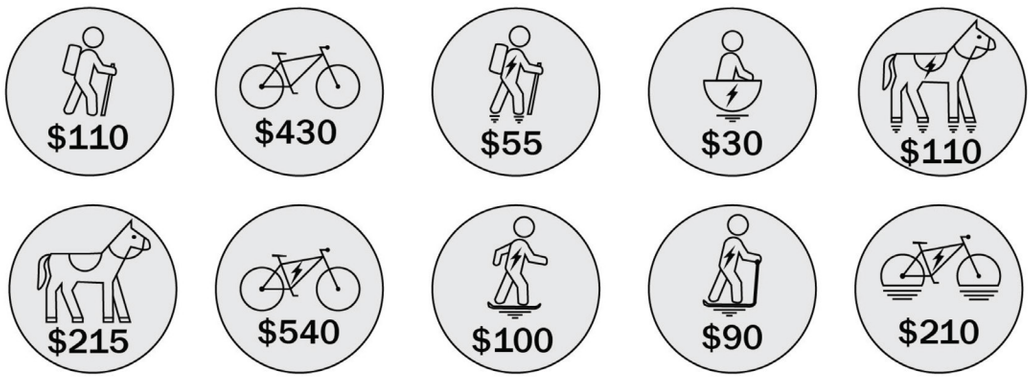
Welcome to the 2050 Joaquin Miller Park pass orientation. All pass holders must attend an orientation each year to renew their pass. In addition, everyone must pass a written test for each recreation activity they would like to have access to. After successfully completing this orientation and passing your tests, your annual pass with your respective access keys will be issued to you. If you are microchipped, You may have the pass data integrated with your chip and will not have to carry a physical pass.

Recreation activities have been broken up into two distinct groups this year. The first group is “Ground Recreation.” This includes hikers, equestrian riders, and cyclists of all classes. The second group is “Hover Recreation.” This includes hover hikers, hoverboarders, hover scooters, hoverpods, hover horses and hover bikers.

INTERNATIONAL HOVER RECREATION ASSOCIATION STUDY

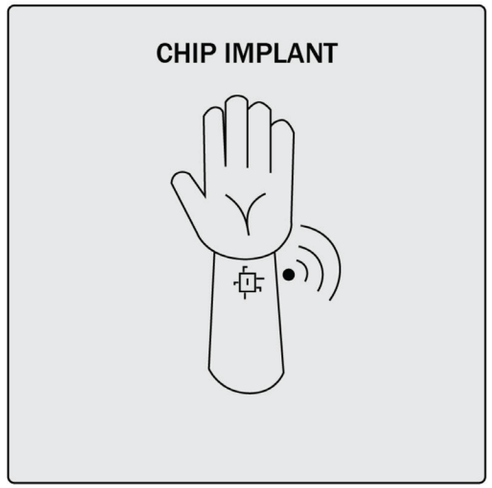


ANNUAL PASS FEES



*First time pass buyers must pay a $215 initiation fee

APPROVED TRACKING

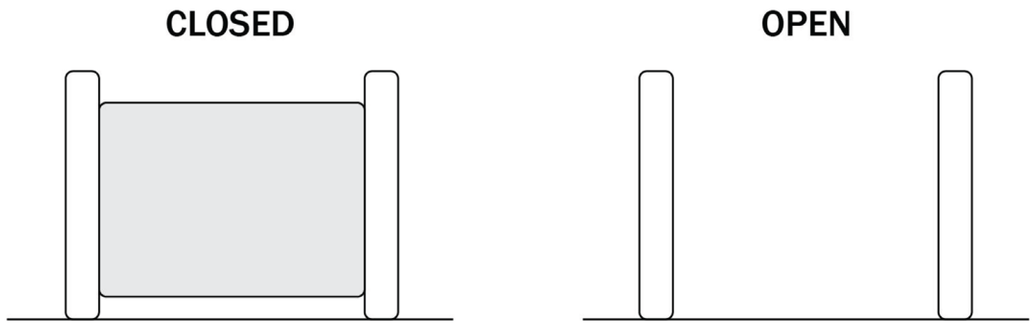




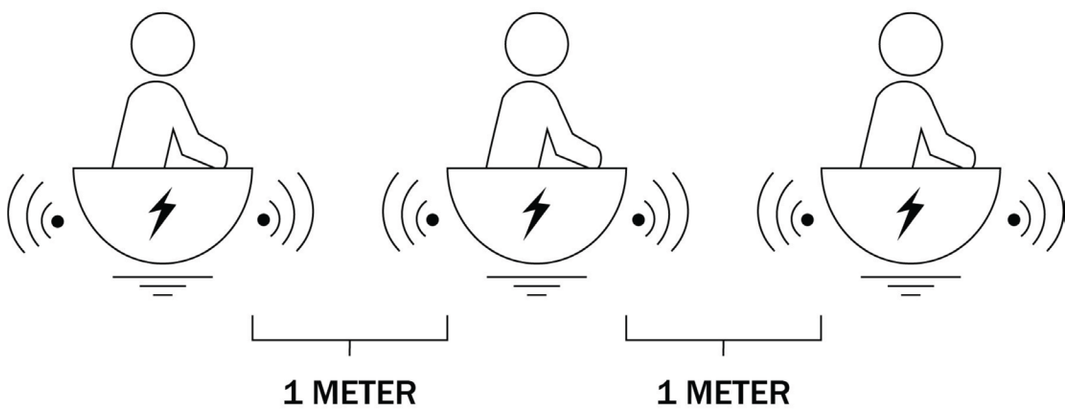
The International Hover Recreation Association completed their 10 year study and has officially proved that hover recreation is significantly less harmful to the environment than ground recreation. As a result, to encourage more people to convert to hover recreation, Joaquin Miller Park has reduced the pass fees for all hover recreation this year.

A list of all the Annual Pass Fees and Day Passes can be found and purchased at the Rangers station. Information on day pass fees and regulations can be found on our parks website All Park users are required to have tracking activated while using the park. If you are not microchipped you must have a USA certified tracking beacon on you at all times. USA certified tracking beacons are available for rent at the ranger station..

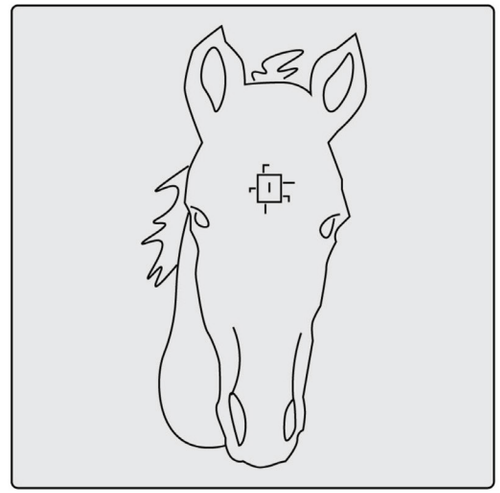
TRAIL HEAD SCANNING AND METERING



AUTO SPACING



SMART CHIPS



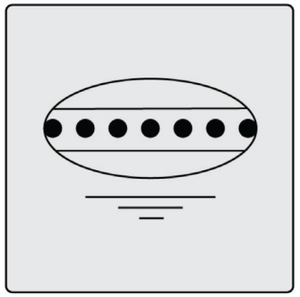
There will be scanning checkpoints at the entrance to all trail heads. The gates will automatically scan you when you pass through. We are implementing metering this year to reduce trail congestion. Gates will project a screen when closed. You will be fined IF you pass through the gate before it is open.

Users will be held for 30 seconds after the previous user has entered the trail before being allowed to proceed. Hover and ground hikers may travel in groups of up to 10 people. Hover and ground cyclists may travel in groups of 5 with a 10 second gap between them. Hover pods may travel in groups of 15 with auto spacing enabled.

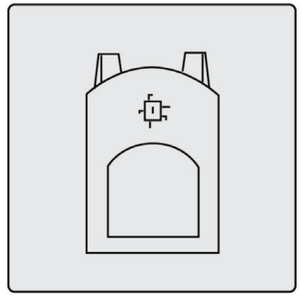
Equestrian riders and hover horses may ride in groups of 5. All horses both ground and hover must be equipped with smart chips to allow for Auto spacing and behavior control.

APPROVED ANTI-CRASH TECHNOLOGY

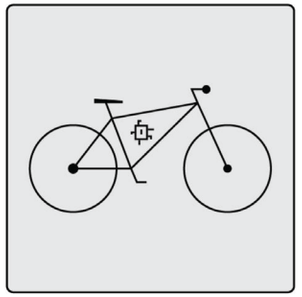
PERSONAL DRONE



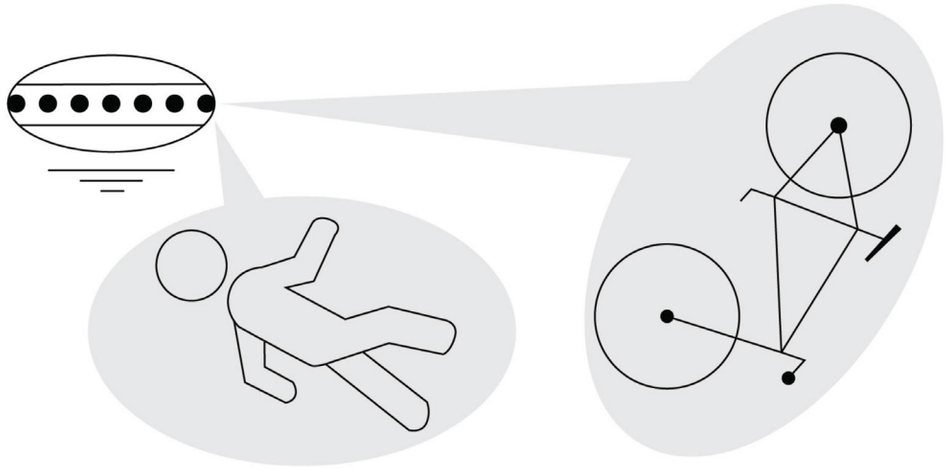
HOVER BUBBLE PACK



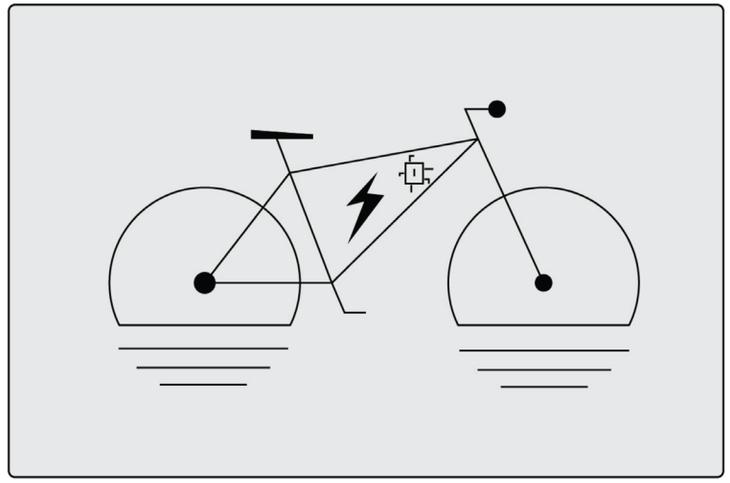
INTEGRATED GEAR



ANTI-CRASH TECHNOLOGY



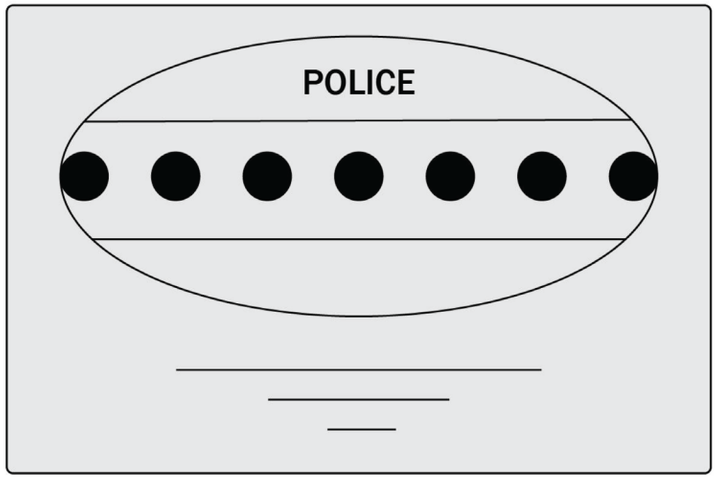
SPEED CONTROL



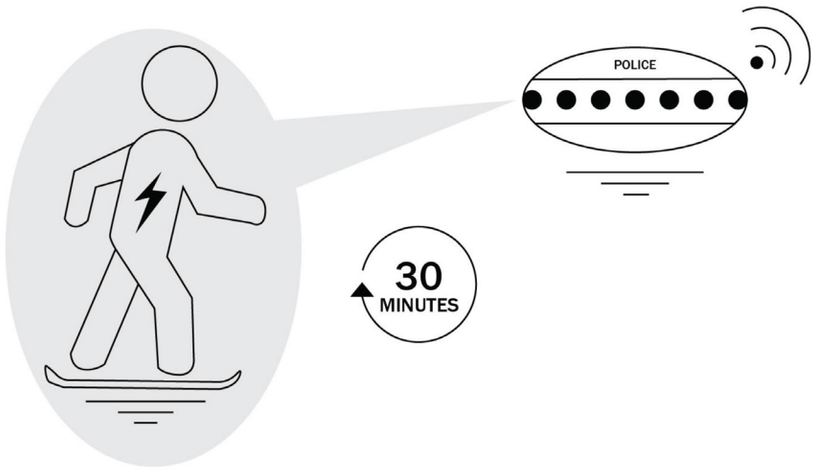
All users must be equipped with approved anti-crash technology. Approved anti-crash technology will include personal drones with tractor beam technology, hover buble smart packs, and any recreational tool with integrated hover bubble smart technology. Due to increased park usage and diversity of recreational activities, this new rule will not only protect the users, but also prevent damage to the environment.

All recreation gear must be equipped with speed control chips. With the combination of the speed control chip and anti-crash technology, we have been able to safely increase the max speed from 15mph to 20mph.

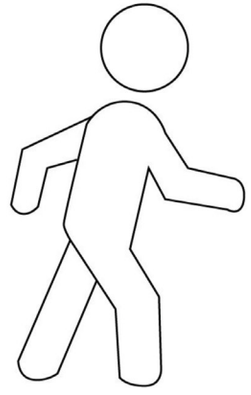
DRONE POLICE

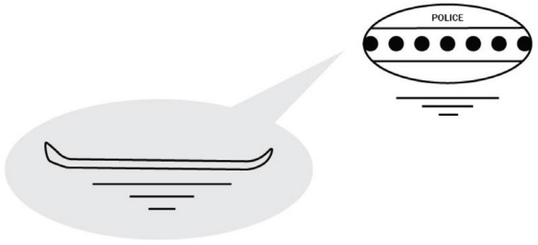


HUMANS VS AI



CONFISCATION





Drone police will monitor the park 24/7. Using a combination of data from tracking devices and local scan surveillance, the drone police have been effectively keeping our park safe for the past 10 years. Drone police are equipped with tractor beam technology. If found in violation of park rules, drone police will temporarily tractor suspend you.

In accordance with the 2045 supreme court ruling of Humans VS AI, drone police cannot transport you or any of your belongings without human authorization. Drones can hold you in suspension for up to 30 min while they connect to rangers for authorization. If drone police cannot get confirmation after 30min you will be released. There has been an emerging issue of black market jammers that have been interfering with drone police communication. If you are found with a jammer you will be banned from park use for life and will be sent to the police. Having a Jammer is a very serious offense and Joaquin Miller Park is working with local police to stop the circulation of jammers. This issue threatens not only park safety, but the safety of our larger community. We have an anonymous tip line and encourage you to reach out if you suspect someone has a jammer.

If after review by a ranger you are found guilty of a park offense, your recreation gear will be transported to the ranger station for impoundment. If you would like to be tractor towed with your gear to the ranger station you will have to pay an additional fee of $100. Your recreation gear will be released to you after paying the fee for your violation. After the 2048 case of a horse dying due to stress of tractor towing, no ground or hover horses will be tractor towed. Instead a ranger will be sent to your location to collect payment, or confiscate your pass. After this orientation you all must sign the park waiver which gives the full list of violations and fees. Signing this waiver gives your consent to have your gear confiscated if found in violation. For major offenses you will have the opportunity to forfeit your annual pass in exchange for your gear. Day pass users will not have this ability.

NATIONAL PARK VENDOR

We believed that the rise of XR technology and evolution in vehicle technology would drastically change the way we engage with nature and began exploring what this possible future could look like. Now in 2050, we have finally been accepted by the National Parks Services as an official vendor, offering Hoverpod and Recreational Owl Drone services in the parks.

Future Park Posters

This series of posters were created to celebrate Future Park's 30th anniversary and first year in the National Park system. The posters reference the traditional format of National Park Illustrated posters through a futuristic lens.

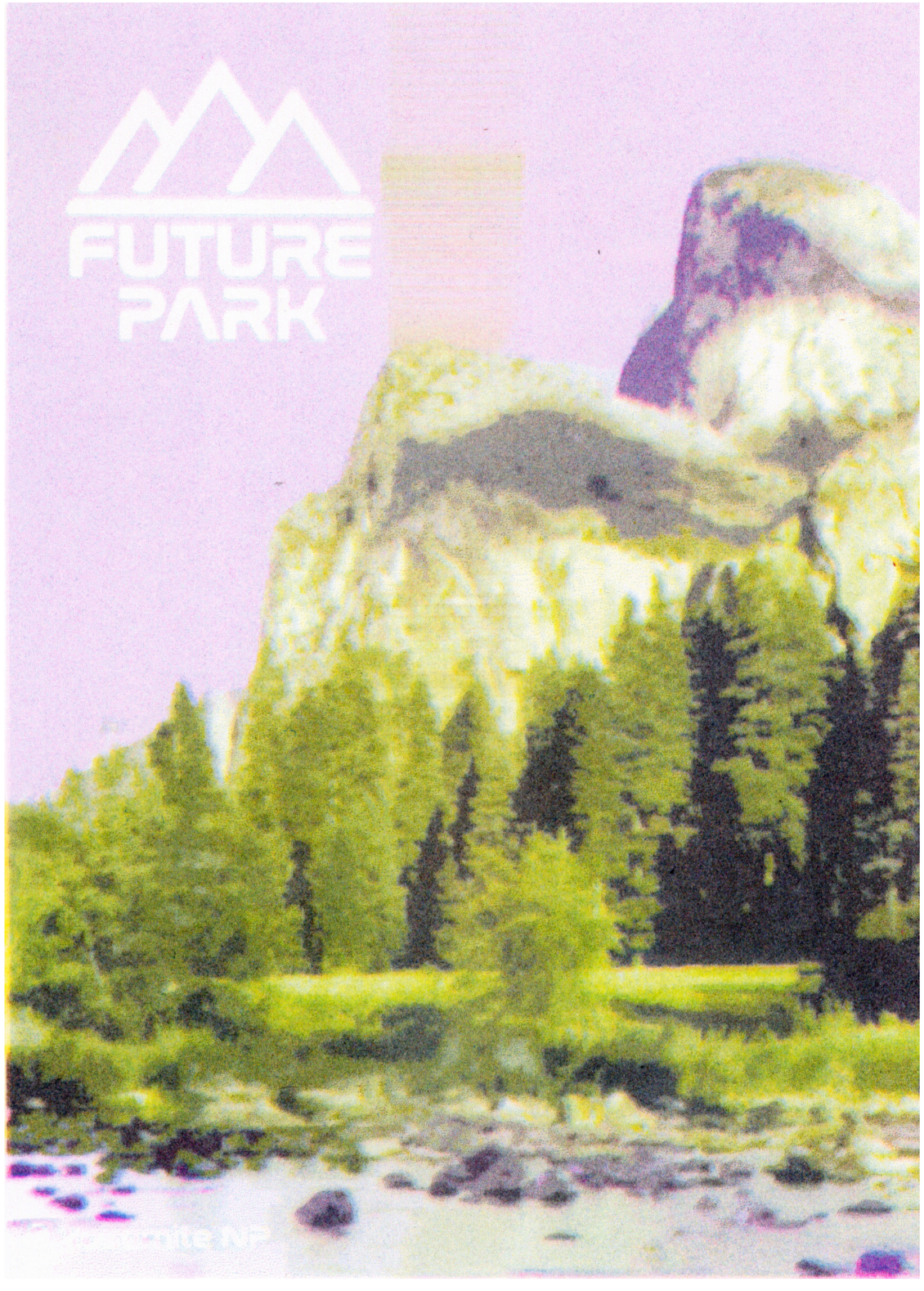
Future Park started out in 2020 with a mission to explore novel ways to engage with nature. We believed that the rise of XR technology and evolution in vehicle technology would drastically change the way we engage with nature and began exploring what this possible future could look like. Now in 2050, we have finally been accepted by the National Parks Services as an official vendor, offering Hoverpod and Recreational Owl Drone services in the parks.

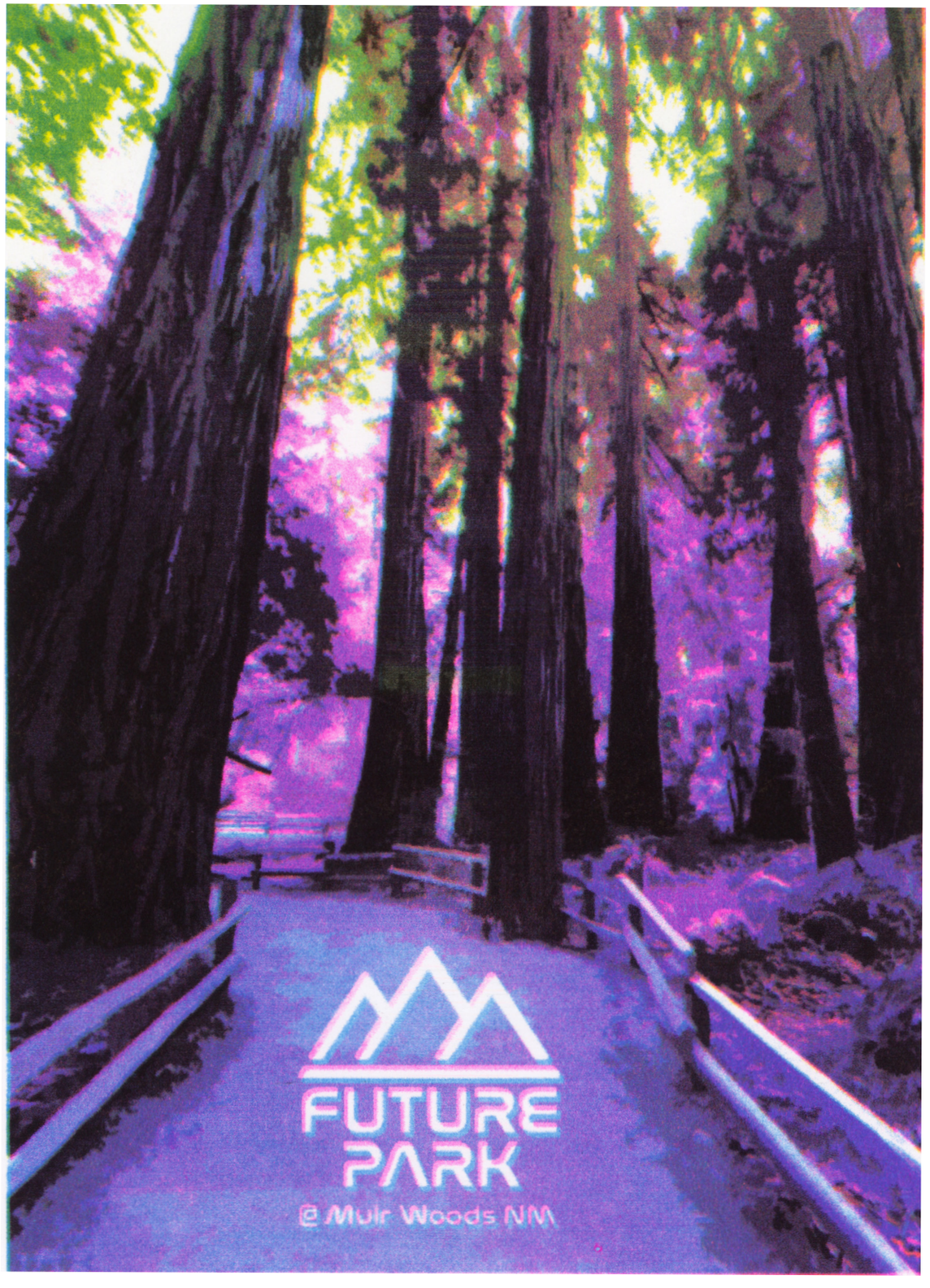
This series of posters were created to celebrate Future Park's 30th anniversary and first year in the National Park system. The posters reference the traditional format of National Park Illustrated posters through a futuristic lens. The risograph allows for a more analog interpretation of highly processed digital renderings.

Yosemite, Pinnacles and Muir Woods were the first three national parks to accept us as official venders We wanted to honor their faith in our ability to preserve the integrity of the National Parks mission to preserve and maintain the environment for future generations to experience nature at its finest. Our limited edition physical prints are available for sale only at the park's authorized gift shops. Digital NFT editions are available on our website.



Photographs were digitally processed before being printed using the Risograph.


FUTURE
PARK


FUTURE
PARK
@ Muir Woods NM


FUTURE
PARK
© Pinnacles NP



Altered Nature Asset Pack

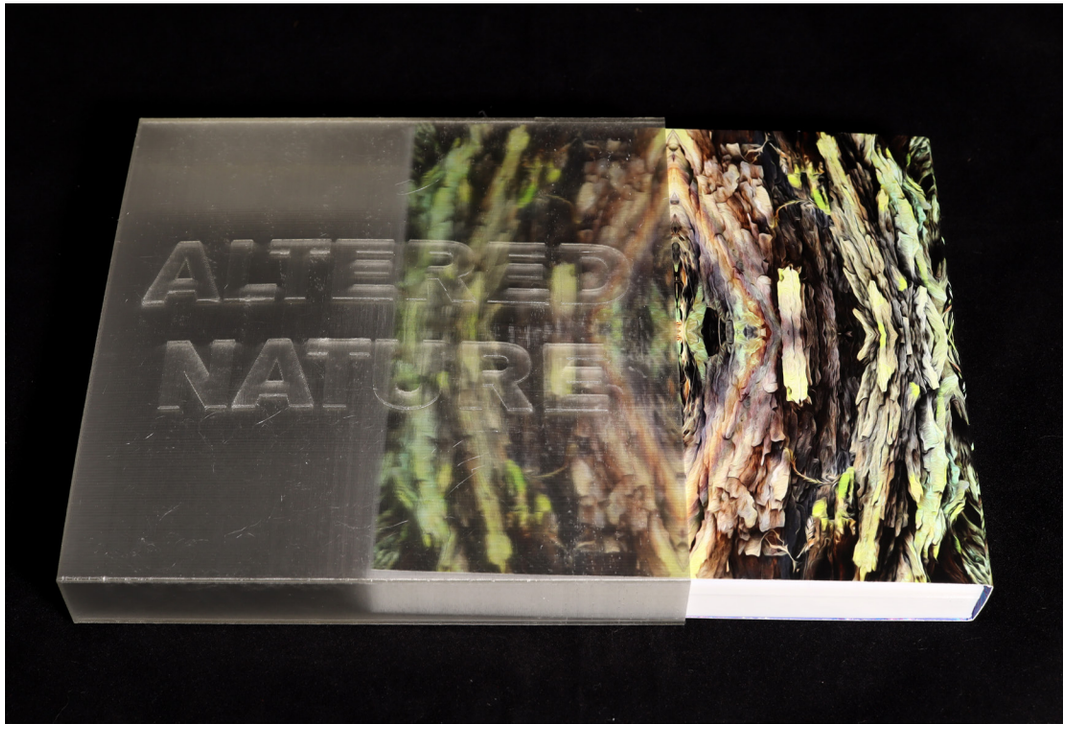
The Altered Nature Asset Pack comes with a full collection of 3D models, audio, and images that can be combined to create your own unique nature experience at home using a VR headset.

Altered Nature is a collection of digital assets that were used in the making of A Walk Through Time: The Redwood Experience. This was our first published VR experience and marked the beginning of our exploration in this territory.

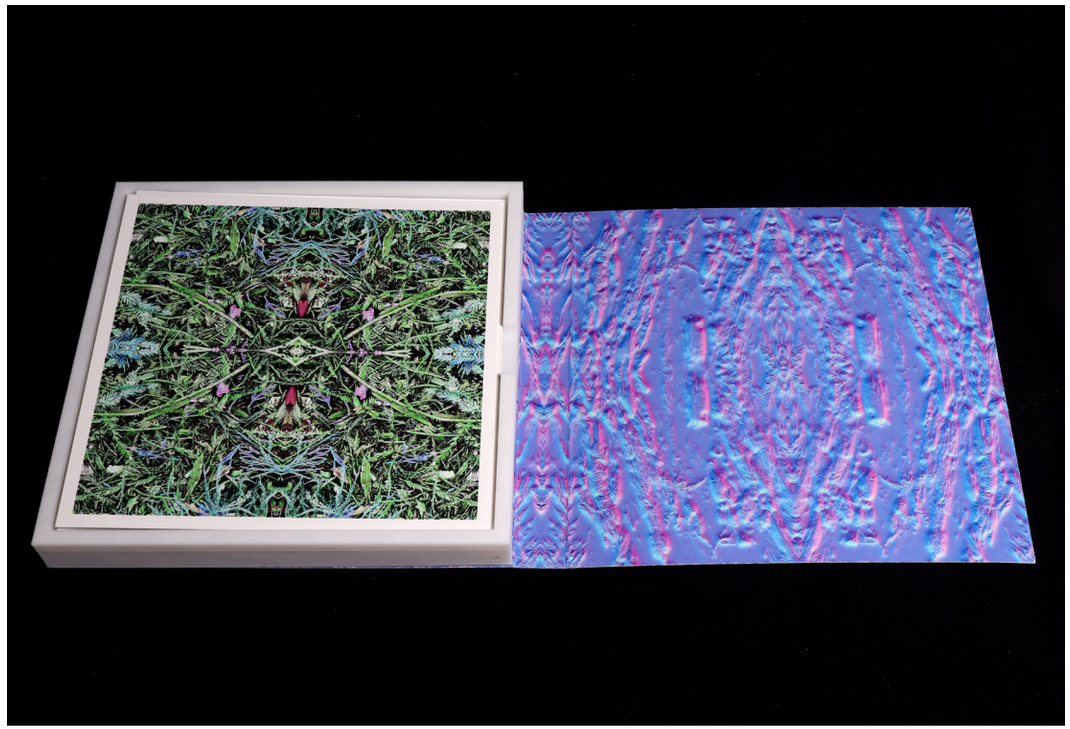
All source material was captured from Joaquin Miller Park in Oakland and Soquel Demonstration Forest in Los Gatos, California. The source materials included photographs, photospheres and photoscans. These original captures were then altered using Blender and Photoshop to create the final results. A Walk Through Time: The Redwood Experience is a virtual reality experience that reflects the passing of time in a redwood grove.

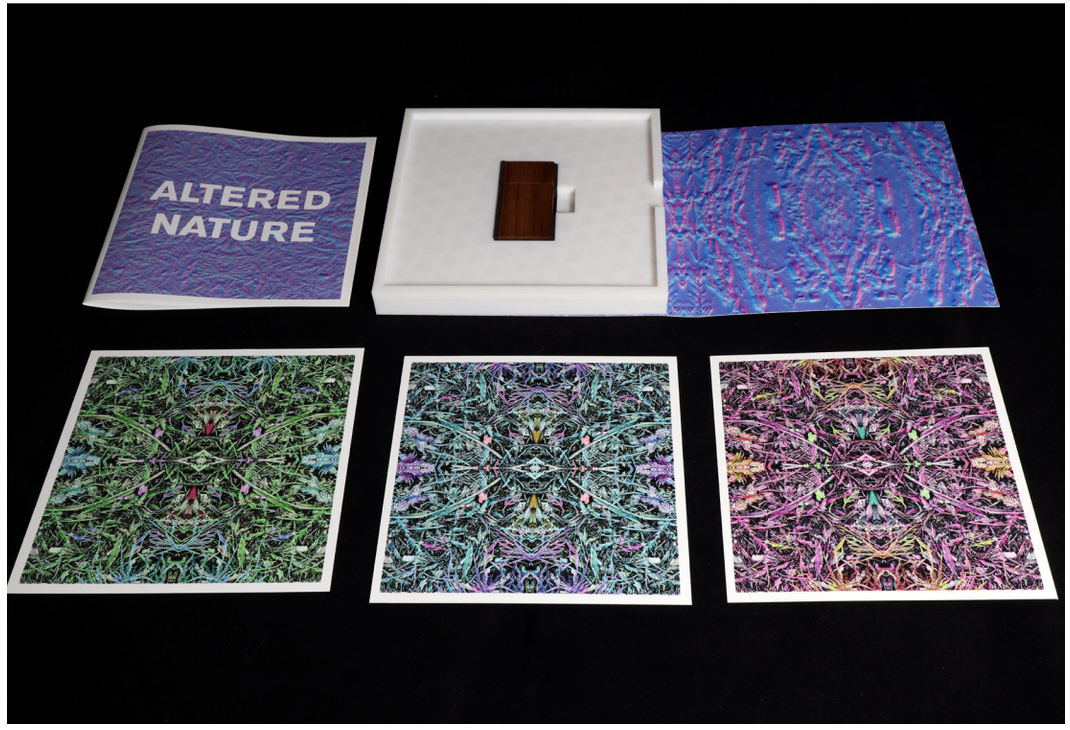
Our limited edition Altered Nature Asset Pack has been rereleased to celebrate our 30th anniversary. These asset packs include everything you need to create your own altered nature VR experience.



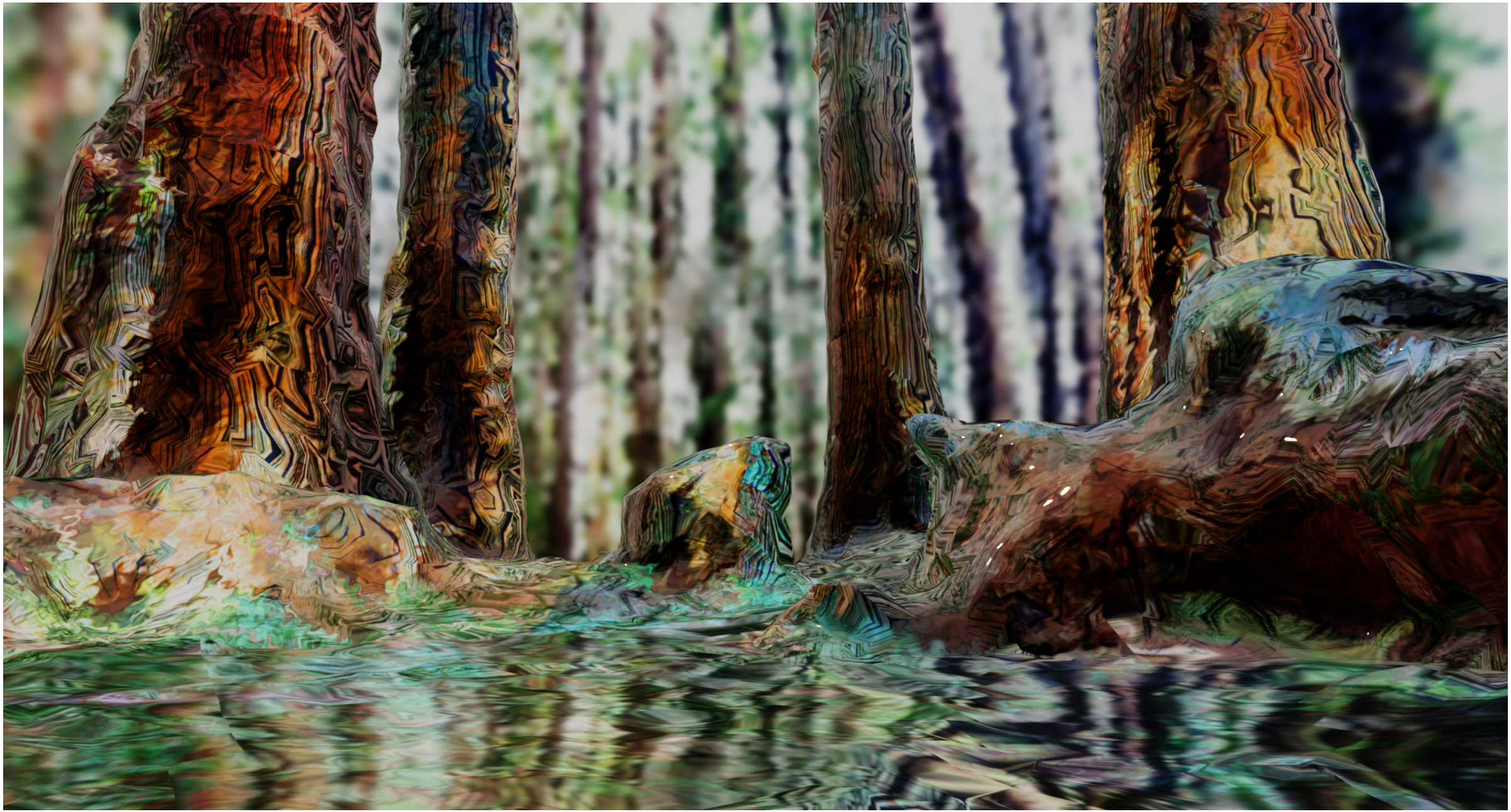


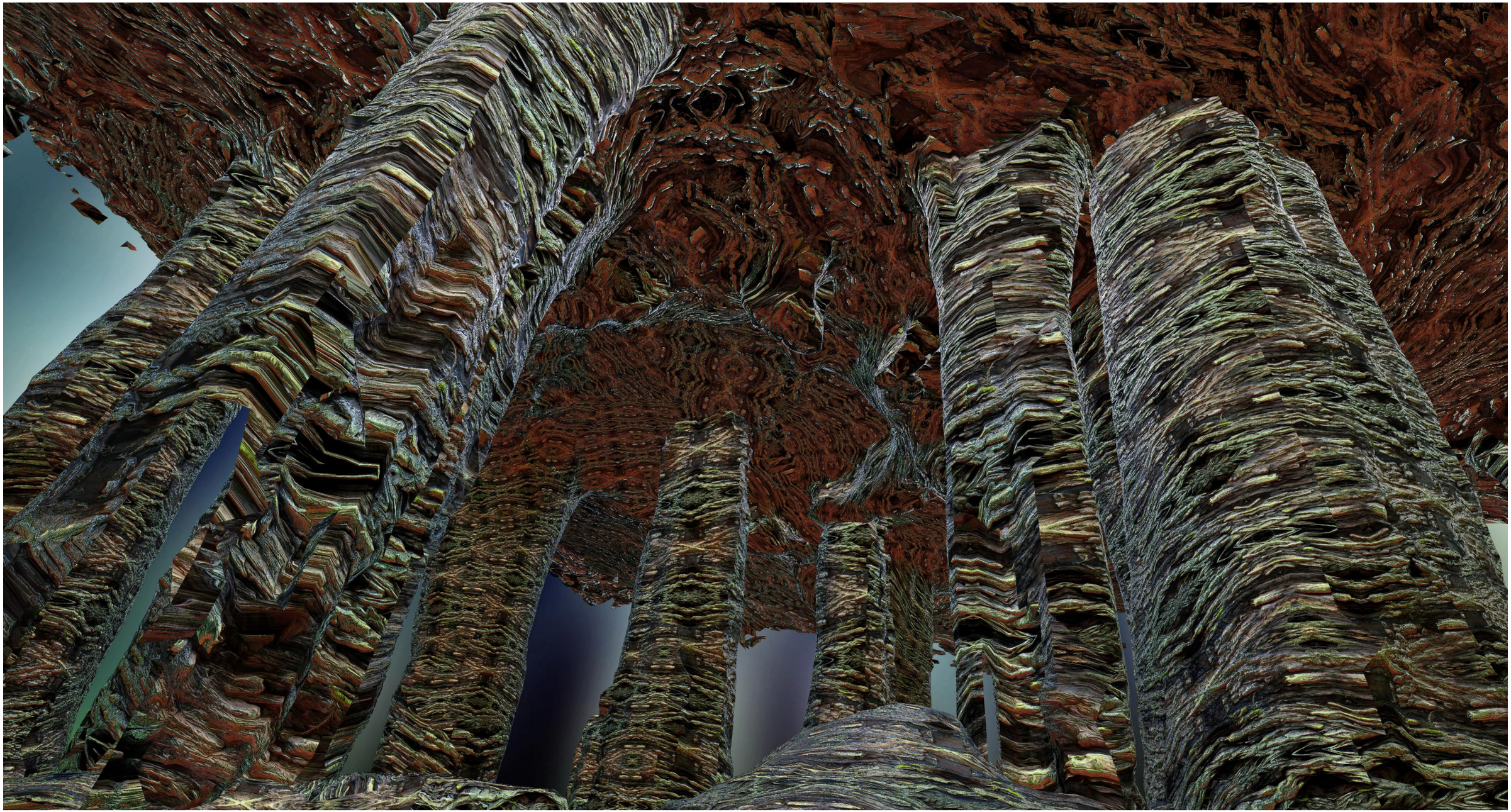
Future Park





National Park Vendor









SPECIAL THANKS TO

Scott Minneman
Mathew Kneebone
Hugo Eccles
Sarahleah Fordyce
Sara Dean
Jeremy Mende
Luca Antonucci
Eric Heiman


Enjoy The Park



THE FOUNDER

Leah Kallen Founded Future Park in 2020 with a mission to explore novel ways to engage with nature. She believed that the rise of XR technology and evolution in vehicle technology would drastically change the way we engage with nature and began exploring what this possible future could look like.

FUTURE
PARK