A journalist's handbook to the metaverse

The promises, pitfalls and opportunities of telling powerful immersive journalism

***NOTES - this will be designed up with images, screenshots and QR codes in Canva to make it feel more like a handbook.**
***Two other potential subheadings would be NZ's experience in these types of stories and how the tertiary education sector might factor in this work into a curriculum**

Contents

Introduction

It was 2019 when I first pitched for the Robert Bell travelling scholarship. My proposal was to explore how immersive storytelling could be better leveraged by newsrooms to help create the generation of journalism with the next generation of technology. The plan was to execute this during 2020. Due to the coronavirus pandemic, that plan changed. And the technological landscape changed. During the coming years, AI would start to become an integral part of content creation. Platforms started making it easier to build immersive content. Tech companies, while ebbing and flowing with their enthusiasm, increasingly invested in hardware like virtual and mixed reality headsets that they saw as ushering in the next way to experience digital stories.

Two years later, I eventually travelled to Los Angeles to undertake the research. The promises that I forecasted in my original proposal had become clearer. The technology had become more accessible. Companies were investing in the idea that the next generation of computing would be ‘spatial’ rather than simply 2D. That is, we would experience the internet in 3D where people could communicate with one another across oceans as if they were really in the room. Those experiences would bring people together in a digital realm that was getting closer to the idea of being really there.

So the premise of the original proposal held up. But the more I thought about how this report might be useful, the more I thought that a straight academic project would not fit the bill. So this has become more of a guide - a handbook with case studies to the types of technology that now exists, what is promised around the corner, and how it might be easily deployed into newsrooms or journalism school curriculums without an incredible amount of heavy lifting.

For this project, I have been true to my background of liking to embed myself in stories before telling them. For the last year I have immersed myself in immersive storytelling - helping produce projects, create software, learn from veterans, teach the next generation of learners, travel to festivals to learn and meet those at the forefront of this sort of work and about the technology that will facilitate it. So this report is a synthesis of all of that work. While it doesn’t posture definite recommendations, within it are suggestions of what is coming and how journalists and newsroom leaders might better prepare themselves for that. After all, most of a certain age will remember when having journalists shoot video that could then be directly into their stories was thought of as fad. You only have to look at the billions that have been poured into immersive content creation to see that Silicon Valley, Hollywood and storytellers of all stripes are not seeing the spatial future as a passive trend. While it might be some time before this kind of storytelling is ubiquitous, it will come and journalists should be prepared.

Why immersive storytelling?

When I was in journalism school, the thought was - if we teach TV, radio and print, the fusion of all that is ‘digital’. Right? The buzzword was ‘convergence’ and that was enough to prepare reporters for an unknown digital future.

I began my career in 2008 when news companies had different staff for online and print, when satellite papers would hide stories from their parent's growing national online presence so their front page could be a little more exciting for its few thousand subscribers, who would then receive their paper in the … afternoon.

Times quickly changed. From online articles featuring some photos interspersed with text, I started seeing what the internet could do for elevating storytelling. I saw photographers learning how to take video, I saw print designers learning how to code. I saw John Branch's Snowfall blending dynamic design, 3D mapping and data animation, and I was hooked. There was something about trying to place a reader in the middle of a story that felt right. Stories as experiences was not a new concept but the internet had the ability to create that in new, exciting and achievable ways.

So, I started trying to create my own versions of these projects within my own company - then Fairfax New Zealand. I was a lowly intermediate reporter but I started reaching out to people within the company who were dotted across the country and whom I admired. A photographer/videographer, and a designer/developer. I put together a little team within a news organisation that started creating the sort of rich experiences that I hoped would blow audiences away.

The first of these efforts still exists online. It was about the search for a missing plane that, if found, would rewrite the country's aviation history. I went all in, hiring an ex-Washington Post editor to help. It featured elements that as of then could not be found in online journalism in Aotearoa. I still love it, but … we have come a long way.

From there I started my own digital studio with an old friend who had forged his own career as a designer and developer. We wanted to create these sorts of experiences for media companies and brands and corporations all looking to place their audience in a rich storytelling experience. We still pride ourselves on building projects that are at the forefront of technology and storytelling.

But that forefront is moving exponentially fast. It's hard to keep up. From using game engines, LED volume stages, volumetric capture, mixed reality, AI, there are now myriad ways, with myriad jargon to tell stories that would have made this junior reporter from 2008's eyes bleed.

The idea of this report is to make sense of this emerging landscape for newcomers, for the general reader and most importantly, for the journalist. There are plenty of resources out there for people who know all about these technologies and have in-depth knowledge and skills I likely will never have. But to understand what is coming and how it might be used will be of increasing importance to anyone who wants to start telling stories in new ways with emerging technologies.

What do we mean by ‘immersive’

“Immersive” has become a word that captures all manner of fields in this space. In 2023, it points to the collision of advancing technology and experiences, whether in person or through a device. It points to the idea that digital experiences currently accessed via traditional means like a website, a streaming or social media platform, or app (think Netflix, Facebook and your online news outlet) will increasingly become ones where a user can be placed within that experience.

There, they might be to able to see their favourite artist in concert without actually going to a concert, they might be able to touch an object without it really being there.They might be able to translocate that digital experience via a device into their own home so they can look around it on their kitchen table. They might be able to meet their friend who lives across the ocean for a coffee - each in their own location, but seeing each other almost as if they were really there. ‘Might’ is a loaded term here. These things are already happening and have been happening for years. But these experiences will become better and wider reaching, along with the expectations of a younger demographic that is unbound from the notion of how far things have come and how fast things are moving. This demographic is increasingly and unflinchingly adopting these means of interaction and entertainment as staple. So it’s worth taking notice.

Effectively, I see the word ‘immersive’ as touching on the vast trajectory of the next wave of communication. In the same way that the newspaper, then the telephone, then the internet, then social media all ushered in huge changes in the way that humans communicate, the immersive revolution is next.

Why?

For better or worse, we know that people like to gather. Once upon a time, that was forged by the need for safety in numbers - mainly by building communities around shared interests and values. A family, a club, a religion, or a local bathhouse all serve these purposes. Now, that gathering can be much easier to organise in digital social spaces like Facebook, Twitter, TikTok. In those spaces people like to communicate and share their feelings, thoughts and beliefs. The scale that these platforms provide can create vast energy from both individuals and groups. As we know, that energy can be immensely positive, or the polar opposite.

Since the first 3D game emerged in the 1980s, we also know that people enjoy entertainment in immersive spaces. The growth of Fortnite, Roblox and Minecraft all reveal the human urge to explore, compete and play in canvases that can be moved through, built upon, redesigned and discovered.

The continued development of these respective fields seems inevitable. And that development will lead to an eventual collision of these trends where a large part of digital social interaction is taking place in shared immersive spaces. Within that context, all industries will need to adapt the way they reach new audiences and customers. Entertainment, healthcare, workplace

training, conferencing, retail - all these industries are already creating work utilising this type of technology.

The trajectory is nothing new. But the impact on the larger global population is not yet realised. What is missing is the wider uptake - both of technology to facilitate these experiences and then understanding of how these experiences work.

We all had a friend who got a thing called a Facebook account in 2005 with most not knowing what it was. Twenty years later, the impact of that (for better or worse) cannot be denied. I believe that we are at a similar intersection - but where the advancements will be much quicker. In 1876, Alexander Graham Bell patented a telephone. It took 100 years for the first cellular phone call to be made, 20 more years in the 1990s for the first commercial calls over the internet to be made. Thirty years later, almost a quarter of the global population use WhatsApp as a daily communication tool.

The advancement of the immersive revolution has had stumbles. Companies that have been incredibly bullish and pioneers in this space have had missteps. In 2023, Meta (owner of Facebook) laid off 11,000 people in the wake of tumbling stock prices after investing billions into the development of its vision of the immersive future. Snap, laid off more than 6000 employees, and the ground is littered with startups which have failed to align their product with the timing of the boom in consumer uptake. But that is coming.

The largest companies in the world are pushing the boundaries in spite of these warnings. Apple has launched its VisionPro headset this year which allows Imax-esque visuals to be achieved in your own living room. Its latest iPhone is able to shoot 3D video that can then be played back within the headset to create a sort of fidelity and closeness that has never been achieved before. A journalist recently called Apple's recent work in this space as a move to build itself into a 'memory company' - where life moments could be accessed and achieved in 8k resolution. The potential implications of this mission would be hard to miss for a journalist dedicated to capturing history as it happens.

This is how all advancement always occurs. That advancement can be overwhelming to understand and will throw up all kinds of ethical issues as to how we want to interact in this world and what dangers may occur.

What is clear is that when a large base of consumers understands what can be created when you think spatially, the path will widen to the creation of some incredibly valuable immersive experiences. And that is what this report is about - how it might be applied to the practise of journalism.

Acknowledgements

I want to thank the University of Canterbury journalism programme for funding this research and making the travel possible.I would also like to acknowledge the Robert Bell board's patience in receiving this finally after several years due to delays in travel.

My work in the US has been primarily based in Los Angeles. I have been embraced by the immersive community there - which is still rather small so my thanks goes primarily to Nonny de la Peña for bringing me on board at Emblematic Group and helping developing Arizona State University's new Narrative and Emerging Media program in Downtown Los Angeles. From there I have had the opportunity to work on projects as well as helping support award-winning work at SXSW in Austin Texas, in New York at Games for Change and finally the Venice Film Festival in Italy.

In all those places people have been gracious with their knowledge and helped me understand the landscape for how all of this technology might increasingly affect journalism. Some of them started talking to me in 2019 when the world didn't know what was coming. The uncertainty about the future of this work, though, I believe is generally cause for enthusiasm.

Background immersive journalism

Nonny de la Peña channels famed war correspondent Martha Gelhorn when she explains the idea of 'immersive journalism'. Gelhorn called her collected writings 'The View from the Ground'. That is, the best journalism was about placing the reader or the audience in the action so they could experience it as close to the real thing as possible.

"What if I could present you a story that you would remember with your entire body and not just with your mind?," De la Peña says.

For her whole career as a journalist, she has been compelled to try to make stories that can make a difference and maybe inspire people to care. She has worked in print, documentary and broadcast.

"But it really wasn't until I got involved with virtual reality that I started seeing these really intense, authentic reactions from people that really blew my mind."

One of De la Peña's first forays into this world was a project called "Hunger in LA"

The premise was that Americans are going hungry, food banks are overwhelmed, and they're often running out of food.

“Now, I knew I couldn't make people feel hungry, but maybe I could figure out a way to get them to feel something physical.”

A producer went out to a foodbank line and recorded the desperation of those waiting to be fed. They took photos and audio of the scene and then, while documenting, a man had a diabetic seizure in the middle of the line.

They reproduced the scene with virtual humans and put the experience into a virtual reality headset. The piece ended up being the first virtual reality work to premiere at the Sundance Film Festival in 2012.

The reaction was singular. Over and over audiences who experienced Hunger in LA would act as if they were there on the scene. Some bent down to the ground trying to comfort the man, others experienced deep emotional reactions.

“I had a lot of people come out of that piece saying, ‘Oh my God, I was so frustrated. I couldn't help the guy,’ and take that back into their lives.”

Immersive Journalism was born. But this was in a time when virtual reality headsets hardly existed. De la Peña had to build her own - with the eventual founder of Oculus, Palmer Lucky, who later sold his company to Facebook for USD$1 billion.

Comments on her projects have circulated around a familiar theme: "It's so real," "Absolutely believable," or, of course, the one that I was excited about, "A real feeling as if you were in the middle of something that you normally see on the TV news."

“Now, don't get me wrong -- I'm not saying that when you're in a piece you forget that you're here,” De la Peña says. “But it turns out we can feel like we're in two places at once. We can have what I call this ‘duality of presence’, and I think that's what allows me to tap into these feelings of empathy.

“So that means, of course, that I have to be very cautious about creating these pieces. I have to really follow best journalistic practices and make sure that these powerful stories are built with integrity. If we don't capture the material ourselves, we have to be extremely exacting about figuring out the provenance and where did this stuff come from and is it authentic?”

I have been working at De La Peña’s company, Emblematic Group, for the past year and helping set up a new programme at Arizona State University’s Masters in Narrative and Emerging Media. We have worked on everything from an augmented reality documentary on the 1906 Atlanta Race Riots to a Virtual Reality experience based on a retelling of the most famous home run in Los Angeles baseball history in 1988. Here, the medium allows the user to be inside the story, experiencing history as only immersive technology might allow.

A glossary of immersive terms

I thought it might be helpful to lay out a glossary of sorts to give readers who are less familiar with this space a bit of an introduction to what life on the technological horizon is increasingly looking like.

Metaverse

Metaverse is a word first postulated by a sci-fi novel called 'Snowcrash', where rich people escaped the drudgery of their everyday lives in a new, exciting digital realm. Mark Zuckerberg is a fan and a true believer in its concept. So, in succession, brands and consultants started hiring Metaverse officers. Facebook even changed its name to 'Meta' in October 2021, in preparation for this impending reality.

But here is the thing. The thing is not a thing. There is no such thing as a Metaverse … yet. What that thing is in theory is a digital world - where we can strap on headsets (or not) and live our lives in all facets in interconnected virtual spaces where the same issues that plague humanity may or may not exist.

Fashion will and does exist in the Metaverse. Exorbitant property prices look like it will exist. Snoop Dog might even live next door. The below is a music video he shot depicting his virtual home in a virtual space called Sandbox. This guy paid US$450,000 for the privilege to be his virtual neighbour. Sooooo …

So, yea, egos will also definitely exist. But it will bring on an impressive way to communicate across distances and have experiences that cannot be had easily in real life.

It is science fiction, made fact, and elements of it already exist and have existed for some time. When spaces like Sandbox are connected to others and moving between them becomes seamless, that is when a vision of a true 'Metaverse' might be a reality. No doubt it will come with the same opportunities and troubles that currently exist with the current version of the internet. Think of it as an immersive internet where you can live in a browser and explore everything the internet has to offer, in the round … both good and bad.

NeRF

It's not a foam bullet gun. A NeRF or ;Neural Radiance Field' is a way to render fully realised 3D scenes from 2D imagery. The technology uses algorithms to effectively fill in the gaps between 2D images. It means that you can create a 3D scene that you can move through or fly a camera shot through.

What started as people experimenting capturing fire hydrants has now morphed over the space of a couple of months into McDonald's using them for an TV advertisement. The tech is set to disrupt the film, TV and immersive entertainment industry by making it incredibly easy to create 3D scenes with not much more than your smartphone camera. I will do a more in depth newsletter about this in the future.

AR

AR or 'Augmented Reality' is a term to describe overlaying something digital into the physical realm. As described above, Pokémon GO might be the most widely used version of this.

Here, you are using a device like your phone, a tablet or a headset of some sort where you can see the physical world through the viewfinder but digital objects can then be placed within that viewfinder. Beyond games, big tech is banking on AR more now than VR as a way to generate revenue. The technologies are already being used for things like workplace training. But work is already underway to allow phone users to point their device at a shop or a food product and have information pop up about what might be inside. Or you could be shopping for an outfit on your phone and then have a digital model walk out to show it off for you.

Then there are the big business applications. The US military recently awarded a potential 10-year $20 billion contract to Microsoft's headset, the 'HoloLens', to roll out its product to army personnel. These were described as "high tech combat goggles" … which sounds … interesting. However, that Magic Leap, which was also pursuing that contract, is selling its wares to healthcare companies that might see doctors using AR to perform simple or complex surgeries.

WebAR is a way to deploy the above experiences but using an internet browser, meaning the users does not need to download an app for have any sort of device other than a smartphone.

VR

Before he was James Bond or the poncy wannabe step dad in Mrs Doubtfire, Pierce Brosnan was a mad scientist who wanted to give greater intelligence to an intellectually disabled gardener by transporting him into a virtual realm. Directed by Brett Leonard in 1992, The Lawnmower Man was a dystopian vision about the promises and dangers of virtual reality. Not long ago I met Brett at a dinner and he is still working in the field of film and VR. It seems the potential horrors didn't outweigh the potential benefits.

With VR, a person puts on a headset and is totally immersed in a digital space or an experience. They generally cannot see the physical space around them. The idea is that a user can be entirely transported into another realm. It could be calming meditation, or a terrifying horror experience, or a multi-person game where everyone is running around in the same digital space trying to shoot each other.

Or they could just be working from home. But how this ties into the Metaverse from above is the creation of VR spaces where you can communicate with others who also login to the same space. Perhaps you want a weekly catchup with your school buddies who now live across oceans. Or fully beam your grandma into your daughter's first birthday, rather than just a 2D video. Versions of this are already possible and the boundaries are continuously being pushed.

XR

XR or 'extended reality' is a catchall term for all the other Rs - VR (Virtual Reality), AR (Augmented Reality), MR (Mixed Reality). It is the umbrella term for experiences that generally require a device of some sort to access.

3D engines

Whether you have played a video game, or watched a movie recently there are chances that part of it, or all of it, was created using a 3D engine. These are basically editing softwares that allows creators to build scenes and animate them in 3D - all in realtime. You generally don't have to wait to see the result of your work render out. You can give certain objects triggers or rules and then link them all together, which how video games are built - even ones that are 2D. There are two main players in this space - Unreal, which is owned by Epic (which in turn owns the mega game Fortnite) and Unity (which recently purchased Weta Digital for US$1.6b. Filmmakers, creators, architecture firms, NASA, have been using this type of software for years but the technology is getting better and better. Things are getting faster, and uses are becoming vaster. Both the above companies have also made a real play at making the use of Metahumans a thing. These are 3D characters that look ridiculously realistic which can then be manipulated and animated in the engine to form part of any digital project you can imagine.

Haptics

Once upon a time it was the buzz you felt via your controller when you got sniped while playing GoldenEye on Nintendo 64 (as long as it had a RumblePak installed).
These days it's slightly more sophisticated. Haptics the field of fooling the body into thinking something is there when it really isn't. Perhaps you want your game players to feel like they are really holding a door knob as they enter a room, or feel rain on their hands. Or feel pain.
Here haptic devices shorten the gap between feeling something in the physical realm and in the digital realm. Not too long ago I was shown a device from a Japanese startup called Miraisens which has developed a way for its technology to convey complex touch feeling. It could manipulate vibrations in such a way that you could feel pressure, the feeling of roughness if you run your hands over digital sandpaper, the feeling of your hand being pulled or pushed if you see a correlating image on a screen.
Unsurprisingly, this is a huge element of immersion but also has incredible applications for people living with disabilities. If you are deaf blind, for example, the ability to communicate to someone through Haptics open up lines of communication that did not previously exist.

Headsets

These are one of the mechanisms to access immersive experiences. Virtual reality headsets are being built by everyone from Meta (formerly Facebook) which bought out a company called Oculus in 2014 for $2 billion to ByteDance which owns TikTok.
As mentioned above, the boundaries of AR headsets are increasingly being pushed. Far from this notorious AR glasses takedown from 2013, the technology has come a long way and will likely become a more ubiquitous use for immersive experiences. Because it's hard to make strapping a cumbersome VR headset to your face cool, but AR headsets could be ok … maybe.

Virtual production

If you have watched The Mandalorian, Dune, Loki and … well pretty much most modern day shows or movies they may have had some element of virtual production. This is where software like Unreal is used to create the scenes needed for a shoot but then a cinematographer can

physically move around that digital space with a virtual camera. You can see that play out in the below video of the ‘live action’ Lion King movie.

The other main element to virtual production is the increasing use of giant LED screens to replace green screen, set building or shooting on location.

Scenes can be put on to these giant screens, known as ‘volume stages,’ behind actors who are performing as if they are on a far away planet. Unlike green screen, those actors don’t need to pretend quite as much, as they can actually see the scene on the LED screen. And unlike green screen, all the effects don’t need to be put in after shooting - they are already there live in the shot.
This gives incredible flexibility to filmmakers who now can have a golden hour sunset for the entire day, rather than a couple of minutes. They can also manipulate the background in real time if something doesn’t look right. Put another boulder there, take out that tree, or change it out entirely for another set.
While the screens cost a fortune and Amazon has just invested in the biggest one out at 80ft! The idea is that, despite the huge cost of such a screen, the efficiencies created will offset the cost of flying an entire cast and crew out to say … New Zealand to shoot a whole film.

Volumetric capture

If you are going to try and have an immersive experience - whether that’s in Augmented or Virtual Reality - then you are going to generally want to walk around. And if you are going to want to walk around you are going to want to have characters or objects in the space that aren’t just flat 2D images.
But how do you do that? How do you film a human in 3D? Enter volumetric capture.
This is a stage which features dozens of cameras all firing simultaneously, all capturing the object in the middle at the same time. Through a very complex process those captures are all stitched together to form a 3D moving image.
That moving image can then be used for any number of uses - from immersive concerts, VR trainings, or taking a selfie with a fully-realised knife-wielding horror character. Anywhere you need a real person in 3D.

How these technologies are being used in journalism

CASE STUDIES

I have already touched on one of the first teases at the future of immersion in journalism - Snowfall showed how graphics and design could pull a user into a story in ways that traditional text, photography or video could do. But since then the NYTimes has been at the forefront of large-scale experimentation in this realm.

Reopening Classrooms

They were instrumental in showcasing the use of 360 video for stories that required an audience member to be placed in the centre of the action. The first 360 video documentary by The New York Times explored the global refugee crisis through the stories of three children.
In November 2015, it launched The Displaced and its virtual reality application “NYT VR,” distributed one million disposable Google cardboard VR headsets to its subscribers. Since then, it has continued to experiment in this realm, forming an R and D department to explore the boundaries of what it now calls “Spatial Journalism”.

“We live in a 3D world, but most of our interactions with the digital world are still in 2D,” its precis reads. “Recent advancements in AR and VR hint at a shift toward interacting with digital information in 3D as much as we do in 2D. We’re interested in how the shift to spatial computing may impact journalism.”

Its moves in this space are predicated on the notion that storytelling is “not going to be on a sliver of glass forever”.

Their team features designers, developers and strategists all dedicated to looking at how the TImes’ reporting can be elevated by implementing immersive technologies.

Matthew Irvine Brown, a designer based in Los Angeles, has been helping the Times develop some of the projects that are now lauded for their innovation and impact.

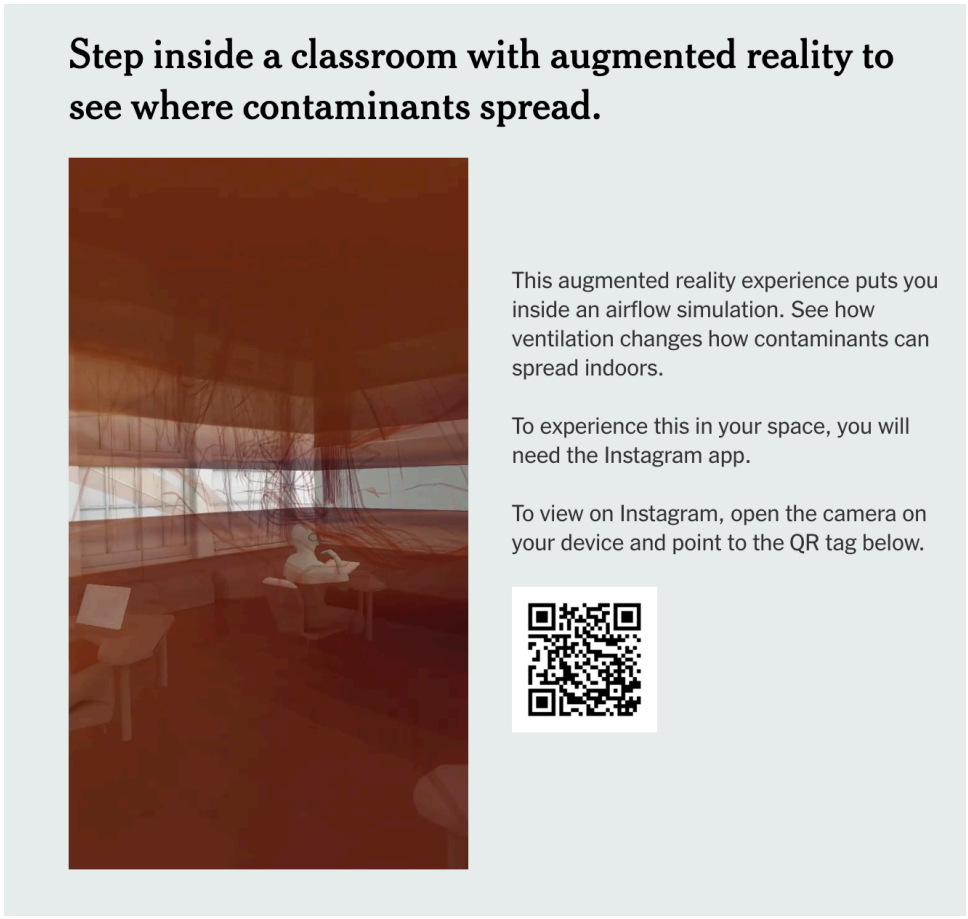
Part of this was helping how the NYT might adapt if spatial computing platforms become mainstream in the future.

He came up with several applications that are worth considering, and ones the Times has deployed in various ways.

“Probably the main way we get our daily news is during the breakfast morning routine, whether it be in print, an app or a podcast. If we were to sit at a kitchen table and use a spatial interface, what types of information and interaction design might be possible?”

While some stories work well as 1:1 fully immersible virtual reality experiences, what happens if the story requires more space than you have in your living room? Brown came up with the idea of a responsive layout that could adapt to space - whether it be a room or an outdoor space.

An example of this, which was a Peadbody finalist this year was “Reopening Classrooms” which exists both as an online ‘scrolly tell’ experience and an AR instagram filter.



This immersive AR explainer places the user inside an airflow simulation data visualisation, giving a unique first person perspective into how contaminants spread. It was a story that spread across print, digital and then into mobile phones via the NYTimes Instagram channel.

It was part of a collaboration with Facebook, which owns Instagram. In doing so, The Times started an Instagram-driven augmented reality initiative meant to create more personal and interactive experiences for users.

Through the use of augmented reality, or AR, which lays a computer-generated image or animation over a user's view of the real world, Times was able to create an immersive experience intended to produce a deeper level of understanding.

The project uses Spark AR, a developer platform owned by Facebook, which gives creators access to a suite of tools and software needed to create augmented reality filters and camera effects and then distribute them on Instagram and Facebook. The social media conglomerate is not involved in any storytelling or editorial decisions.

"We're reaching a newer audience who is more familiar with this storytelling medium," said Karthik Patanjali, graphics editor for special projects. Patanjali began experimenting with AR

and Times journalism four years ago. “We knew this medium had a lot of potential, but nobody had used it for journalistic storytelling,” he said. “It was all dancing hot dogs.”

According to Dan Sanchez, an editor for emerging platforms at The Times, the team hopes to use AR to create an immersive hook into the journalism The Times already produces online and make use of Instagram’s “swipe up” feature, linking long-form pieces, to reach people who might not already have a direct connection to the newspaper.

“The whole point of this project is to really dig into how we can connect the physical world to layers of visual information,” Sanchez said. “If you’re an Instagram user, you can actually see those layers of information over top of the physical world, and you can actually manipulate them and remix them, and experience them on your own.”

“If we can take a piece of evidence and put it right in front of you so that you can see it, sense it and know its scale, I think that’s pretty huge,” said Noah Pisner, a 3D immersive editor. “There’s a lot of ways we can use it to just improve the work that journalists are already doing. We want it to be something that’s additive.”

According to those on the team, augmented reality’s current role in journalism is meant to be supplemental the same way a video, a photo or a graphic might be. While it’s meant to enhance the narrative experience at the moment, some editors believe this shift toward AR indicates not only a shift in journalism, but a shift in how we obtain and view information as a whole, Patanjali said.

“You won’t be consuming information like this forever,” he said. “It’s not going to be on a sliver of glass forever. It’s going to be around you. These are all steps toward that future we’re preparing ourselves for. The world is 3-D. Why shouldn’t the information we present also be?”

The Uncensored Library

A different sort of immersive journalism project leverages off an existing platform to tell a story about censorship.

Non-profit organisation Reporters Without Borders built a virtual library in the video game Minecraft to give gamers access to censored books and articles.
Named The Uncensored Library, the virtual library houses articles banned in countries including Egypt, Mexico and Russia.
"The target was to reach gamers aged between 15 and 30 years old, especially in countries with online censorship, to get them engaged with independent journalism," senior art director at DDB Germany Sandro Heierli says
The team chose to locate the virtual library inside Minecraft, using blockchain cloud storage to prevent governments from surveilling its contents.
"The library can be downloaded as an offline map," Heierli explained. "The offline map is then stored on a decentralised blockchain cloud storage – which is impossible to hack."

"Once downloaded, each map can be uploaded again, allowing the library to multiply," he continued. "So far there are more than 200,000 copies – this makes it impossible to take the library down even for Reporters without Borders themselves."
The idea to use Minecraft as part of this movement has an unlikely origin. While watching television at home, Natterer noticed that the people on-screen were using a video game in an ostensibly unconventional way. They weren't actually playing, but were using the in-game chat to speak to each other. "Computer games are partly about the game experience, but also about meeting in a virtual space," Natterer says.
"I did some research and found out that countries with press censorship often [have] huge gaming communities." After another round of probing, Natterer discovered that Minecraft, as well as being almost unparalleled in popularity and accessibility, offers players the ability to write books in-game.

Scaling Immersive

Despite the technological advances, this type of storytelling hasn't experienced a steady upward curve in newsroom uptake: after the initial hype, many immersive teams moved on to other industries willing to fund experiments after tech collaboration dollars dried up.

Someone who knows firsthand the opportunity and heartbreak that can come with such decisions is Henry Keyser who led Yahoo News' immersive foray for several years before the department was shuttered.

His goal, rather than the above examples, which can take months to execute at vast expense, was to understand what it would take to make XR content on a daily turnaround.

"We are all still beginners in this field," Keyser told me. "Most people working in the area have less than 10 years of experience."

The approach to take on large marquee projects can have benefits for PR for news organisations but the downside is much worse.

"Businesses want return on investment, not just buzz or awards. Being prolific, you can spread a number of eggs, you have more opportunity to find lightning in a bottle. You can also get good and useful data."

What that meant by the end of Keyser's tenure was that they had made hundreds of pieces of XR journalism content and had accumulated the data as to what makes a good piece of work.

He focused on making the decision makers at the news organisation aware of what it meant to be working in a 3D format so they all spoke a common language. Stories would be conceived, pitched and produced within a silo so he would only be hearing about them when it's time of

feedback. Keyser worked to be part of the early chatter about stories so that immersive ideas could be thrown into the mix when they were being developed.

Most ideas were simple augmentations of stories in the digital space. By the time he finished the average cost of production was US$1000 and the traffic increase meant that the display ads often on these stories worked to offset the entirety of that cost.

“We accepted that failure was part of the growth process. We published stuff that wasn’t great. We were going to get data points that gave the team the ability to get better. And sometimes we had lightning in a bottle.”

Keyser’s main takeaway is that people increasingly have 3D capable devices in their pocket, so there is going to be an expectation that 3D content will populate that.

“I want to make sure that journalism isn’t left behind. We need lots of content because I want to consume this content in this format.”

One of his first projects in 2019 was an augmented reality overlay placing viewers inside the site of the Paradise wildfires in California.

“We felt a need to tell this story and thought there must be a way to use our AR technology to really bring people into this story in a new way.”

The project took 8 weeks to complete and approximately $30-$40,000 to build. But it only received a few thousand hits.

“While to XR aficionados it looked like a success, by any other metric it wasn’t.”
Over the next two years Yahoo’s price per unit dropped 1-3k per production and number of users went from app to web rose from 10k to 80k users with projects easily cracking 100-250k.

“That's when we knew we had established a functioning model.”

Keyser says the temptation with such projects is to swing for the fences. But that has a detrimental effect.

“For better or worse, there is a time to put up or shut up.”

For a long time there has been a promise that such technology will be a gamechanger for journalism.

“It has the potential power and impact that you can’t always get with other formats. But that does need to come up against business decisions.

“With immersive actually less is more. For most people this will be their first piece your audience experiences. You have to minimise what you are asking people to do.”

He found that the bare bones received high engagement. A project that was merely a 3D cut out of vice president Kamala Harris with some key information about her. More than 100,000 people experienced it within a few hours.

“Is that what makes a good immersive piece? No but it needs to fit a need at that moment.”

Case study

The sweet spot between the use case for immersive journalism and the lessons learned by Yahoo are exemplified by its work on the 1-year anniversary of the January 6 riots. It was complex but brought together the workflows that had been built out by creating dozens of smaller projects.

After analysing hundreds of photos and documenting legal proceedings in the event’s aftermath, the team led by Keyser set out to visualise two things: How close did rioters get to elected officials in the building at the time, and what is the current status of some of the central figures involved.

“Through its 3D reconstruction, we sought to establish the locations and movements of police officers, rioters, senators and Vice President Mike Pence throughout the breach of the Capitol. Keyser says the team gathered and evaluated more than 700 photos and videos taken by multiple media sources, including journalists for AP, Reuters, Getty, the New Yorker and HuffPost.

“For the 3D scenes, we built a 3D environment based on a floor plan of the Capitol and compared that with photos and videos of the Senate floor and hallways, available through image libraries and C-Span. We made some changes to the scale of the walls (they are lowered) for clarity and to help our users navigate the 3D model. We illustrated all doors as closed unless photo evidence showed that they were opened during the course of the Capitol breach, either by rioters or fleeing lawmakers.

“Most character models used in this rendering are from a stylised library. We used a colour-coding system to identify and differentiate the figures in the display. Red represents rioters, blue is for officers, white is for senators and staffers, and green is for Vice President Mike Pence. We continued to use this colour scheme whenever a character or group was referenced in the 3D text. We did customise some character models for rioters who are referenced by name.

“For each of the eight scenes depicted, the composition of crowds in the Ohio Clock corridor reflects photographs taken of the space from multiple angles. The representation of senators, staffers and officers in the Senate chamber and adjacent rooms is a composite with numbers

and positions extrapolated after viewing videos of the chamber and evacuation process, as well as the size of the vice president's Secret Service detail."

The New Zealand immersive experience

There have been a small handful of examples of news outlets in Aotearoa experimenting with immersive content.

New Zealand Geographic
In 2018, Ngeo launched its first VR project - Using specialised 360-VR video technology, a team from New Zealand Geographic—with funding from Foundation North and NZonAir—has produced VR experiences across six sites from Niue to the Hauraki Gulf. It now has a vast library of 360 video content.

Stuff Circuit
A fully immersive virtual experience, which is part of the NonAir Stuff Circuit documentary series, to give you a sense of presence - a new level of understanding of what it's like to be there, on the ground, with the New Zealand troops in Afghanistan. This experience is a simulated representation of events, based on official records, and interviews. It required either a VR headset or utilising your smartphone to run the project via a large app download.

TVNZ Under the Ice
Answers Under the Ice is the result of a two-week trip covering science in Antarctica in November 2019. TVNZ's Kaitlin Ruddock and Richard Postles spent two nights camping on the sea ice in McMurdo Sound with the K043 team. It was a collaboration between the news organisation, Vanishing Point Studio, the Science Journalism Fund and Antarctica New Zealand. It blended an online interactive utilising 3D assets created by TVNZ, 3D team. These assets were then used in a live broadcast on 1news utilising its AR newsroom capability.

Such projects can be complex, time consuming and expensive. As such each of these were, at least in some part, funded eternally as well as using man power from the news organisations. However, as technology becomes more ubiquitous the barrier to entry will increasingly be lowered. See below for more information.

Stumbling blocks in immersive uptake

According to Laura Hertzfeld, who was also part of the Yahoo team and has a long career in immersive journalism, there are still obvious stumbling blocks to making such work easy to create in newsrooms.

• Technology options and file format limitations. Creating AR is getting easier every day, but it's still not seamless. No one has decided on the file format to rule them all, so making a choice for your organisation and sticking with it, whether that's using Google's Model Viewer or testing out AFrame and WebAR, or building something custom is key for now. But being flexible and being able to change as the industry changes is also important.

• Getting buy-in from your newsroom powers that be. The Journalism 360 site and these guides are a great place to start helping illustrate to newsroom leaders the opportunity and impact of immersive storytelling. Budget and resources are also key to making your point. The cost of these experiences has gone way down, most photogrammetry can be done on just an iPhone.

• The biggest question: How can this content generate revenue? We approach immersive content as part of a larger package for our stories -- an additional way for our sales team to support getting content sponsored. As the technology improves, ads embedded within the experiences will also soon be an option.

• Working with creative ad sales teams and packaging XR content. It's important to think outside the box when pitching XR content from a sales perspective. TIME had great success with this on the moon landing project, thinking creatively about retro brands that would want to build off the 1960s theme of the experience. Ultimately, they landed Jimmy Dean as a sponsor.

• Avoiding the question: Why is this in "AR"? We are constantly asked 'why is this in AR instead of a flat video?' This isn't the right question. Of course any type of story can lend itself to any type of treatment -- just think about movies based off books and the reasons one medium works sometimes better than the other. Instead we should be asking "How could XR help bring this story to life in a new way?" When working with reporters, it's better to ask where they are having trouble or what they want to illustrate but can't yet, to get to a more productive brainstorm about what makes a good immersive story.

Immersive Ethics

As media evolves, journalists are presented with new opportunities for storytelling; re-thinking what defines "ethical storytelling" in new and powerful media is part of that process. No, not throwing out the rules — instead, being thoughtful about how we interpret the standards of our industry as they apply to emerging methods and technology, and understanding the potential implications of our actions.

As part of my work with Arizona State University's Narrative and Emerging Media program we worked to develop the bones of an immersive code of conduct or ethics. Other work has already been done in this field also but the basic premise is that the understanding of ethics in journalism remains but with this new technology there are other considerations at play. McClatchey's Jayson Chesler and Theresa Poulson break these down thus:

Immersive media (including 360 video, augmented reality, virtual reality, and other 3D experiences) presents several key differences from traditional media that demand a re-translation of long-held ethical standards:

- The audience has more agency and control.
- The experiences and how they're presented are often new to audiences and sources.
- The perception of immersive and psychological impacts are still being discovered.
- Capture techniques require more post-production work (repair/rebuilding and optimization) in post-production than photo or video.
- There are very real challenges, limits and flaws to the technology (for the user experience and creators).

Here are some questions you may consider as you embark on a new immersive project.

These questions are not meant to stifle exploration, rather to inspire careful consideration of the potential effects of how we're reporting, producing, and delivering our story to audiences.

Production

Can the subject be captured, or will a recreation be more accurate?
Will a failed capture distort the truth? Photogrammetry software, for example, is accurate if the inputs are accurate, but is there a risk of photos being incomplete, over-exposed or lacking visual details?
Is the exact subject needed for the story?
Can the asset be representative of the subject? Can the subject be modelled faithfully? If capture isn't possible, is modelling from photos viable?
How will people be captured and how might that affect how they are perceived?
What tools will be appropriate for capturing people?
Is the presentation style of volumetric video distracting?
Is it a problem if only the front of the subject is captured?
Will the stillness of a photogrammetry capture be too lifeless or unsettling?
Will clothes or hair be misrepresented by photogrammetry?
Is motion capture possible?
If not, will stock motions not recorded from your subject distort the truth?
Could your approach for capturing people inadvertently dehumanise them, present them as an "other," portray them as a villain, or accentuate or diminish features in a way that could appear like a caricature? How will you talk with your sources to gain informed consent?
Are they aware of what the capture will entail?
Do they understand how and where their likeness may appear, and what users could do with that asset?
Should you ask them to sign a release that outlines all of the above?
How will places and spaces be captured?
How will you work with property owners to gain permission?
Does providing an immersive view of a space present a security risk?
What will be your approach for objects?

What are the important details of an object, and can you capture and represent objects accurately?
If the context of an object is important to the story, can you accurately capture and represent it?

Controversial and sensitive topics
Could viewing your experience be traumatic for viewers? How might you account for this in your editorial decision-making?
If a story is presented in AR, are you comfortable with viewers placing the story in any environment and taking photos?
How might you guard against recontextualizing? Like a statue, could creating a 3D scan leave the impression that the object or scene represented is something to be memorialised or honoured? How might you account for that in its presentation?

How this works with Aotearoa's current journalism ethics

There might be a temptation to think that this technology requires a total rethinking of how ethics would be applied in everyday journalistic work. But any new development in storytelling, the advent of video production or data journalism, for example, seems to adhere to the same basic tenets.
In New Zealand, the de facto journalist union E tū, and the two major news companies, NZME and Stuff, all have their own code of ethics. And of course, the Media Council has its statement of principles, which also covers the same ground. I will look at points in these policies for any potential pitfalls for the practice of immersive journalism. What is specifically useful here is to look for principles which align with the capturing of photos and video. Often the same hardware and considerations are used for this capture as in immersive production. Stuff, however, goes a step further to include wider content creation, such as data journalism. It also defines 'content' as – "any published material, including text stories, videos, audio, photographs, data visualisations, and interactive designs". Within this kind of banner immersive content ethics could easily be added in.

As suggested above the overarching journalistic principles of fairness, accuracy, impartiality should apply to immersive content. The more specific examples below deal in how this might be implemented. I have used statements from the Stuff editorial code of practice as catchalls for similar statements that are echoed in all organisations mentioned above.

Content Warnings and grief

"When a story contains material that is graphic, obscene or likely to offend our audience, we will include clear warnings. Such material generally should not feature in headlines, homepage or front page images, video previews, or other placements where readers and viewers are unable to exercise their choice to avoid it."

"Journalists should approach cases involving personal grief or shock with sympathy and discretion.

Without restricting our ability to report newsworthy information, we should be mindful of the impact of the reporting process on people experiencing trauma. In particular, editors should consider the news merit of publishing sensitive videos or images - such as photos of houses or crash scenes - and consciously weigh up the public interest value with any countervailing factors of privacy or trauma.
Journalists should make best endeavours to ensure next-of-kin have been alerted before publishing the identity of someone who has died, except when the exigencies of significant news make that impractical."

A long wrestled issue with immersive journalism is whether the creator will "allow the user to step over bodies". In stories such as dispatches from theatres of war, or where the subject matter deals with death or tragedy, where is the balance between putting the viewer in the story, and being gratuitous? Content warnings may help but there may even be policies within news organisations that will expressly avoid these kinds of stories.

Nonny de la Pena recounts issues she had when she created "Project Syria". The first scene replicates a moment on a busy street corner in the Aleppo district of Syria. In the middle of a song, a rocket hits and dust and debris fly everywhere. The second scene dissolves to a refugee camp in which the viewer experiences being in the centre of a camp as it grows exponentially in a representation that parallels the real story of how the extraordinary number of refugees from Syria fleeing their homeland have had to take refuge in camps. All elements are drawn from actual audio, video and photographs taken on scene. De la Pena says she had a huge push back on that scene from some viewers but also huge support from Syrians who had actually experienced it.

As in traditional news reportage, care in creating content warnings but also being sensitive to subject matter is of huge importance. The 'conscious weighing' of news merit of such stories still applies to immersive content.

Photography and videos

"Journalists must not tamper with photographs or videos to distort and/or misrepresent the image – except for purely cosmetic reasons – without informing the reader what has occurred and why.
Stuff avoids blurring or pixelating images or videos unless required to comply with the law."

Here, the line can become blurry. Often with the creation of immersive content there is a necessary process to touch up the work captured in the field. 3D sculpting tools are often used to cut away unnecessary noise, or are processed in a way to make it usable for a mass audience. There is even a possibility that some elements may be added in to add to the fidelity of a scene or an object. As above there should be a clear heading saying what type of processing has occurred and why. And such processing should never distort or misrepresent. This kind of editing should only be for cosmetic reasons.

There are also pieces of work such as Yahoo's content which used 3D models to recreate scenes - whether from January 6 or the Paradise Fire pieces. It should be clear that the scenes are recreated and what information that it has been based on. In many longform pieces that try to use a novelistic writing approach where the sources are often hidden for stylistic reasons, the sources are used at the end of the article so the reader can be assured that all is based in fact. I have used this technique myself without ever any concerns raised by readers or the subject matter of the articles.

Privacy

"We strive to strike an appropriate balance between reporting information that is in the public interest and observing personal privacy. People have a right to a reasonable degree of privacy, and journalism should not unduly impinge upon that.
Information that is already in the public domain will not usually be considered to be subject to an expectation of privacy. The identity of a person carrying out their job is not a private fact, and neither is a person's death.

As a general rule, videos or photos that are shot from public land – and therefore depict what any member of the public in the same position could observe – will not be considered a breach of privacy."

Capturing immersive content covers the same issues that occur in modern day visual content. Videographers and photographers often balance the need for an image vs the privacy of individuals. They also might use drones, or long lens cameras to get their shot. Using drones for photogrammetry is often used for large scale objects or scenes. The same rules should apply.

Treaty of Waitangi

"We recognise the principles of partnership, participation and protection should help guide our actions.

- *Partnership: Māori and the Crown have a partnership under the Te Tiriti o Waitangi/the Treaty of Waitangi. Our journalism should reflect this authority by including mana whenua, Māori organisations and people in our stories.*
- *Participation: We should ensure Māori voices are present in our content, and increase the diversity of perspectives we represent.*
- *Protection: Our dedicated Pou Tiaki section for Māori-focused or translated stories reminds us to include Māori voices in our stories and write Māori-focused stories in all rounds and regions, for all platforms."*

News organisations should approach this no differently than in traditional news capture. If it suggests a recognition of the Treaty of Waitangi then immersive content should be created in a way that also reflects this commitment.

Mis/Disinformation

It's the year 2028. You're wearing a headset, watching the news in an immersive format. The

President of the United States is standing right in front of you. But can you be sure it's really the president and not a simulation reading a script crafted by a troll? Can you trust immersive journalists to uphold honesty and adhere to journalistic ethics?

These questions are becoming increasingly significant among journalists and scholars as media companies explore the potential of immersive content.

With the rise of misinformation, immersive journalism faces the challenge of ensuring the authenticity of its content. Additionally, the high cost of producing immersive journalism raises ethical concerns for some media experts.

The Ethics Of VR

Emblematic Group encountered an ethical dilemma in 2017. The company collaborated with PBS' Frontline on *Greenland Melting*, a climate change story featuring a hologram of scientist Eric Rignot.

To create the hologram, they brought Rignot to its lab in LA. They debated whether he should wear normal clothes or cold-weather gear to appear more 'realistic' on the ice. In the end, they chose a light jacket.

While it is seemingly trivial, the question cuts to the core issue: VR's powerful ability to create presence. The challenge is not to exploit this illusion. Things that are real and things that are not should be clearly conveyed.

In 2016, philosophy professors Michael Madary and Thomas Metzinger published a paper titled *Real Virtuality: A Code of Ethical Conduct*. They argued that VR, being a powerful tool for mental and behavioural manipulation, requires careful consideration, especially when used for commercial, political, religious, or governmental purposes.

"We need more research on the psychological effects of immersive experiences, particularly for children," Madary stated. "Consumers should be informed that the long-term effects of VR are still unknown, including its potential influence on behaviour after leaving the virtual world."

VR And Fake News

One significant threat posed by immersive content in journalism is the potential for fake news organisations and trolls to produce misleading immersive content.

Tom Kent, president of Radio Free Europe/Radio Liberty, was one of the first to discuss VR journalism's ethical challenges. In a 2015 Medium post, he highlighted the need for ethical guidelines to address issues such as fake news, even before the 2016 presidential election.

“In a few years, VR might simulate news events so accurately that it’s indistinguishable from reality,” Kent said. For instance, “a VR recreation of a scene involving Putin or Obama could be so precise that you can’t tell if it’s real or virtually created.”

These concerns are being address with various bodies having a code of ethics or guidelines, mentioned above.

With the advent of ‘Metahumans’ or lifelike 3D recreations of real people this challenge becomes more acute. Much like the issues of tampering with imagery handled above - all content that has been manipulated in some way and the reasons why should be clear.

Intellectual property in immersive content

XR technologies are still relatively new, and many of the intellectual property issues they may provoke remain unresolved.
For years, items featuring brands, recognizable cars, weapons, and famous locations have appeared in immersive environments like games. Consequently, there have been numerous instances of rights owners raising concerns about references to their IP.
As immersive environments evolve to make 'reality' possible—whether entirely virtual or through augmented overlays on the real world—the frequency of these cases is likely to rise.

It is a grey area of the law. Ale Harvey, owner of RiVR - a virtual reality company that, in part, specialises in immersive content for cultural institutions and creating training for organisations such as the fire service, has been conducting his own experiment in this realm. His Sketchfab account is filled with objects that are both in public places and also in private institutions. He scans them, puts them on his account and then sells them for other creators wanting to use these 3D objects in their own environments. As of yet hes has not been challenged on this but suggests down the track there might be some law that covers it.

For journalism, any concerns about IP would likely be mitigated by whether the environment is in a public place and what policies or laws cover the use of photography or videography within that space. With real people, who perhaps might be scanned and then used in a story, that would be easily covered with a simple release. Such a practice is not common in the news gathering process but is the norm in documentary or commercial projects.

It would be suggested that this sort of release is created for the use of people with the express notion that those assets are not then onsold in any form for commercial gain. This is despite news outlets selling photos or licensing video for differing purposes. When the landscape is clearer perhaps such an avenue might be interesting in terms of an extra revenue gathering operation, where appropriate.

Towards a reporter’s basic immersive workflow

The elephant in the room of the entire above discussion is how such concepts can potentially be implemented into a newsroom environment.

Last year I experimented with a workflow while on a simple story covering the Day of the Dead festival in Hollywood. The story was about the families who had come to the Hollywood Forever cemetery to create altars for their loved ones who had passed. Each was decorated lavishly and each had their own stories to tell. It is the sort of story you can imagine any small newspaper covering in a simple manner.

Instead, myself and Chimela Mgeuru went with an immersive lens. Hem with a 360 camera, and myself is my iPhone, and a photogrammetry app. With some light post production we were able to elevate a text and photo story with more assets that we hoped would allow audiences to understand a little more about what it was like to actually be there.

While capturing audio interviews with people from the event, I also used Polycam - a free app that unlocks both the LiDar and photogrammetry capabilities of your phone to create 3D assets. Simply scanning several altars using the LiDar function creates an asset in your app that can then be exploited as a 3D file. LiDar, however, does not do a great job of detail. Photogrammetry on the other hand - the practice of stitching together hundreds, sometimes thousands of photographs to create a 3D object, does. So I used LiDar to capture the altars and then photogrammetry to capture the winning dress of La Catrina, Jannan Beltran.

The 3D files I then imported into a web-based 3D engine I have been helping develop called REACH. Created by Emblematic Group, REACH looks to democratise the use of 3D storytelling by making it easy to build and then share immersive experiences online. Once you have your individual assets inside the engine you can place them wherever you would like, even uploading audio files to accompany, and skyboxes to fill out empty spaces etc.

When you publish from REACH it creates a unique URL that can then be embedded like any asset inside your website. The result is a simple way to offer more elements in your story that hopefully add to the richness of the story. The result can be seen here.

Immersive journalist's toolbox

Polycam

https://youtu.be/IXMCAvocxXc
There are four different ways to create a scan in Polycam. To scan objects and spaces, use either Photo Mode or LiDAR Mode. Photo mode is usually the best choice for objects where you want a lot of accuracy and detail, or if you don't have access to a LiDAR sensor. It works by taking a sequence of standard photos and uploading them to a more powerful computer which creates the reconstruction.

Choosing your subject

Your object should have lots of surface detail and texture. Patterns, artwork, and organic surfaces work really well.
Even diffuse lighting is key to a good capture. If your object is reflective or shiny, try to diffuse the lighting as much as possible.
If the object is rigid, you can move it during your session, either by flipping it or rotating it. If you do move your object, make sure to flip the "Object Masking" toggle to on before processing.
To summarise:

- DO choose subjects with lots of surface detail and texture
- DO choose rigid objects (not floppy)
- DON'T choose reflective and blank surfaces
- DON'T choose thin, hairlike structures

How to capture

Photo Mode requires images of a subject from many different perspectives. Make sure to capture your subject from all angles. Take photos from above and below, as well as different sides.
Try to maintain at least 50% overlap between photos so that the system can register them. Not all photos need to encompass the whole subject. You can get closer and take more photos around detailed areas.
Remember to move the camera around the object. Great captures are made by getting a subject from as many perspectives as possible!
To summarise:

- Take 25-200 photos (up to 1000 images with Pro)
- Capture from all angles
- Maintain 50% overlap between photos
- Fill the camera's field of view with the object

The resulting file can then be used in a variety of ways. They can be placed into platforms below like Spatial or Reach which can then be deployed into a headset environment or experienced on

your phone or laptop or uploaded into Sketchfab to be used as an AR inset into your story through its platform.

Spatial

Spatial.io is an immersive social platform that connects global communities across web, VR, and mobile. It aims to revolutionise the way people interact, bringing art, culture, and creativity to the forefront of modern networking.

Objects that have been captured by Polycam can be uploaded into a Spatial space which then can be shared with audiences so they can all potentially walk around the same digital environment - either on their phone, desktop or even with a VR headset.

I created this workflow for an organisation called Technolatinx which seeks to empower young Latino in Los Angeles to learn immersive technologies.

https://www.instagram.com/p/CsnOPRDgO6p/?hl=en

A space was created where photogrammetry captures of objects which were close to the hearts of the creators were uploaded, along with newspaper articles that could be viewed on the walls of the space. Then members of the public were invited to wall through the space with their phones or headset to explore the creations. The potential to create shared immersive spaces showcasing journalism has yet to be created but offers rich opportunities.

Reach

For the past year I have been leading the development of REACH, a web-based 3D engine which makes it easy to create and share immersive content online. This is the same tool I used for the workflow at the Day of the Dead festival but offers a plethora of journalistic storytelling concepts. This could be the scanning of entire spaces which could be uploaded and allow users to walk around in, to objects or using green screen video to put reporters on the scene in places that they would not otherwise be able to experience.

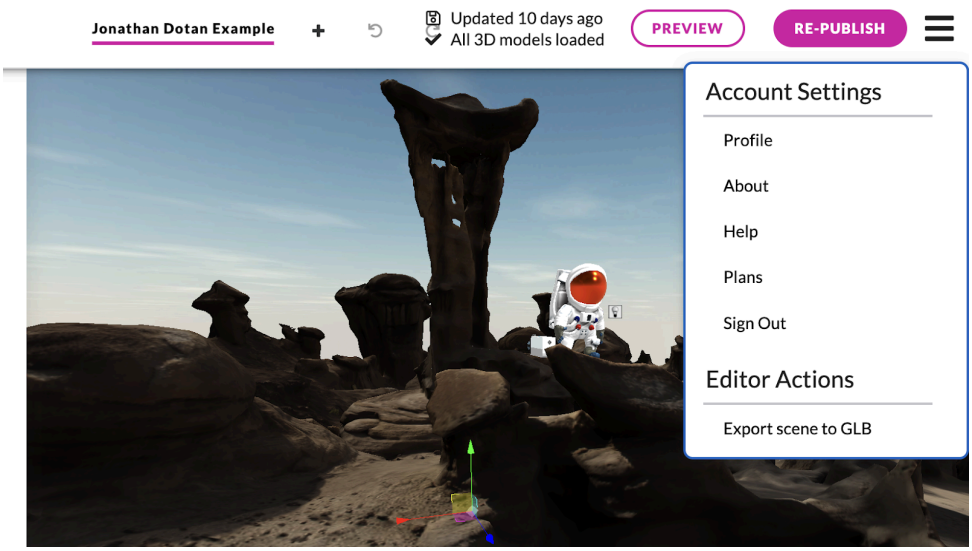
A blow by blow guide to using Reach can be found here.

Example of how to get spatial scene into VR headset

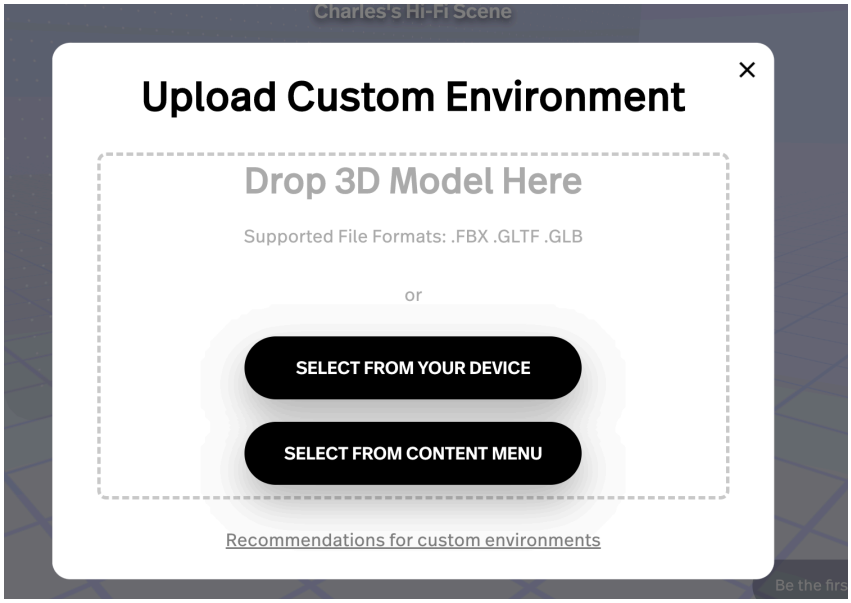
Reach to Spatial workflow

Once you have captured your imagery using Polycam you can then upload direct to Spatial or Reach. A step-by-step account of this process is documented below.

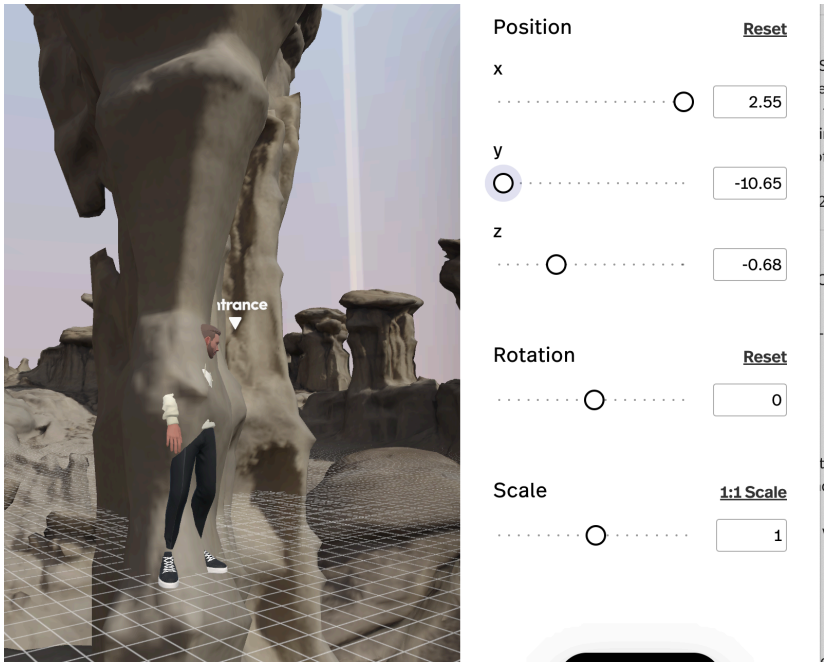
1) Create account in Reach try.reach.love - click confirmation email and login
2) Create scene using this guide
3) Export scene to GLB



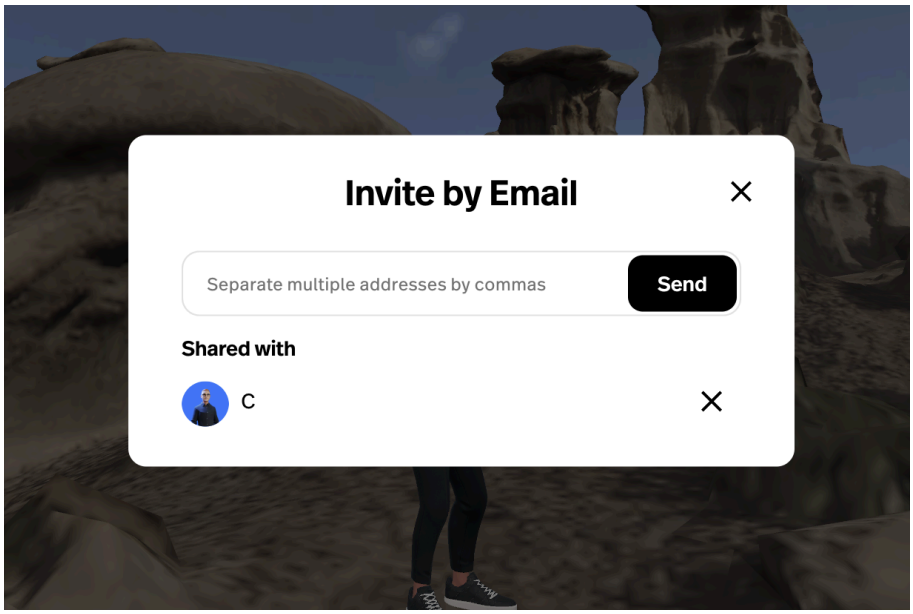
4) Create an account and login at https://www.spatial.io/
5) Customise your avatar - either by a preloaded one or uploading a photo
6) Create a space and select upload custom environment



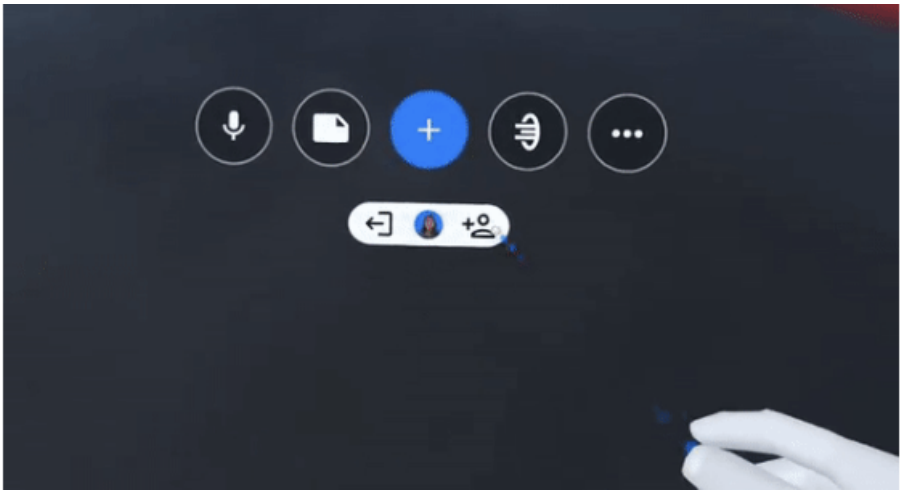
7) Adjust environment location to ensure it lines up with avatar



8) Share scene with participant emails - make sure anyone with invite can ‘edit’



9) Go into Quest Headset and fire up Spatial App that you will need to download.
10) Login to Spatial - using same email that was used to share scene to
11) Verify by going to spatial.io/pair on phone or desktop
12) Enter the code on headset in phone or desktop
13) In Spatial app in headset look down and click the blue button to reveal the menu.



14) Click ‘Spaces’ button - you should see a space open for you to access.
15) When in the space you can move around, talk and add assets to the scene with the ‘content button’
16) You can also create a portal to your own 3D scene - click the ‘portal’ button and then search for your space.
17) Then teleport to your space and create a portal back to the original space by doing the same thing.

Further newsroom development

These are some basic starting points to help implement immersive content into story gathering. A larger investment would be

- bringing in specialist 3D modellers/artists who can clean up captures by people in the field.
- 3D game engine developer with immersive experience - utilising Unity or Unreal - the two top game engines in existence to be able to create richer experiences.
- There are people who do both and can also use engines like Meta’s Spark lab or Snap AR developers who could create AR filters for news story accompaniments.

The future

It’s obvious that most people do not have a headset capable of experiencing an immersive experience. However, almost everyone does have an incredibly powerful tool that is capable of capturing that type of content. If we think back to the advent of the iPhone in 2007 to now - the technology has galloped along at an incredible pace. We might well be in the iPhone gen 1 time now.

The AI revolution should form its very own Robert Bell scholarship topic which is why I have not touched on it until now. But it would be neglectful to not mention its impact on immersive storytelling.

ChatGPT, the popular chatbot from OpenAI, is estimated to have reached 100 million monthly active users in January, just two months after launch, making it the fastest-growing consumer application in history. It took TikTok nine months to achieve that.

Now AI technologies are being created that can offer speech to text to 3D asset creation. This cuts out much of the work a 3D modeller might do to create realistic scenes in which stories could take place.

Artificial intelligence (AI) has been creating ripples across diverse industries, ranging from healthcare to finance. Now, it stands on the brink of transforming the realm of immersive storytelling. As technology progresses, the potential for AI-driven narratives expands limitlessly. This offers the prospect of crafting truly interactive and captivating entertainment experiences for audiences. In this article, we will delve into the progression of AI-powered narratives and their impact on the landscape of immersive storytelling and audience engagement.
The notion of immersive storytelling is not a recent one; it has persisted for centuries in various manifestations, from oral storytelling traditions to theatre and literature. However, the emergence of digital technology has unlocked fresh opportunities for immersive storytelling. This enables creators to fashion narratives that are more interactive and captivating than ever before. With the ascent of virtual reality (VR) and augmented reality (AR) technologies, audiences can now find themselves transported into the realms of their preferred stories, undergoing a more visceral and personalised encounter.

AI possesses the potential to elevate immersive storytelling by enabling creators to craft narratives that are not only interactive but also adaptive. This signifies that the story can undergo changes and developments based on the actions and choices of the audience, resulting in a genuinely personalised and captivating experience. AI-powered narratives can scrutinise user behaviour and preferences, enabling the story to adjust and respond to the individual's actions in real-time. This degree of interactivity and personalisation holds the potential to revolutionise the way we consume and engage with entertainment content.
Another illustration of AI-powered storytelling involves the utilisation of generative algorithms to produce procedurally generated content. This technology empowers creators to formulate expansive, intricate worlds that continually evolve and change based on user input and actions. This dynamic approach can lead to more engaging and dynamic narratives, as the audience actively participates in the story, shaping its outcome through their choices and actions.

This collision of technical advancements that the ubiquity of use of audiences expecting experiences to leverage these technologies will increasingly become the next space for stories to be told. The question is whether journalism will be able to keep up.

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