

HOLOGRAPHY

A QUANTUM LEAP IN THE AUDIOVISUAL LANDSCAPE

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Holograms, three-dimensional images created by the interference of light beams, have long been used in Hollywood movies as a symbol of the future. Today, holographic technology is being utilized by Audiovisual (AV) professionals to transform and disrupt industries. The ongoing coronavirus pandemic is rapidly accelerating the pace of and demand for holographic transformation. Holograms make AV experiences realistic and experiential for all participants, enabling richer remote professional and social experiences consistent with current social distancing practices. Holographic implementation is improving with advances in projector hardware, 5G, data enhancements and augmented reality (AR) adoption. As artificial intelligence (AI) and machine learning technologies advance, individual consumers should also be able to dynamically interact with holograms in the future. While any industry that relies upon AV is vulnerable to holographic disruption, the most imminent use cases include enterprise conference calls, entertainment, business networking events, retail, HR / employee training and travel.

HOLOGRAPHIC CONFERENCE CALLS TO ENABLE BETTER COLLABORATION

Current conference call AV technology faces numerous hindrances to effective communication between parties, including an inability to reflect in-person body language and emotions. Holographic conferencing will dramatically improve communication and collaboration between individuals and



groups within the enterprise. Holographic projectors could eventually take an individual's entire body from long distance and augment it as a digital overlay into a physical meeting room. Holographic meeting attendees will have the ability participate as if they were physical attendants, unlocking unparalleled opportunities for individual expression and participation in the physical meeting experience. The current pandemic is creating a surge in the use of remote video conferencing tools as a substitute for in-person business meetings. As businesses culturally accept digital meeting technology, holographic innovation will be critical to enable more seamless communication and effective business collaboration.

RESURRECTING MUSICIANS AND CELEBRITIES TO TRANSFORM ENTERTAINMENT

At the Coachella Music Festival in 2012, Tupac, considered to be one of the greatest rap artists of all time, performed post-mortem on stage via a holographic rendering of his body. Since then, numerous technology companies have been working on honing entertainment applications of holograms, many of which are due to launch in the near-term. The estate of Amy Winehouse, the late musician who passed away in July 2011, announced

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plans to operate an Amy Winehouse hologram tour in the near future. Widespread adoption of holograms for entertainment will have numerous and far ranging implications, including drastically expanding the total addressable market for “live” music events. One can envision a world where one celebrity could “perform” simultaneously across numerous local venues, increasing the aggregate number of production opportunities for AV businesses. In

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addition, these technologies enhance the value of content rights for deceased celebrity estates that can continue to monetize performances. While the initial entertainment use case appears to be in music, it is also possible that applications effect Broadway performances or movie cameos,

// especially as these holographic renderings become more realistic with advances in both software and hardware. The pandemic will accelerate the spread of holography across entertainment media, as product companies will rely upon digitally rendered 3D images to cost-effectively bring quality live entertainment experiences into the home.

UNLOCKING NEW NETWORKING OPPORTUNITIES AT INDUSTRY EVENTS

Industry conferences are a phenomenal way of showcasing a product and talented teams, as well as generating new business through speaking engagements. Holographic AV technology has the potential to accelerate all three of these benefits. First, for teams that are resource and time constrained, it will provide the opportunity for entrepreneurs and management teams to “attend” additional events and still be able to interact with conference participants as if actually physically present. Teams could network at multiple events simultaneously through pre-recorded holographic videos embedded in booths. Second, event speakers could present at multiple engagements simultaneously. The ability to duplicate keynote speakers across events would create an explosion of new local and regional events that would benefit from a smaller, more intimate networking environment without compromising headline speaker quality. Third, for those physically manning company booths at events, holographic technology provides a plethora of new opportunities to demonstrate and distinguish one’s products. Products that require specific parameters to demonstrate effectively could be pitched through the re-creation of specific environmental conditions via holographic imagery.



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Coronavirus is currently forcing companies to pitch products and professionally network digitally, which has already pushed some industry conferences online. In a post-pandemic world, some firms will view digital conference attendance as a more cost-effective option and holography will play a critical role in enabling and improving these virtual experiences.

REDEFINING THE CONCIERGE AND CUSTOMER SERVICE EXPERIENCE THROUGH IN-STORE AV

Retailers are riddled with labor inefficiencies and quality issues for customer service offered both in-store and via phone / web. In-store attendants often are not knowledgeable enough to answer difficult questions about products or provide quality recommendations to customers. In the future, retailers will equip their stores with dynamic holographic AV setups that allow consumers to interact with

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virtual hospitality representatives strategically positioned throughout the store. Sophisticated AI-powered holographs will be dynamic enough to answer a variety of product / store related questions and provide customized recommendations to

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drive faster inventory turns and higher average tickets at checkout. VNTANA and Satisfi Labs are currently collaborating on an AI hologram concierge specially designed for retail, sports and hospitality. Due to the coronavirus pandemic, retailers will be incentivized to expand these holographic concierges outside of the store to enrich customer service and product discovery tools in an effort to improve the e-commerce experience. In

addition, Ricoh USA is in the process of rolling out virtual concierges that automatically deliver highly targeted messages to customers on behalf of brands. While retail could be the initial use case for holographic-based concierge technology, hotels and stadiums could also benefit from similar applications. Spurred by the pandemic-driven need to connect with customers inside the home, holographic concierges eventually delivered via mobile phones (once phone hardware sufficiently progresses) would be a more personalized and time efficient way for brands to connect with their consumers.

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IMMERSIVE TRAINING EXPERIENCES WILL POWER MEANINGFUL WORKFORCE IMPROVEMENTS

Workforce training traditionally takes place through paper literature, online courses / examinations and in-person lectures. However, for many professions, the most effective method of training employees is through experience, often times in environments that may be tough to re-create. A prime example is in the healthcare industry, where medical students and doctors can learn more from real patient encounters or practice procedures than from traditional training methodologies. Holograms enable experiential and immersive training experiences without worry about the consequences of any errors made by the trainee. HoloPatient, for example, provides a suite of holographic immersion situations to train medical students. Within healthcare, holograms have numerous training applications, including patient diagnosis, medical device operation and complex surgery practice. Numerous additional training situations will benefit from implementation of innovative holographic AV configurations. Industries that require operation of complex machinery such as aviation, oil / gas and construction represent just a handful of sectors that will be transformed by an AV sea change. Coronavirus will force holographic adoption across even more sector training use cases. All industries are currently being forced to onboard new employees digitally and are in need of new tools to ensure that new hires receive virtual training to be successful in the workplace. In a post-pandemic world, more firms will realize the cost and timing advantages of virtual training and seek to leverage holograms to foster more people-focused and collaborative training programs.

DIGITAL TRAVEL TOOLS WILL ENHANCE ON-THE-GROUND TRAVEL EXPERIENCES AND UNLOCK NEW TOURISM OPPORTUNITIES

Combined with geo-location technology, holograms can enrich the on-the-ground travel experience. There have been significant marketplace innovations in improving the customer travel booking experience, with better pricing transparency and real-time inventory tracking of hotel accommodations and transportation options. Improvements to “before arrival” booking tools have outpaced innovation in “after arrival” technology tools. Holographic travel guides will offer numerous benefits to future tourists. First, these agents will help tourists better plan on-the-ground itineraries in a cost-effective and logistically-sound manner. Second, while at tourist sites and leveraging geo-location, these virtual guides will provide useful information and supplemental content that is contextually-relevant to be delivered via smartphones. While the pandemic has hit travel hard, many consumers still have the wanderlust to travel and view interesting sights including museums, natural wonders and historic monuments. Digitally rendered holographic travel tours will gain popularity as consumers seek to avoid potential airplane-related infection exposure but still desire to satisfy pent-up travel wanderlust. After pandemic concerns subside, some consumers will lean on immersive holography for other travel experiences due to its lower costs and its advance of saving time lost in transit.

THE BOTTOM LINE

As hologram adoption accelerates, businesses across retail, healthcare, entertainment, travel, industrial and numerous other end markets will leverage holographic technology to differentiate their offerings. Given pandemic social distancing, holograms may even replace offerings in certain industry verticals. Growth in demand for holographic implementation will unlock numerous new monetization opportunities for AV providers and those with holographic capabilities will be able to provide clients a differentiated offering. As the pandemic unfolds, some holographic implementations could be the key to helping clients survive by unlocking customer demand through new digital channels. As a result, companies with strong access to hologram technology will be better positioned to capitalize on continued growth in the AV sector. Those companies without hologram capabilities could benefit from considering acquisitions of, or strategic partnerships with, hologram providers to avoid potential disruption in today’s dynamic AV landscape. The stakes are even higher to leverage hologram technology in a post-coronavirus world, as the pace of change in the AV ecosystem accelerates faster than ever before.

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