

# ZEROSPACE USES ITS VICON SYSTEM TO POWER THE NEXT GENERATION

CONCERTS, DOCUMENTARIES AND REAL-TIME INFLUENCER LIVE STREAMS

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Juan Carlos Leon, Character Technical Director, ZeroSpace



Elena Piech, Real-Time Producer for ZeroSpace

“Every single time we’re on the stage, we get a chance to do some very unique R&D testing that you rarely see other studios do,” says Juan Carlos Leon, Character Technical Director for ZeroSpace. “We definitely love innovating in this space.”

ZeroSpace is a 50,000 sq ft next-gen production and creative studio that specializes in blending the real with the unreal. The Brooklyn-based company has both a Vicon-powered motion capture stage and a virtual production stage, and has worked with partners including Reeses, Paramount, Nike, Fortnite, Disney and Justin Bieber.

Not too long ago, however, the space served a different purpose entirely. “Essentially, before the pandemic, ZeroSpace was a ticketed immersive art experience in Manhattan, located

right next to Madison Square Garden,” explains Elena Piech, Real-Time Producer for ZeroSpace. “They were doing super well and they had a team of about 100 people. They were getting ready to open their second location in California and then March of 2020 happened. ZeroSpace went from a team of 100 people to just our CEO, Jon Kreutzer.

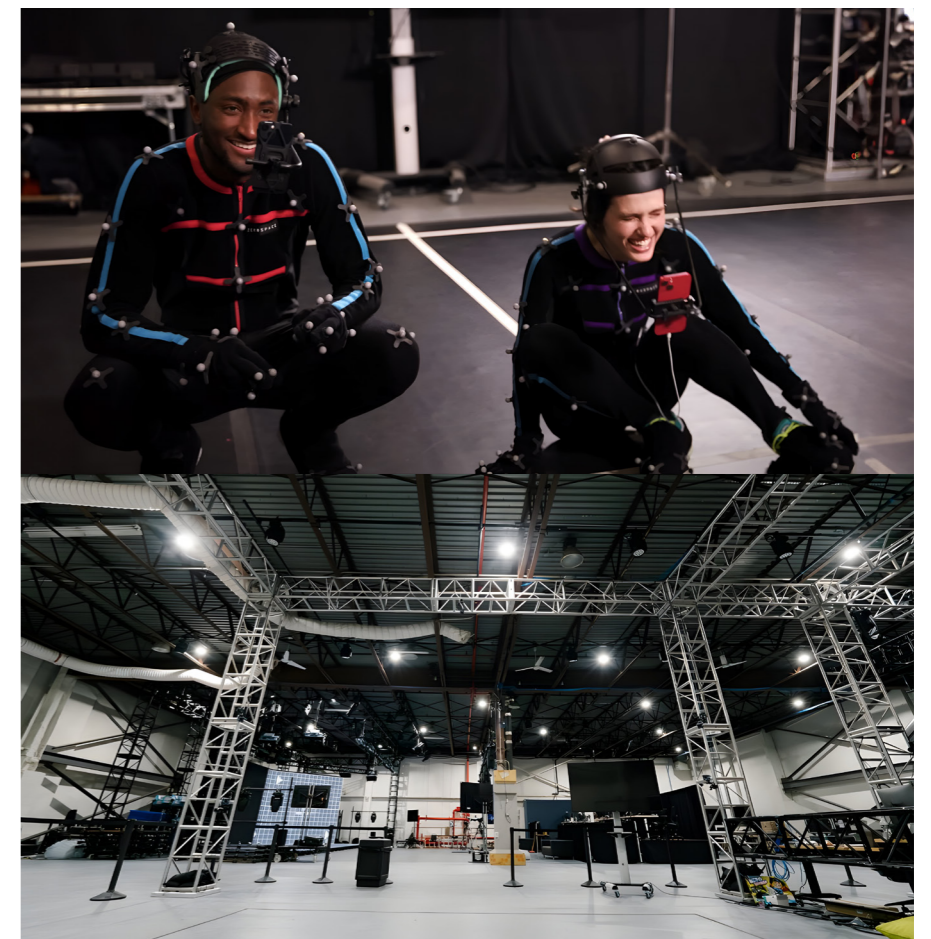
“The Mandalorian had just come out, and Jon realized that virtual production was about to explode. At the same time, there were these LED tile manufacturers that didn’t really have much business because concerts and events weren’t happening. So he partnered with another company to build what was one of the largest virtual production stages in New York City.

“And we’ve since grown and now have a larger stage. And we pivoted from this immersive art experience into being a 3D content creation studio.”

While ZeroSpace’s focus has shifted, its DNA remains relatively unchanged. “Really, the experiential art is at the very core of our identity,” says Piech. “We try to always take on projects where we can think about really great ways to interact with audiences and find cutting-edge ways to do it. When we have downtime, we’re focused on R&D and thinking about things from a live performance standpoint.”

## A STRONG FOUNDATION

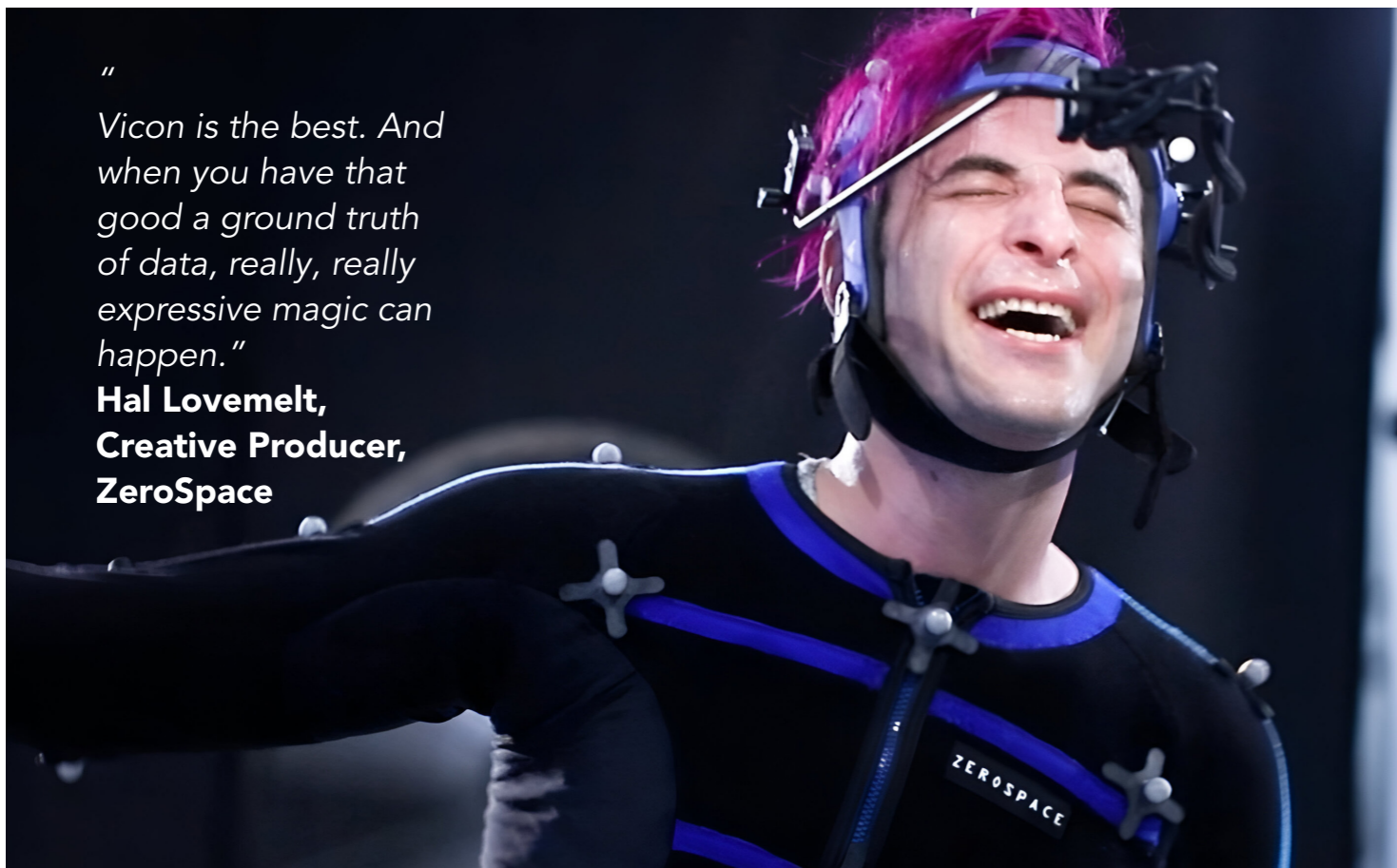
ZeroSpace’s innovative creative work depends on the power of the technology it uses, says Creative Producer Hal Lovemelt. “Vicon is the best. And when you have that good a ground truth of data, really, really expressive magic can happen,” he says. “We have a lot of fun with our R&D initiatives on top of our client work to help drive the next generation of performative and expressive motion capture tooling.”





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Creative Producer,  
ZeroSpace



VICON



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Samuel Sords,  
Motion Capture  
Operator, ZeroSpace

Motion Capture Operator, Samuel Sords gives an example: “Since we have the virtual production stage, we can put somebody in a Vicon suit, stream them to the virtual production stage and have a real human and avatar interaction all in real time. We were one of the first studios to master how to use that, how to have really low latency, how to have great eye lines.”

ZeroSpace sees Vicon’s markerless technology as a powerful new tool that could create novel possibilities, especially as demand for motion capture beyond the confines of their studio continues to grow.

The company has already experimented with mixing markerless and optical capture for Jack Daniels, creating a virtual concert experience that works in conjunction with technology from XR firm Spatial. “We used Vicon to track the props, getting the cymbal movement from the drumming, for example, but using markerless for the performers so we could get five people all in one day.”

Lovemelt highlights work ZeroSpace is doing that could be transformative in the world of dance. “Right now, we’re building a system that we’re calling the Augmenter,” he says.

“Using Unreal Engine and remote virtual cameras, starting with Vicon as the ground truth, we’re able to build systems that can visualize where the camera is using glasses, and also use controllers as a performer to manipulate how the body moves.

“For example, one of Vicon’s classic images is the Planet of the Apes system, with Andy Serkis and the other actors in their arm extensions. We’re trying to build a proof-of-concept where there’s a lot more pre-viz to that whole process, where you can really see and feel and notice the way the fingers are working or the way your arms are working



in an augmented fashion. You can actually see and feel how the body is manipulated in different ways.

“And that’s something that will change the dance community a lot in the coming years – especially as motion capture gets democratized. There aren’t a lot of dance companies with a Vicon volume, so it’s always a collaboration, but imagine a dance company that’s strictly focused on Vicon performance. There’s a whole world of potentiality there.”

**‘THE NEW ERA OF MOTION CAPTURE’**

For Leon, this gets to the heart of what ZeroSpace wants to achieve. “Experimentation is what’s going to lead us into the new era of motion capture,” he says. “For the past five years, every single celebrity who’s done motion capture has wanted an avatar based on their likeness, but no-one is ever saying ‘I want to be a dragon’. You have to ask yourself, well, how am I going to puppet a dragon using a mocap system?”

“You have to find ways to experiment, and what we’re getting into right now is an era of experimentation. With motion capture, you have all this data and the best thing about it is that you can take that data and pump it into other things.”

Ultimately, however, it all comes back to how the tools can empower performers. “Vicon really offers the best quality motion capture data that you can get,” says Piech. “And it’s just so powerful to have talent in the space, and to be able to have them see their character and adapt and modify their performance based on what they’re seeing, all in real time.”

**ZEROSPACE**

VFX



**JUSTIN BIEBER**

In 2022, Justin Bieber performed a virtual concert in the battle royale game Free Fire, and also used his digital double to create the video for the song Beautiful Love. ZeroSpace was behind the transformation of Bieber’s likeness into a metaverse-ready asset.

“Bieber came by the studio and we scanned him with our photogrammetry rig,” explains Piech. “We built an avatar using the data, and had him come into the space to dance. We took that data and combined it with his photogrammetry scan.”

The resulting content attracted over 100 million views.

For more information on ZeroSpace, visit <https://www.zerospace.co/>

**ANOTHER BODY**

Another Body is an award-winning documentary that follows a student’s search for justice after her likeness was used by an ex-boyfriend to create deep fake illicit content.

ZeroSpace used its photogrammetry rig to create metahumans based on the two main characters of the film, then used its Vicon motion capture stage to animate the metahumans for the documentary’s flashback scenes.

The film has garnered coverage and accolades from publications including The New York Times and Rolling Stone.



**VIRTUAL INFLUENCER LIVE-STREAMING**

“We are working with a skincare brand on launching a virtual influencer that will go live next year,” says Piech.

“We’re recording all the data here in our space and we’ll make original content for TikTok, and we’ll even do live streams. It’s great for us that the Vicon data is so good that we can trust it enough to do live streams.”