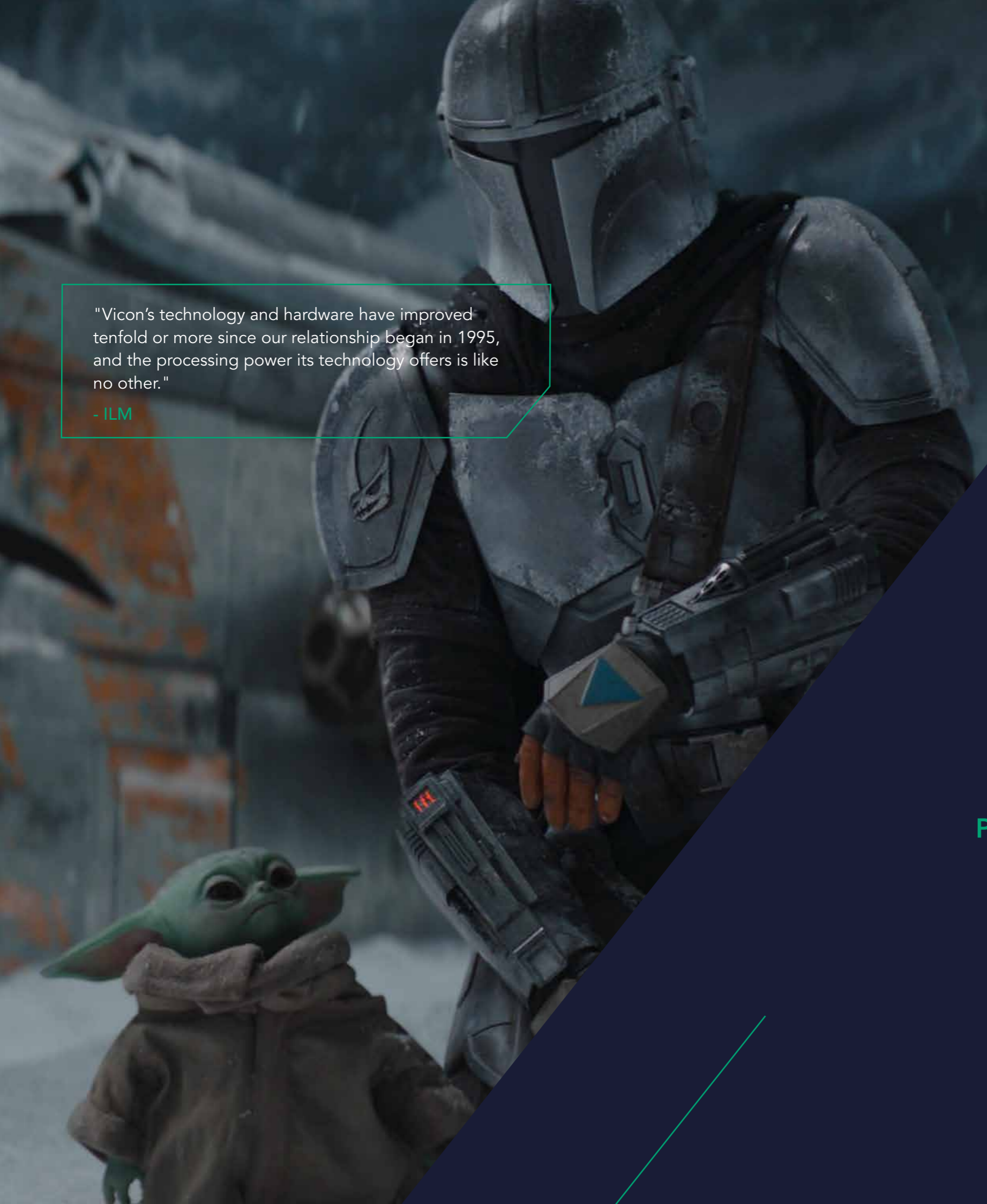


VICON



[VICON.COM/VPROD](https://www.vicon.com/vprod)



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"Vicon's technology and hardware have improved tenfold or more since our relationship began in 1995, and the processing power its technology offers is like no other."

- ILM

VIRTUAL PRODUCTION

UNMATCHED, PRODUCTION PROVEN TRACKING, USED BY THE INDUSTRY'S BRIGHTEST STARS.



WELCOME TO THE ONLY VIRTUAL PRODUCTION SOLUTION YOU'LL NEED

Bringing together Vicon's industry leading tracking of both rigid object and full body subjects, the virtual production pipeline allows users to track film and video cameras alongside highly realistic digital characters, with fingers and face, all within the Shōgun platform.

EMPOWER ON- SET CREATIVITY & COLLABORATION

By working with a trusted partner backed by decades of motion capture experience, Vicon users are able to focus on what matters - producing great work. Whether that means shooting with world-beating talent across multiple locations or making on-set changes based on real-time feedback, the flexibility of our technology allows you to get creative without worrying about the limits of your tools.

It's also why users can work with Vicon's own Simulcam and virtual camera rig or expand their setup to incorporate technology such as green screen composite and LED walls. Whatever the scope of your setup, Vicon's virtual production solution will seamlessly incorporate it into your workflow.

QUICKER & EASIER PRE-PRODUCTION CONSERVES BUDGET IN POST

Vicon's technology is designed to make virtual production effortless. That's why we're the only motion capture company that offers mixed tracking of rigid bodies such as cameras and props alongside performers in a single ecosystem.

DELIVER RELIABLY HIGH- QUALITY, REALISTIC PRODUCTION VALUES FROM THE OUTSET

With a rich history of delivering leading-edge motion capture, Vicon offers best-in-class tracking and accuracy for virtual production.

Vicon delivers a level of fidelity that other companies can't: where other providers capture from the outside in, Vicon captures from the inside out by tracking the centre of your lens; we've got HD finger solving; we offer sub-mm tracking accuracy, translating to sub-pixel accuracy in the LED wall, and our algorithms deliver unbreakable tracking, even in dark or smoky environments.



IN CAMERA VFX (ICVFX)

By enabling you to work with close-to-finished visuals on set, Vicom technology can save you time and resources in post-production whilst ensuring consistent visuals over multiple shoots.

Streamline production on set, reducing the number of people and cameras on a shoot, bringing down the number of builds and saving on travel costs.

LENS CALIBRATION

New to Shōgun is the ability to quickly re-calibrate a hero film camera, allowing users to build a lens model.

LED WALL

Supplies realistic real time background and lighting

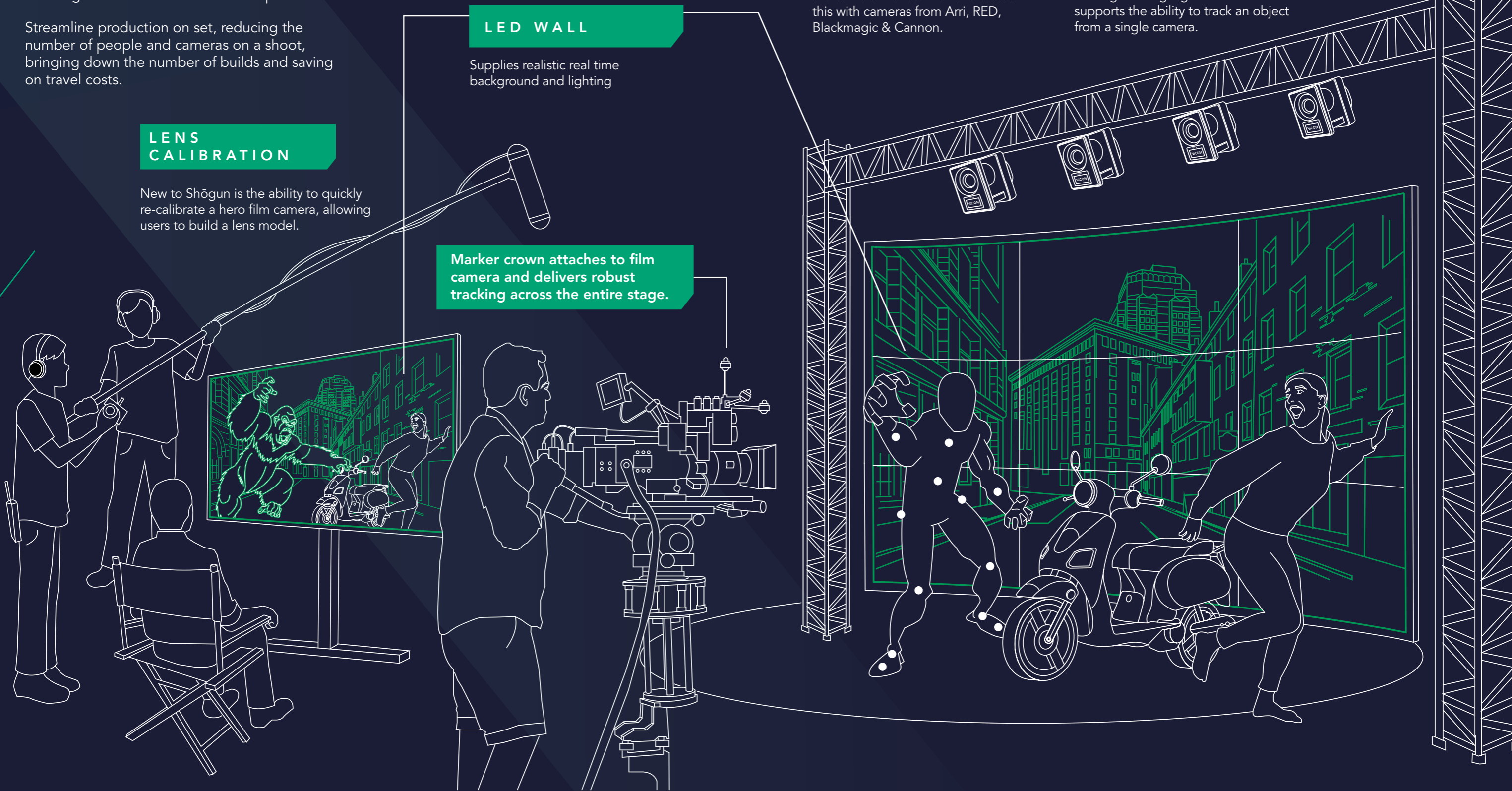
Marker crown attaches to film camera and delivers robust tracking across the entire stage.

CALIBRATION OF FILM CAMERA

Using the normal wand calibration you can calibrate any film camera that supports SDI along with timecode and sync. This calculates the centre of the lens or nodal point so the perspective is correct when the camera moves. We have tested this with cameras from Arri, RED, Blackmagic & Cannon.

OBJECT TRACKING

Any object with markers in the volume can be tracked and streamed within the space. This could be a prop, interaction device or set scenery. This is all tracked using Vicom's super low latency, industry leading tracking algorithm which supports the ability to track an object from a single camera.



FULL BODY PERFORMANCE CAPTURE

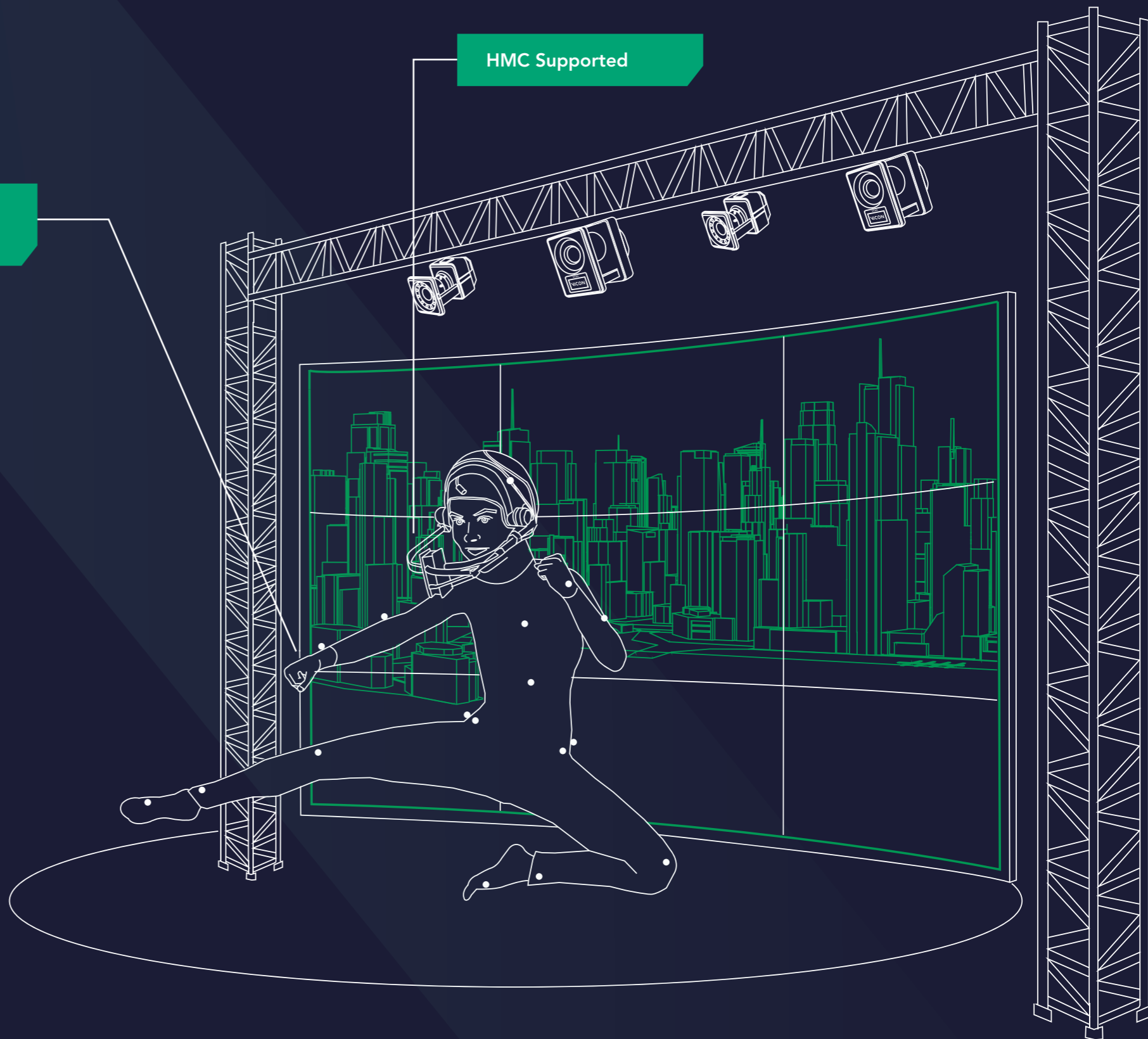
Vicon Shōgun allows for both cameras and full body subjects to be tracked at the same time, making use of optimized tracking profiles for both. This includes high fidelity finger animation and robust occlusion fixing when capturing the most complex moves. These characters can be re-targeted within Shōgun and streamed directly into the game engine. This supports the latest technology innovations, including EPIC's new Metahuman project.

Character re-targeted into game engine using Shōgun



High fidelity finger capture

HMC Supported



GREEN SCREEN

GAME ENGINE

Data is streamed directly from Shōgun into the Game Engine as quickly as possible, using separate channels based on the type of data. Cameras and rigid objects are delivered first, guaranteeing the lowest latency possible. Full body characters are then sent on a different channel with SDI video being sent separately. This delivers the optimum performance for a seamless SimulCam solution.

SDI VIDEO CALIBRATION AND TRACKING

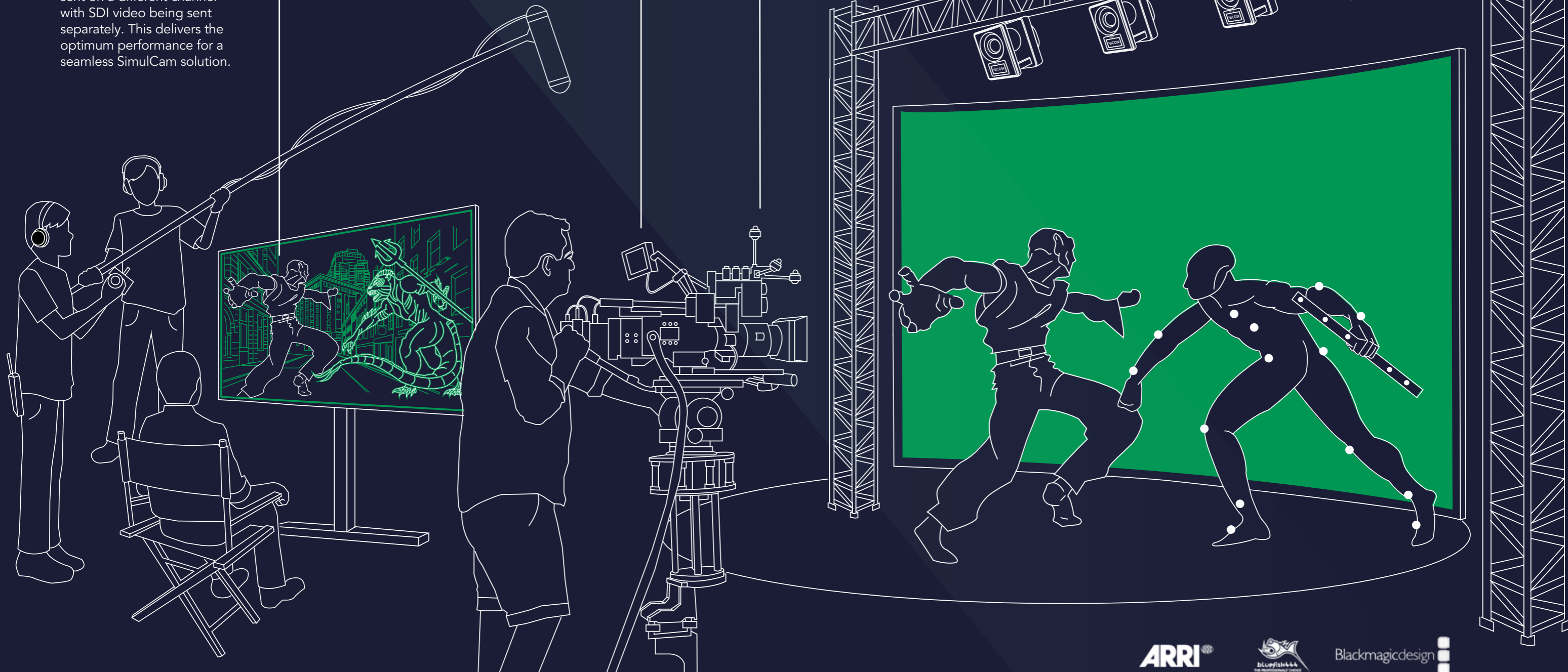
SDI video cameras can be calibrated for both Intrinsic and Extrinsic using Vicon Shōgun software. Supporting up to 4* 4K video streams, the SDI camera is calibrated as part of the main wand wave process. Once calibrated, the camera can then be moved around the volume and calibration is maintained.

PASSIVE/ACTIVE

This solution works with both our traditional passive marker system or active marker system. We have created new passive marker crowns that can be attached to the SimulCam and offer smooth, reliable tracking.

VICON CAMERAS

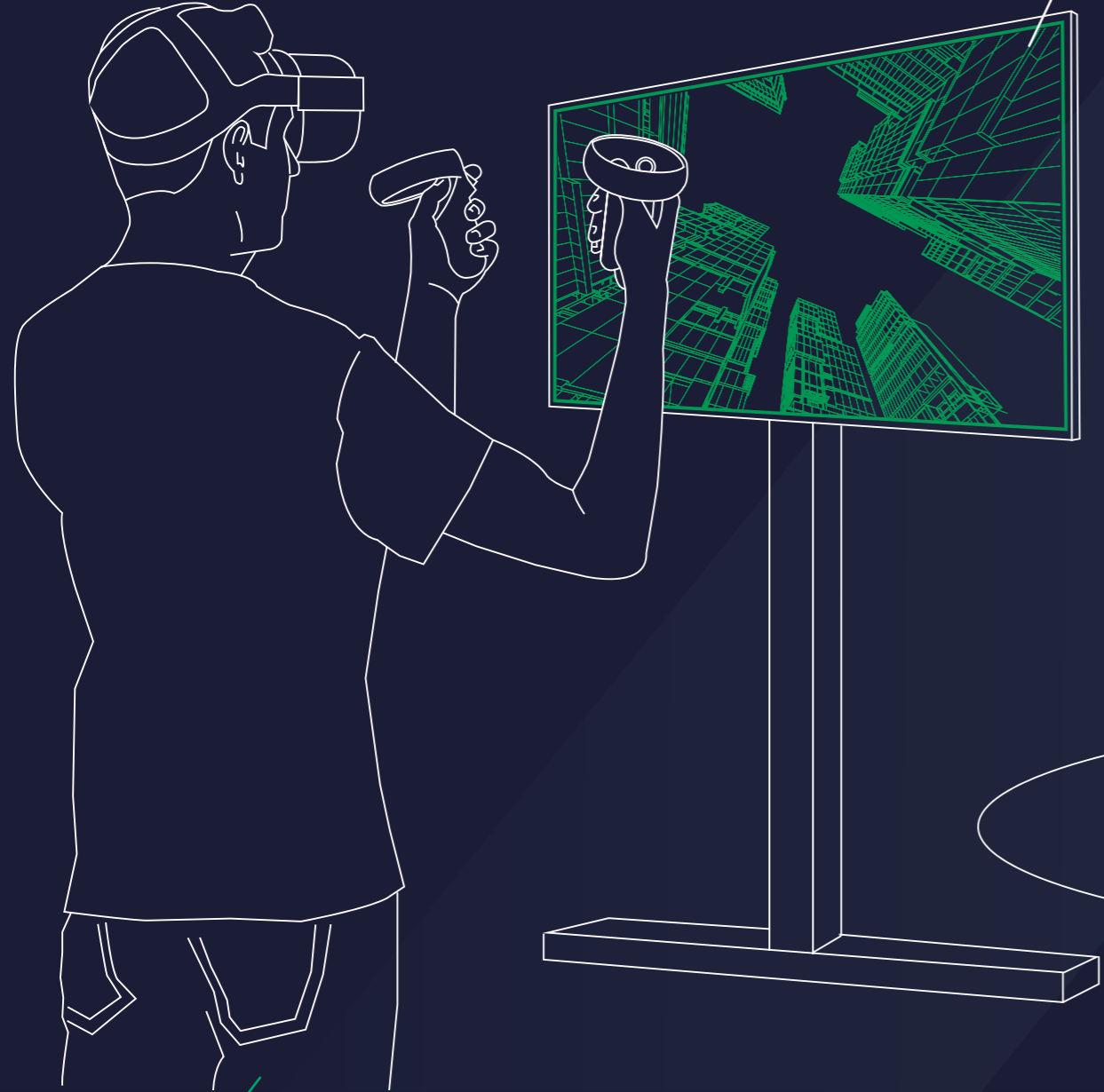
This solution works across the full range of Vicon cameras including Vantage, Vero, Viper and ViperX. High resolution and low latency optical tracking that works both inside on set and outside on location. No matter your budget there is a camera solution that will work for you.



VR SCOUTING

VR Scouting powered by Vicon tracking allows for remote working and collaboration. Review game engine sets within VR, we can track multiple HMCs within the same space.

Scouting and pre-production in VR enables agile, non-linear production to overcome scheduling blocks, delivers consistent production values over time and different locations, reduces the number of people needed on set, the amount of build and travel costs, as well as post production cost.



Camera track recorded by Vicon - all aligned within the same space



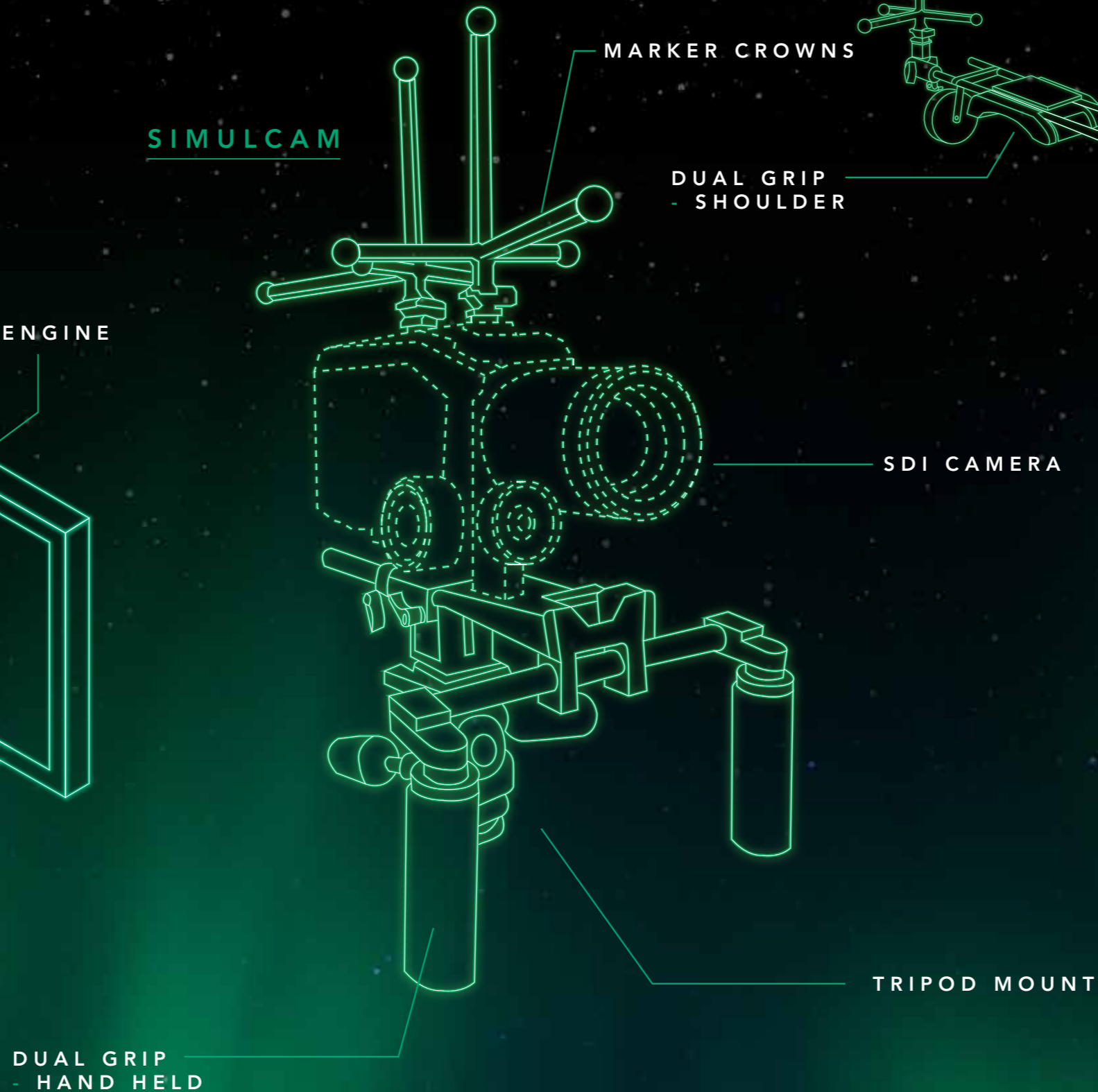
VIRTUAL CAMERA / SIMULCAM

The Virtual Camera rig is designed to support a number of different configurations and allows the user to view the game engine using a tablet device. Bespoke 3D printed stalks allow for high quality object tracking no matter where you are in the volume. It's lightweight and completely wireless allowing you to frame shots and create creative camera moves either during the shoot or as an additional camera pass once the main shoot is complete.

HOST PC



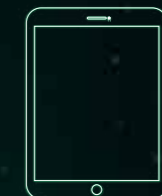
SIMULCAM



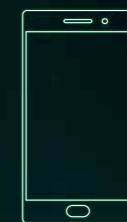
VIRTUAL CAMERA



TABLET



- IPAD



- ANDROID



- WINDOWS

KEY MARKET USE CASES

SILVER SPOON ANIMATION

Silver Spoon was originally conceived by founder Dan Pack as a one-stop shop for visual effects support to other businesses working in the field. Motion capture was initially a small part of the equation, but grew as part of Silver Spoon's business and evolved into real-time animation.

"We're being much more involved in the creative end, and taking our technology and years of experience working in this format, and applying that to these new types of opportunities and new types of engagements with viewers," says Pack.

He points to developments in finger tracking as especially important to Silver Spoon's work. "Finger tracking has always been a complex issue. They are small, they cover each other, they are complicated!"

Vicon has always been leading the pack in pushing mocap development and they were the first to really nail down proper finger tracking."

"So now, we're capturing unbelievable finger movement, which is such a big deal, especially when you're doing any type of real-time engagement with a client. It adds a depth and realism to characters that body language and facial expression alone can't offer", says Pack. Then Shōgun, plugged into Unreal Engine, enables the turnaround speed that Silver Spoon needs to generate animation in real time.



Real-time animation on a national stage

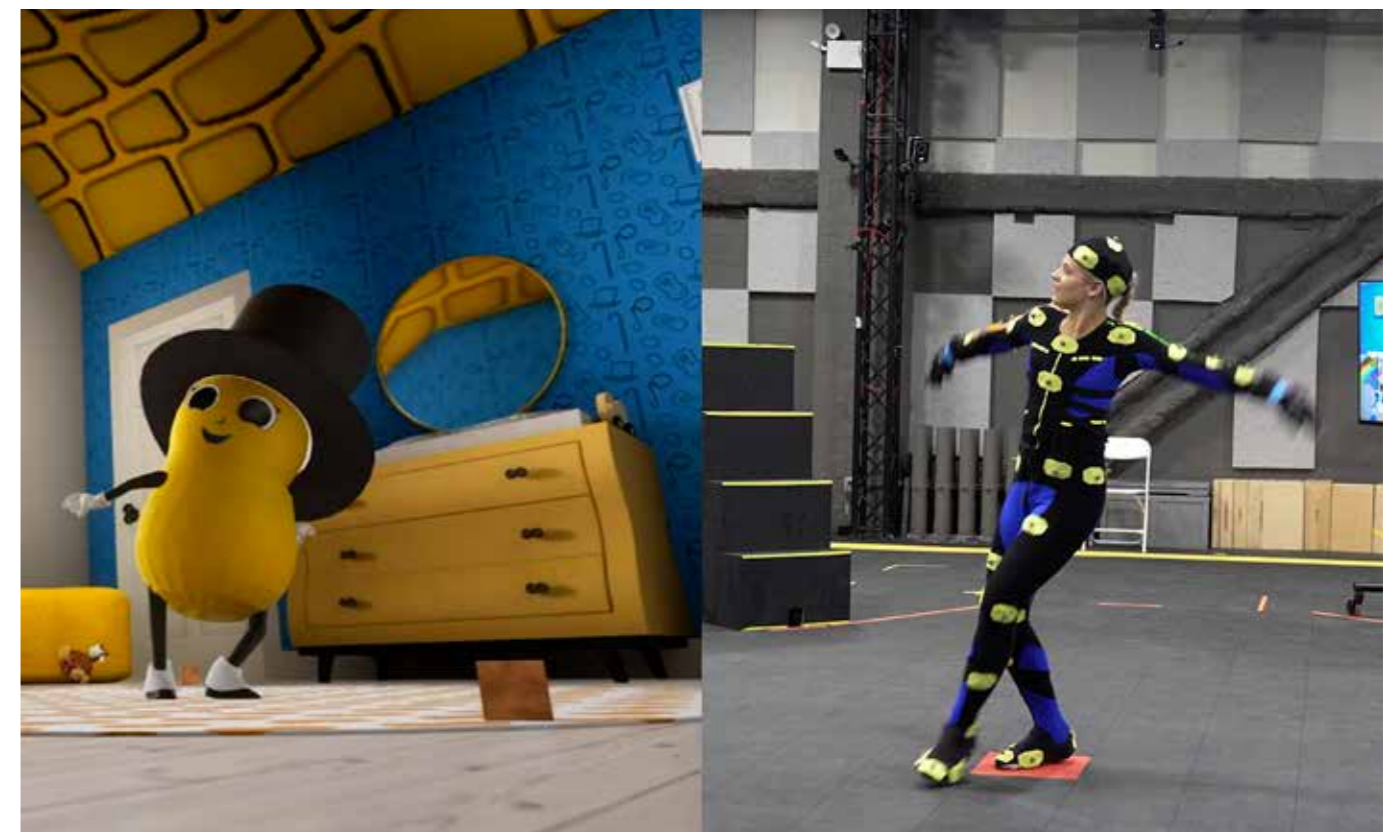
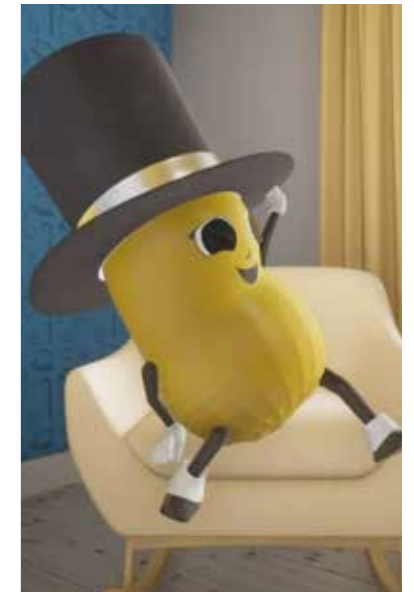
Planters, VaynerMedia and Silver Spoon teamed up to introduce Planter's Baby Nut to the world during a 4.5-hour animated livestream running on Twitter during and after the 2020 Super Bowl. This was something that hadn't been seen at that scale before – an animated character responding live, in real time, to a worldwide audience following along through Twitter.

Silver Spoon's Vicon motion capture setup allowed game actress Erica Citrin, with direction from director Marcus Perry, to play, dance and delight viewers as Baby Nut throughout the entire performance.

The team built a virtual, interactive bedroom for Baby Peanut ahead of time, and then created physical props in the studio that were twice their normal size to reflect the fact that Baby Peanut is only half the size of the actress. Vicon's ability to track multiple props made the integration between the two seamless.

"We can utilize this technology to tell engaging stories and to create rich interaction between viewers or consumers," says Pack. "And if we can do it in a way, like with any good VFX, that makes less of a spectacle of the technology and allows people to interact with characters in a way that's more seamless, that's what we're all about."

silverspoonanimation.com



At the heart of every project that ILM has utilized performance capture for over the last 25+ years lies a core technology that helps push the boundaries of visual effects: Vicon motion capture systems.

It is no exaggeration to say that the collaboration between ILM and Vicon has helped redefine the extent of our imagination.

The latest example of this work is one of ILM's most challenging and ambitious projects ever – The Mandalorian.

Following the Emmy Award-winning season one, the latest season of The Mandalorian pushes the thrilling ride for fans to new heights — all thanks to ILM's ground-breaking StageCraft technology that achieves a giant leap forward in filming techniques.

Working with Vicon, ILM has evolved well beyond traditional VFX motion capture to become a world leader in virtual production.



Turning vision into reality through technology

With The Mandalorian, filmmakers Jon Favreau and Dave Filoni have been explicit in their desire to “bring Star Wars to the screen in a new way.”

With the scope and ambition of the series only increasing on the second season it was crucial that the actors and viewers not only experience a huge range of new worlds — but truly believe in the reality of the worlds being created and are able to build emotional connections with the characters.

This ambition has required new filming techniques to be rapidly developed and deployed — chief among them virtual production techniques including camera tracking for in-camera VFX (ICVFX).

Virtual production in its simplest form is the merger of physical and digital worlds. Through a combination of immersive technologies like virtual reality (VR) and augmented reality (AR), as well as ILM StageCraft and real-time render engines, virtual production allows filmmakers to view their projects live on set to quickly react

and make changes as needed, rather than having to wait until post-production.

Virtual production also offers several logistical benefits as it allows for more iterations of scenes or shots to be created with fewer personnel in a shorter space of time, therefore significantly reducing production costs.

Allowing the creative team and the actors themselves to better visualize the environments on shoot day is paramount. Production teams previously had to imagine the final scene while using green screens to shoot, with visuals applied in post-production after the fact.

ILM has invested heavily in leading the way with these techniques – and projects such as The Mandalorian and George Clooney's feature, The Midnight Sky has been a tour de force of just what is possible with virtual production.

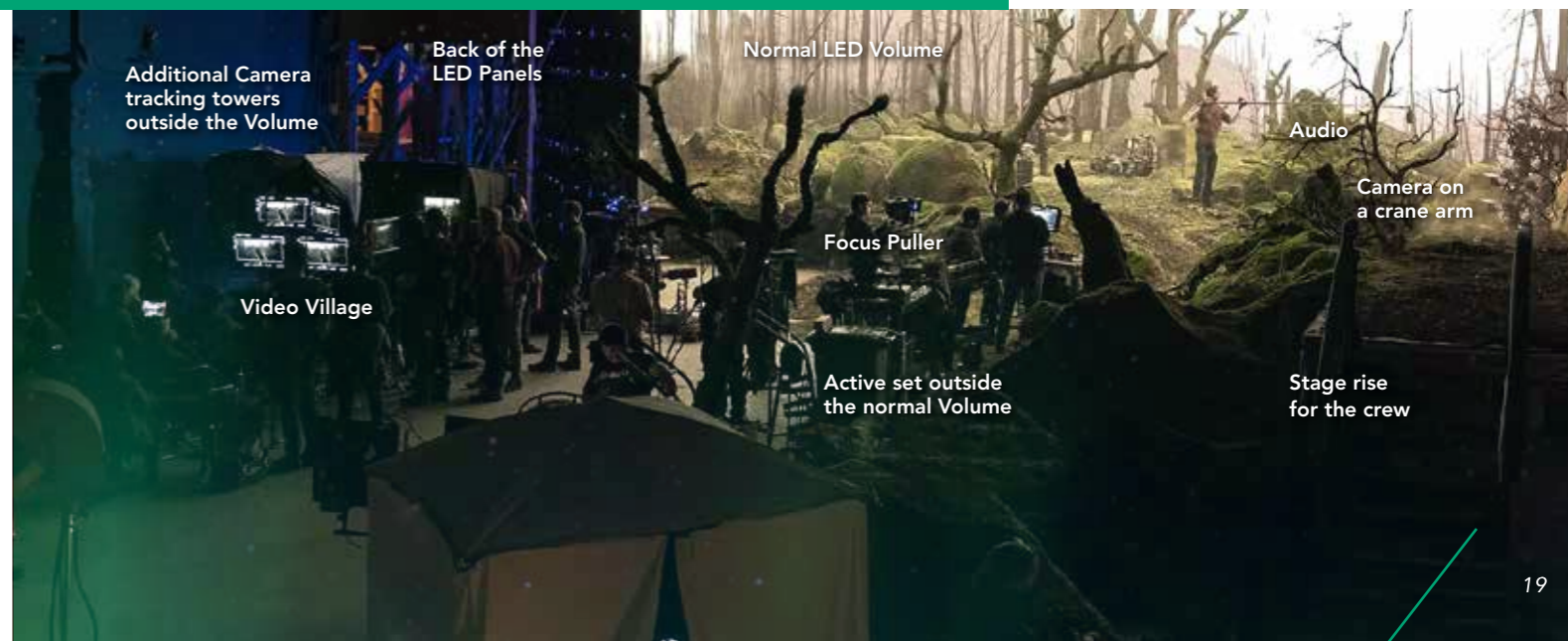
Motion capture technology in a virtual production pipeline is a crucial component in making these endeavors a reality.

Vicon's technology has allowed ILM to recreate the universe of Star Wars in compressed time with 60 different live environments, which they can use over and over again.

Everything from VR scouting, previsualization, performance capture and in-camera VFX using giant LED walls can make use of Vicon technology in some way.

One of the biggest leaps forward has been real-time capture in the volume itself, which requires high-resolution cameras and large frustums. The latest Vicon hardware has enabled ILM to accurately track cameras on set while moving about no matter if the camera is handheld, on a crane, a Steadicam, or some other support equipment. This has helped to create a 360 degrees virtual production environment at large scale such as ILM's pioneering StageCraft LED volumes, enabling them to capture a whole new category of shots while successfully blending photoreal visual effects with live action, which previously wasn't possible.

SETS EXTENDING OUT OF THE CAPTURE VOLUME



Making the impossible, possible for 25 years

For Rachel Rose, ILM R&D Supervisor who oversees the studio's developments for virtual production, the success of The Mandalorian and all ILM projects requiring motion capture owes much to the collaboration:

"Since day one Vicon has enabled us to do things that were never possible before — and that's as true today as it was in the 90s. Vicon's technology and hardware have constantly advanced throughout our relationship, and the processing power available to us with their technology is like no other. We can deploy and always count on Vicon's tech as it's such reliable, robust hardware requiring only a quick calibration."

"ILM always looks to collaborate with those who are making best-in-class software/hardware solutions for problems we're solving."

If a solution doesn't exist, we'll solve it on our own, but we're not looking to reinvent a solution that's already there.

We are incredibly lucky that we have a long-standing relationship with such an innovative company like Vicon. The absolute best thing I can say is that with Vicon I have a powerful performance capture system that just works."



Unleashing a new wave of creativity

With ILM's StageCraft virtual production technology, ILM and Vicon have realized many filmmakers' vision for creating fully digital worlds that are as close to reality as possible.

The Mandalorian is just the start of a new wave of creativity that will be unleashed as film directors explore new ways to take advantage of the virtual production techniques pioneered by ILM and Vicon.

As we have seen in recent projects, the possibilities within highly accurate virtual production pipelines are endless. Rose concludes,

"As excited as I am about what's been accomplished by our StageCraft team and the visionary filmmakers we have been fortunate to collaborate with, we've only just scratched the surface of what we believe the system is capable of. What's really exciting is where filmmakers will lead us next."

While the landscape of film and TV is constantly evolving, it is certain that whatever happens next, motion capture and virtual production will play a key role in innovation. High-quality tracking technology, offering ultimate precision, is central to enabling the advances that will allow creatives to make leaps and bounds forward and to continue to revolutionize the entertainment industry.



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www.vicon.com/vprod

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