



**TRACKER 4**

**NICON**



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# WHAT IS TRACKER 4?

**TRACKER IS VICON'S DEDICATED MOTION CAPTURE SOFTWARE SOLUTION FOR ENGINEERING.**

Designed for real-time tracking of rigid bodies providing 6 degrees of freedom (6DoF) data with low latency.

It combines a simple yet highly-functional user interface, real-time data, and nearly 40 years spent perfecting camera calibration and 3D modeling, in one flexible package.

Tracker is designed to put all the tools you need at your fingertips while allowing you to focus on what matters: your work.

# THE BENEFITS OF TRACKER 4?

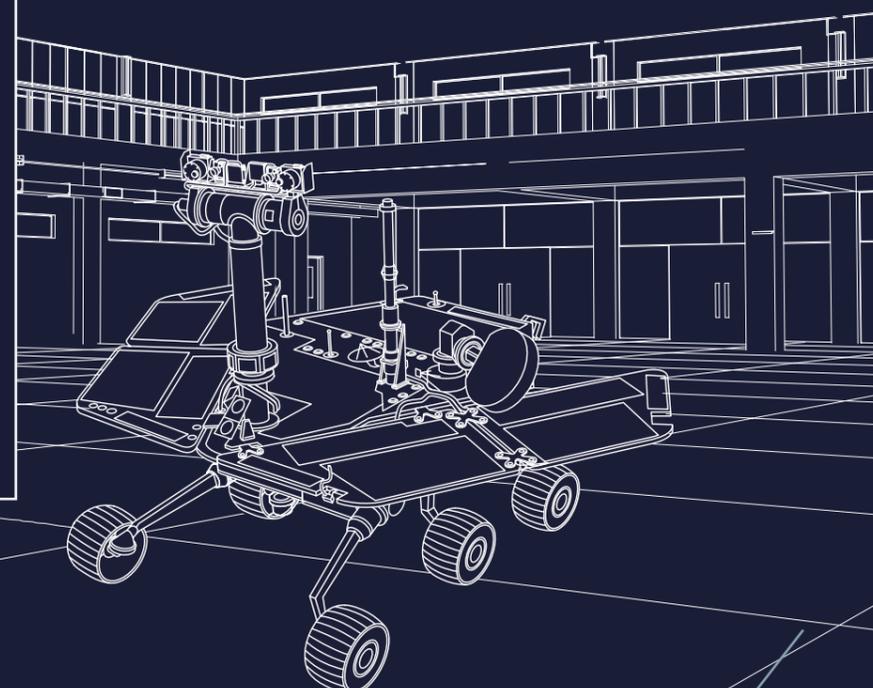
## CONSISTENTLY HIGH ACCURACY

Vicon delivers unmatched dynamic accuracy to 0.017mm (mean) - that's 1.5 the width of a human hair - and 3 times better than that of the nearest competitor.

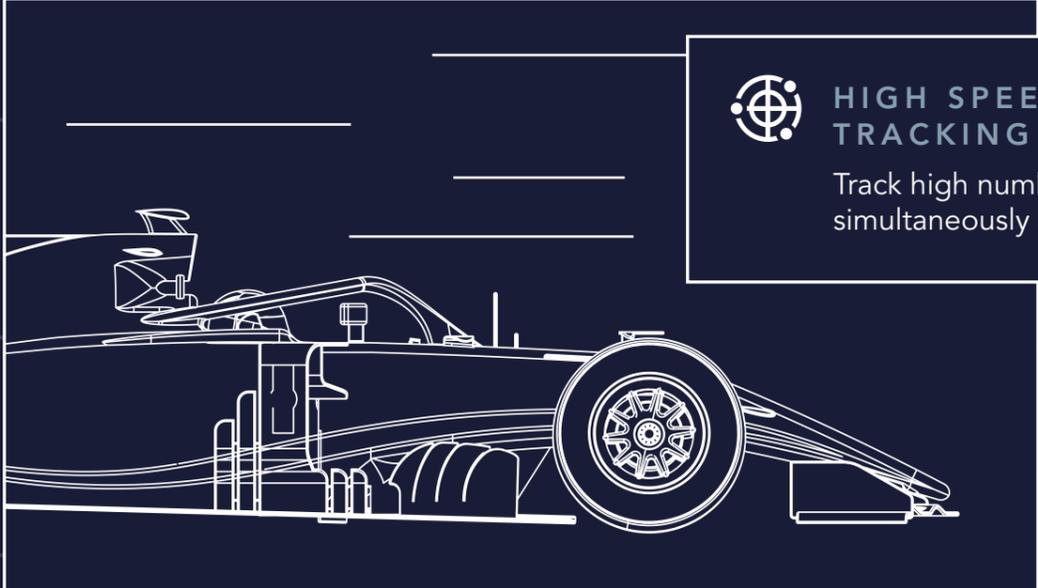


## LARGE SCALE TRACKING

The ability to track in warehouse-scale and outdoor installations, which is particularly applicable for unmanned ground / aerial vehicles (UGV / UAV).

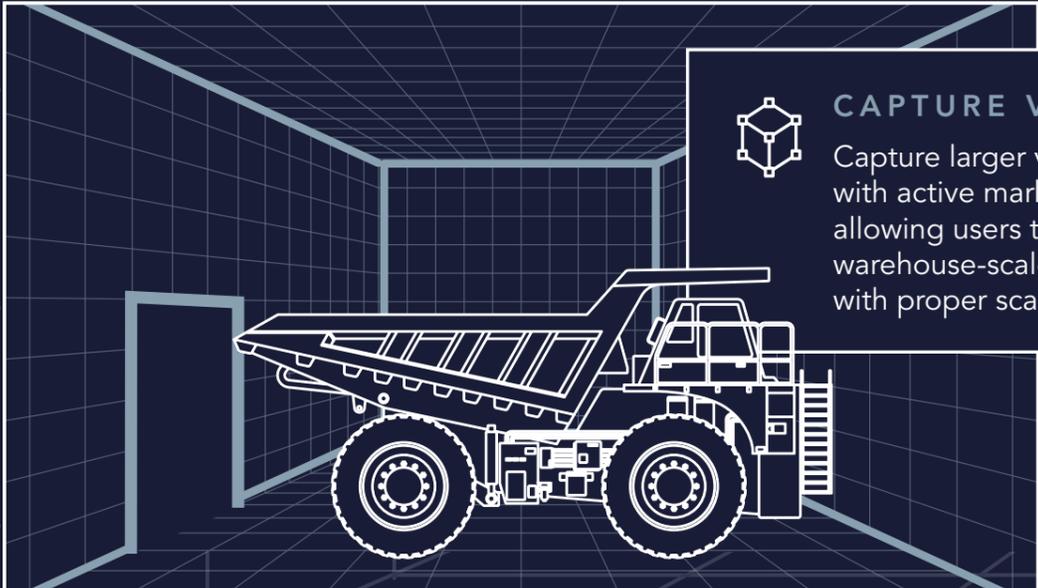


# TRACKER 4 FEATURES



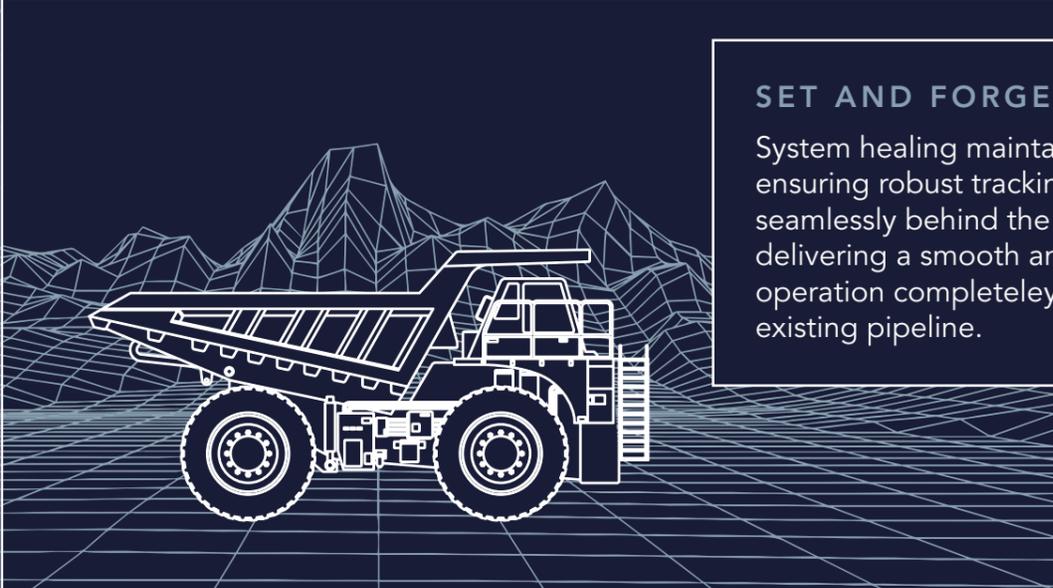
**HIGH SPEED TRACKING**

Track high numbers of objects simultaneously at high speeds



**CAPTURE VOLUME**

Capture larger volumes with active marker tracking, allowing users to cover warehouse-scale volumes with proper scaling.



**SET AND FORGET**

System healing maintains calibration ensuring robust tracking. Operating seamlessly behind the scenes delivering a smooth and uninterrupted operation completely within your existing pipeline.

With its advanced capabilities and enhanced features, Tracker 4 revolutionizes motion capture in even the most demanding settings, providing unparalleled accuracy and delivering an array of precise real-world data.



**SINGLE CAMERA TRACKING**

Only with Tracker does capture continue if the markers become visible to just one camera, resulting in fewer gaps, more dependable data and more capture volume.



**EXTENSIVE API**

Optimize your workflow with remote command and control functionality through the Tracker API.



**SIMULINK**

Real-time system modelling with Simulink



**INTEGRATION**

Streams with Robot Operating System (ROS / ROS2), Python, Matlab, C++, .Net, Unity, Unreal, Siemens Process Simulate & Autodesk plugins.



**LOW LATENCY**

Vicon excels at offering accurate, real-time object position and orientation with extremely low latency.



**SYNCHRONIZED DATA**

Synchronize data from third party devices.



# VALKYRIE COMES TO TRACKER

## LEGENDARY PERFORMANCE

Valkyrie, the most powerful motion capture camera in the world, has landed in Vicon's best-in-class ecosystem for engineering. The next generation of motion capture hardware is here to drive the leading edge of engineering design, from robot tracking to engineering, design method optimization to virtual engineering, drones, and more.

## UNDERSTAND COMPLEX DESIGN PROBLEMS WITH HIGH FIDELITY CAPTURE

As technology advances, building the future becomes more complex. Valkyrie provides a powerful new tool for understanding these new innovations as they happen.

The combination of Valkyrie's exceptional resolution and its bespoke varifocal lens means that it can see further, allowing operators in fields such as aerospace, defence and manufacturing to cover vast volumes using a mixture of passive and active tracking.

Users capturing objects moving at high speeds, such as drones, can tap into Valkyrie's speed to gain split-second insights into their objects performance and make real time corrections to their movement.

Valkyrie allows you to understand the technologies of today so that you can build the technologies of tomorrow.

## FREE UP YOUR TIME AND CREATIVITY

Valkyrie is built from the ground up to minimize its demands on your time so that you can focus on doing creative, agile work.

Even if you have to travel for your project, you can begin quickly. Valkyrie's video preview mode means that you can quickly have your system up and running with pinpoint accuracy.

Once you're set up, the robustness of Valkyrie's tracking and calibration combines with clear display features to allow you to focus on your work.

After you've left your capture environment, Valkyrie's incredible data quality combines with its internal camera intelligence to minimize cleanup time and processing. Partnered with Tracker's trusted ecosystem, Valkyrie will tighten your motion capture pipeline and allow you to focus on capturing high quality, robust data.



## BESPOKE MOTION CAPTURE LENS

Valkyrie includes a new, custom-built varifocal lens to increase range and precision.



## INCREDIBLE SPEEDS

Capture fast moving objects at consistently high levels of fidelity.



## MARKET-LEADING RESOLUTION

With a resolution of up to 26MP Valkyrie offers unparalleled clarity.



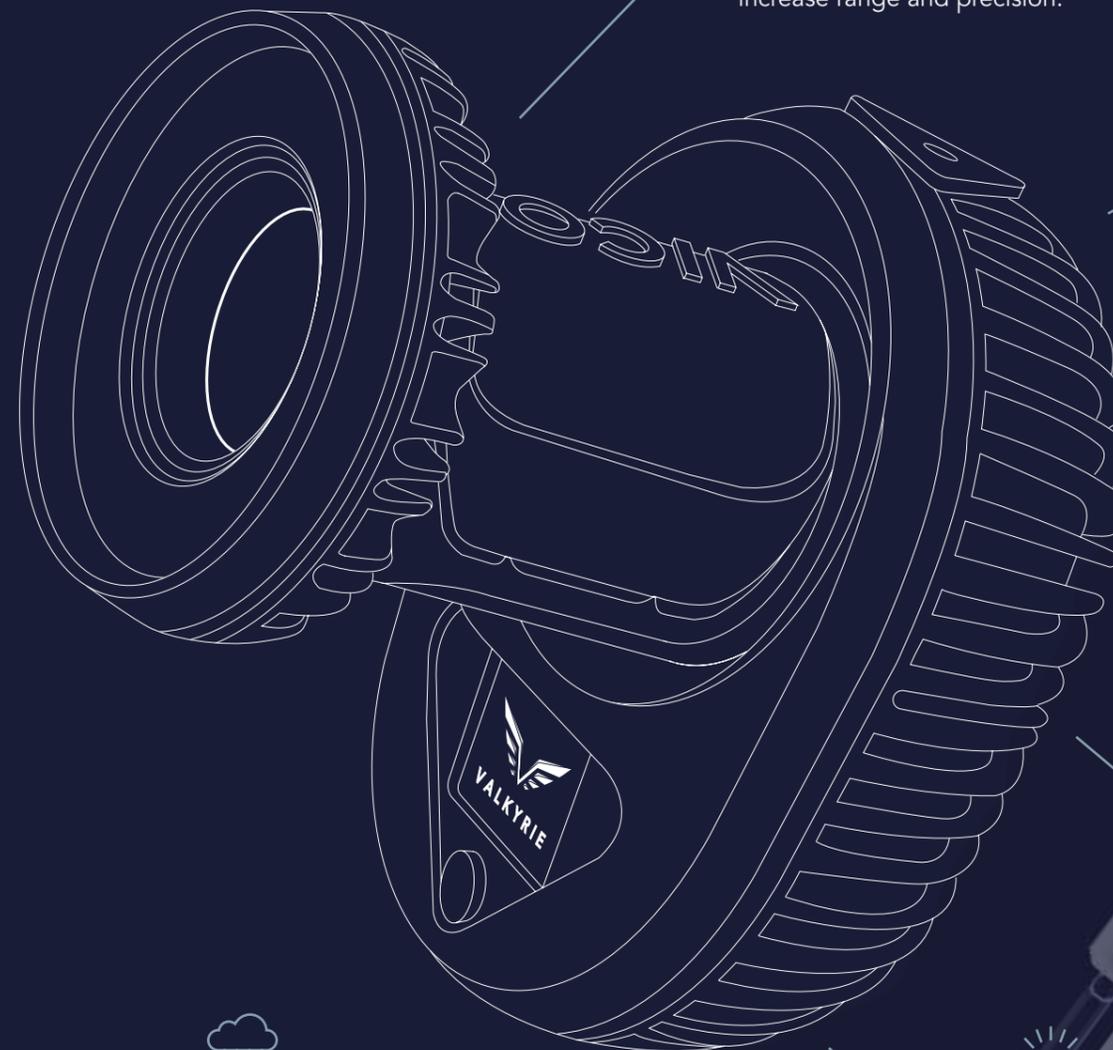
## INTUITIVE OPERATION

At 150hz, Valkyrie's full video preview mode is Vicon's smoothest yet for easier camera monitoring.



## A CAMERA FOR ANY ENVIRONMENT

With Valkyrie you can capture any movement in any environment, safe in the knowledge that your camera is IP65-rated.



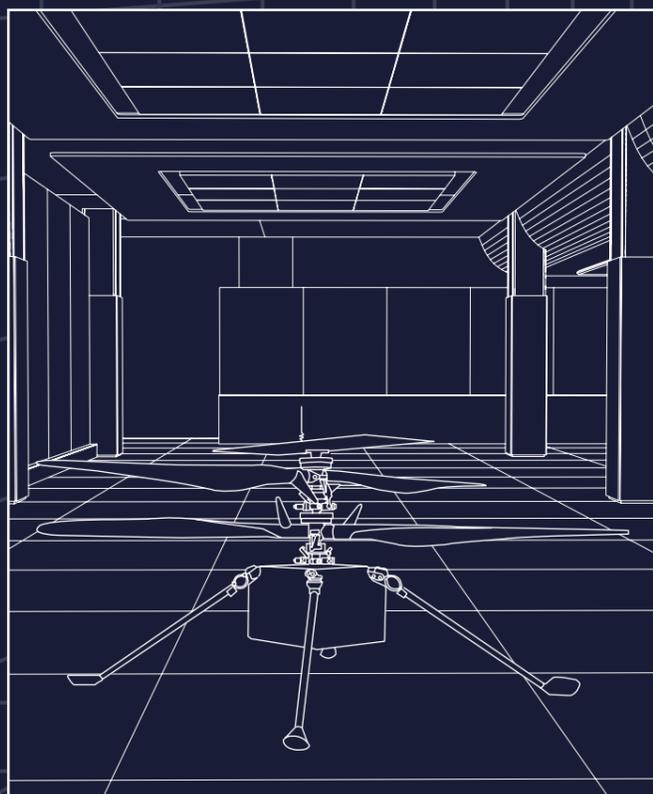
# TRACKER 4 APPLICATIONS

Whether you're tracking fast-moving UAVs, evaluating product designs for manufacturing projects, studying industrial robots, localizing tools or analyzing the movement of life-size buildings within the world's largest earthquake simulator, our motion tracking systems can be integrated into your application.

## ROBOTICS AND UAVS

Vicon is the premier solution for UAV and Robotic studies because we understand what is important: a highly accurate system, providing low-latency data that is easy to use. With our turnkey approach and easy-to-access DataStream, users can easily integrate accurate Vicon data into virtually any control system.

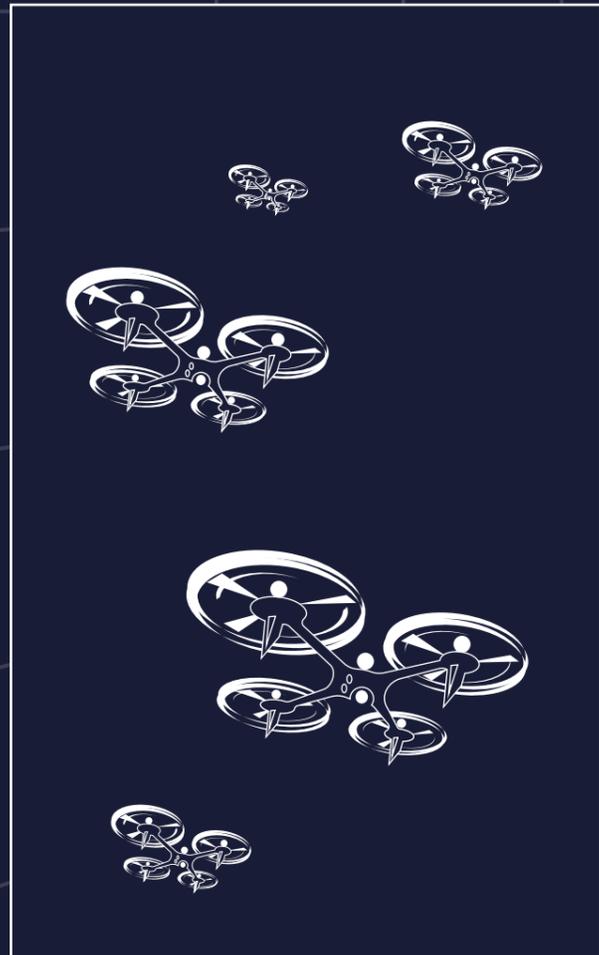
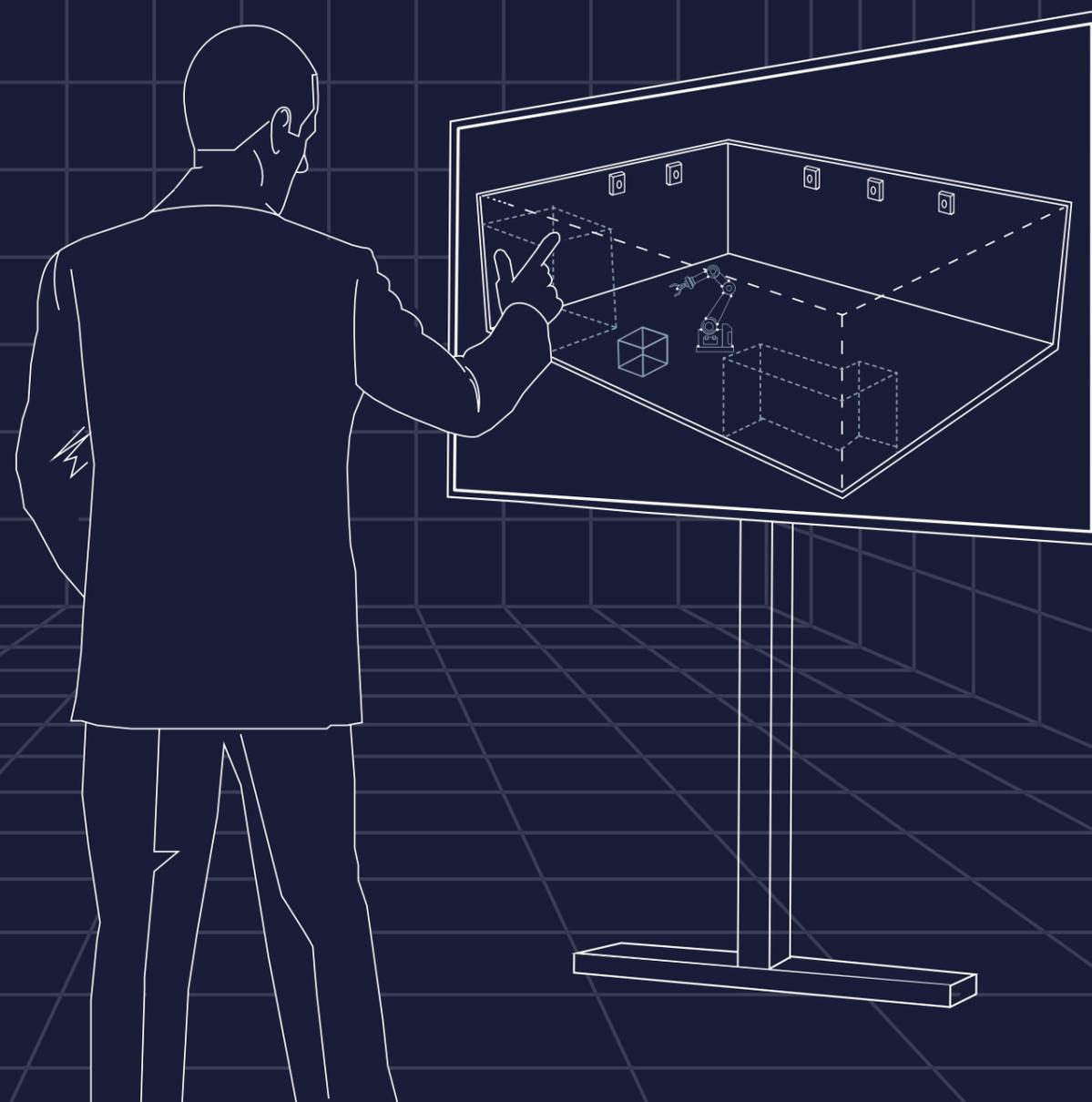
Precise tracking is key for providing ground truth for robot localization experiments. A Vicon system provides the highest order of positional and angular precision by optimally selecting and fusing all available data.



## AEROSPACE AND AUTOMOTIVE INNOVATION

Boeing, Airbus, Ford, BMW, UPENN and NASA are some of those using Vicon systems at the forefront of ground-breaking applications in ergonomics, engineering and research.

Vicon systems have been used for everything from simulating maintenance procedures in military aircraft to modeling the behaviour of self-driving cars in traffic systems. However you want to expand the possibilities of your field, your Vicon system will give you the precision and fidelity that you need.



# TYPES OF VICON MOTION CAPTURE

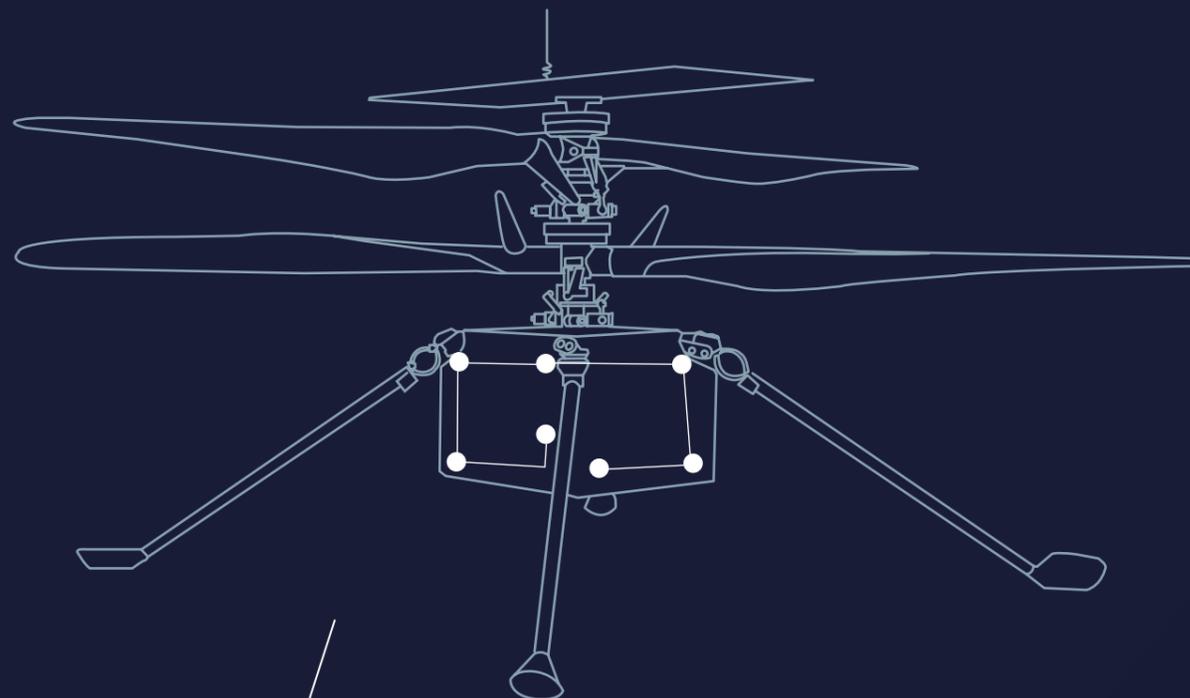
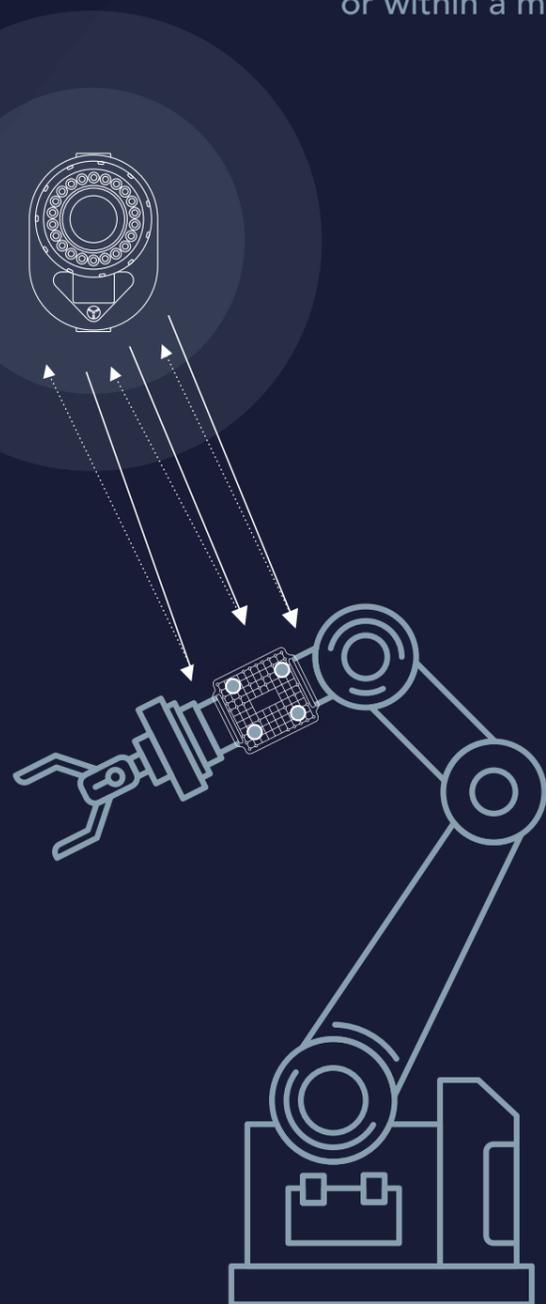
Vicon offers two different types of tracking solution which can be used either separately or within a mixed system.

## PASSIVE TRACKING

In a passive marker system, motion capture cameras emit a strobed infrared light which is reflected by markers placed on a object. The camera uses the reflected light to send the 2D position of the marker to Tracker, which calculates the 3D position of the marker based on that data.

Passive systems are very precise and offer a high degree of flexibility for the user. They're extremely effective at capturing subtle, complex movements and also function well across large volumes or outdoors.

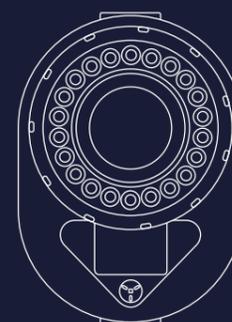
The markers are small, light and inexpensive, allowing for large numbers to be used simultaneously across single or multiple objects without interfering with natural movement. They also have the advantage of being backed by decades of research across a number of fields.



## ACTIVE TRACKING

Active markers emit their own light. Using LEDs, they each produce a unique pattern for identification by the motion capture system.

Because they emit a constant light, active markers are extremely useful for capturing fast movements with very low levels of dropout or marker swapping. Active markers are also very effective at greater ranges, allowing coverage of large spaces with fewer cameras - perfect for tracking of UAVs or for other applications requiring very large volumes.



PASSIVE & ACTIVE MARKERS

IP65 RATING  
DUST AND SHOWERPROOF

VALKYRIE CAMERAS  
NATIVELY SUPPORT OUTDOOR USE

CAPTURE ALL KINDS OF OBJECTS

VICON HAS  
**+50K**  
Google Scholar  
CITATIONS  
THAT'S 5X MORE  
THAN THE NEAREST  
COMPETITOR

TRACK THE SIZE OF AN  
ENTIRE STADIUM  
WITHOUT COMPROMISING  
ON DATA

ACCURATE TO  
0.017MM (MEAN)

LATENCY <10MS  
FOR THE FULL PIPELINE

WE TRACK THE SMALLEST  
VOLUMES IN THE WORLD  
TO THE LARGEST

TRACK MANY OBJECTS  
SIMULTANEOUSLY

# VICON TRACKER 4

SOFTWARE RUNS IN  
THE BACKGROUND



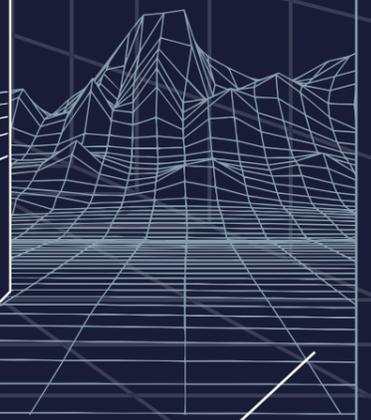
AUTO SYSTEM HEALING  
STAYS CALIBRATED LONGER

ROS INTEGRATION

STABLE TRACKING

ROBUST BUILD

TRACK LONG DISTANCES



VICON MOTION CAPTURE, DESIGNED WITH EXACTING,  
TECHNICAL APPLICATIONS IN MIND



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