

L I F E S C I E N C E S

N I C O N



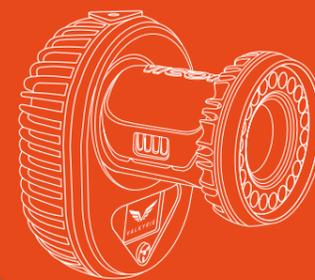
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## DEEP INSIGHTS INTO MOVEMENT FOR SPORTS, BIOMECHANICS, RESEARCH AND MORE

In 1984 Vicon began offering new insights into movement with motion capture for the life sciences. Our users have referred to us as the gold standard ever since.

Vicon builds the leading solutions for optical and inertial tracking in the fields of biomechanics, gait, sports science and animal research. We're the life sciences community's most trusted provider of clinically-validated model outputs. That's why we're the first choice for leading researchers, elite coaches, students and grassroots practitioners.

Vicon solutions combine the most capable motion capture cameras in the world with powerful, flexible software to enable our customers to gain deep insights into movement.



# SPORTS SCIENCE

Capture any athlete, anywhere

Vicon's expertise in optical and inertial motion capture empowers our users to track, analyze and optimize human movement for athletes at every level. From entry level to elite competition, Vicon offers the most comprehensive tracking ecosystem on the market.

With a Vicon system, lab-based optical capture can be combined with field-based inertial tracking to measure, monitor and optimize human movement in real-time. Our leading-edge hardware couples with versatile desktop and mobile software, a deep set of modelling tools and all the accessories you'll need to capture athletes of any discipline and ability.

We're proud to count among our clients the world's best performance analysts, coaches, trainers, clinicians and physiotherapists. Among sports scientists our systems have become the gold standard from the under-grad level up to the pinnacle of biomechanical research.



# GAIT ANALYSIS, NEUROSCIENCE AND MOTOR CONTROL

Designed with clinical applications in mind

Vicon offers the world's most advanced, customizable, end-to-end motion capture solution for clinical applications. We cover the entire pipeline – without relying on third party software – while also providing true flexibility through integration plugins for other platforms.

Vicon's software platform is widely-recognised as best-in-class for clinical gait and biomechanics applications. When combined with our high-precision, reliable cameras, our system enables you to create the most advanced, highly-specialized lab environment possible.

## CAPTURING THE FULL RANGE OF HUMAN MOTION

Optical motion capture solutions from Vicon have been used to help and study patients ranging from amputees to those with cerebral palsy. That's why Vicon systems are changing and improving the lives of people with a wide range of physical or neurological impairments. Vicon has the tools to aid your clinical diagnosis and research, useful in many areas of practice, including:



Clinicians



Researchers

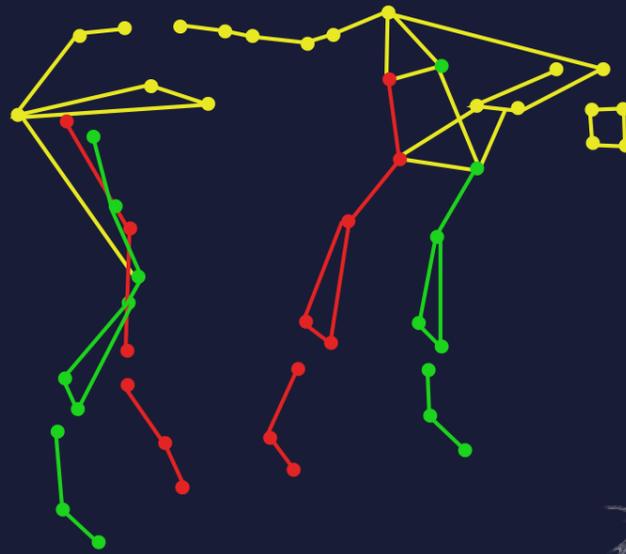


Teachers



Students





## ANIMAL SCIENCE

### Designed for any skeleton type

Whether your goal is to understand animal biomechanics, analyze behavior or to record movement, Vicon can provide the right solution. Our systems have captured animals of every size and shape, from horses right down to bees.

#### A FLEXIBLE SOLUTION

Motion capture is employed commonly in veterinary science as a teaching aid. With collection and measurement of data supporting observation and experience, more accurate diagnoses of animal injuries can be made.

As every application is different, we work with customers to optimize marker tracking and minimize post-processing time. We also provide all the necessary tools and assistance to help you take that next step. We've helped our customers with all kinds of models – from the small to the large, the fast to the slow.





# NEXUS

Designed with life sciences in mind, Nexus has a host of automated features, intelligent processing and flexible controls. Bringing all your optical and inertial data into one software package, Nexus is the only platform you need for your life sciences application. With Nexus you can also add markerless tracking into your processing pipeline.

## A TRUSTED ECOSYSTEM

As you would expect from Nexus, it works seamlessly with all Vicon hardware, and is tailored to help you tap into the power of our industry-leading camera range.

### VERO

Vero combines market-leading resolution and speed at an unrivaled price point. Its custom-made variable focus lens gives you an optimized field of view, combined with its compact build to make it ideal for users needing to make the most of a tight space.

### VIDEO

Fully synchronized, high-resolution video cameras incorporate the sharpest video image into the motion capture system without sacrificing speed for clarity.

### MEDICAL DEVICE CERTIFICATIONS

- Vicon is the only motion capture company to be certified to 13485:2016, as well as having products certified to class 1 m (European) and class II USA (\* June '19)
- First passive optical mocap company to gain Class 1(m) medical device certification (93/42/EEC) over 10 years ago
- Of the two major groups that run accreditation processes for motion capture labs, Vicon has the largest number of certified labs
- We support our hardware for at least seven years from last sale (per CE rule) – for many customers the average time before upgrading their system is about 10 years – although we are still working with customers using hardware that's 20+ years old
- Customers who wish to certify their labs can be confident that Vicon systems installed with other customers have passed the criteria laid out in the SAMSA GC certificate for lab precision



## VALKYRIE Legendary Performance

With agility, speed and raw power precision-engineered into every detail, Valkyrie offers the life sciences community a ground-breaking new tool for understanding motion. Whether your application is in research, recovery or performance enhancement, Valkyrie's combination of fidelity, intelligence and automation enables a deeper understanding of the complexities of human and animal movement.

Vicon's work began with building innovative motion capture tools for the life sciences over 35 years ago, and that experience informs every element of Valkyrie's design to make it the new foundation of your motion capture system. Valkyrie combines seamlessly with Nexus and our other life sciences technologies to form a best-in-class ecosystem offering unrivalled biomechanical insights.

### A NEW WINDOW INTO MOTION

Valkyrie's high resolution and accuracy means it offers incredible data quality for powerful insights into movement and the best decisions for patients. The cameras have an extraordinary fidelity that produce high levels of detail to highly complex modelling, offering insights into structures such as the shoulder, feet, and spine.

The camera's exceptional fidelity brings new levels of detail to biomechanical modelling, offering new insights into complex structures such as the shoulder, feet, and the spine. Its unbeatable speed easily breaks down the movements of even the fastest-moving athletes and sporting equipment into clean, granular data.

Valkyrie is the most powerful motion capture camera ever brought to market, offered with different focuses: resolution; speed and value.



### A camera for any environment

With Valkyrie, you can capture movement in a variety of environments, safe in the knowledge that your camera is IP65-rated.



### A precision-engineered lens

We built a whole new varifocal lens to increase Valkyrie's range and precision.



### Intuitive operation

The Valkyrie device offers easy aiming and monitoring, with a 30FPS full video preview mode to further streamline your work.



### Incredible speeds

Valkyrie's native speeds go up to 500FPS, and as high as 2000FPS when windowing techniques are used.



### Market-leading resolution

With a resolution of up to 8, 16 and 26MP, Valkyrie offers incredible clarity.



Nexus allows users to optimise their motion capture system to fit with their own tools and methods.

## INTEGRATE, ADAPT, OPTIMIZE

### SEAMLESS INTEGRATION INTO YOUR PIPELINE

With Nexus you can easily integrate third-party biomechanical devices into your analogue or digital lab – everything from force plates to EMG sensors, inertial sensors and more. Precisely synchronize the data from these devices with your Vicon optical data in Nexus.

### OPEN ACCESS

We run on an open source policy – we can provide SDKs, APIs and open access for third parties to create plugins for our software. All Vicon model details are available for anyone wanting to adapt them.



### MARKERLESS TRACKING WITH CONTEMPLAS

CONTEMPLAS brings markerless tracking to Vicon, unlocking the newest frontier of motion capture for the life sciences community within the Nexus ecosystem.

With the addition of accessible markerless motion capture, Vicon offers users multiple ways to capture movement. Markerless tracking complements Vicon's high-end optical motion capture system and inertial sensors, with all three solutions seamlessly integrated into the same ecosystem.

Powered by CONTEMPLAS' TEMPLO motion analysis software, easily track and analyze any subject's action in the lab, field or pool. Opening up access to the developing world of markerless motion capture, Vicon enables you to explore this emerging solution alongside the highest quality optical and inertial data.

### WIDEST RANGE OF MODELING AND ANALYSIS

We offer the most flexible range of modeling languages on the market. Our system supports all the most common software – MATLAB, Python, Visual3d, LabView, and more, or use ProCalc, our own free built-in application.

To compute valid kinematics or kinetics, you can either use a pre-defined biomechanical model (such as Vicon Plug-in Gait – just run the pipeline in Nexus) or create your own model using MATLAB or Python.

### ONGOING SUPPORT

We don't stop working with you once you've created your template.

Our expert life sciences support team will help guide you and provide the tools and advice on scripting, enabling you to create your own models.

### BIOMECHANICS WORKFLOW

The Biomechanics Workflow builder creates a series of steps to combine data collection and offline processing. The Workflow builder also makes it simple to get started with the SCoRE and SARA Functional Calibration.

▶ LabVIEW   MATLAB®   ProCalc   VISUAL3D   python

## BEYOND OPTICAL: Inertial capture offers biomechanical insights in the field

# Capture.U

Working seamlessly with Vicon's Blue Trident sensors, Capture.U offers real-time data and skeletal modeling overlaid on video, allowing you to make informed decisions right where you need to – on the pitch, trackside, poolside, courtside or in the lab.

Capture.U allows biomechanists, researchers, coaches and students to analyze subject movement by assessing live information through an array of capture modes that use leading-edge technology such as augmented reality.

Use Capture.U in the wild with our mobile app, or go deeper back at the lab with Capture.U for desktop.

## BLUE TRIDENT

Vicon's Blue Trident inertial sensor combines cutting-edge hardware and software with deep motion capture expertise into a true next-generation wearable. Blue Trident gives coaches, practitioners, and athletes the ability to precisely quantify movement in a natural environment like never before, both on land and underwater.



## LEARN THE FUNDAMENTALS OF MOTION ANALYSIS

Capture.U offers an educational toolkit to help users both teach and learn the fundamentals of Inertial Measurement Units (IMUs) and their applications in human movement science.

The Learn mode consists of two components: Education and Practice. Education teaches the fundamentals of inertial technology and works to build upon that knowledge.

Practice helps apply this knowledge by engaging the user to perform specific movements (such as squats, bicep curls and shoulder raises), then guiding the user in analysing and interpreting the data captured. All this content is presented in easy-to-use modules which combine interactive exercises with helpful walkthrough animations.

## LET SCIENCE GUIDE RETURN-TO-PLAY WITH IMU STEP

IMU Step is a wearable lower limb sports sensor and advanced software solution for elite athletes and teams in running-based sports. By delivering practical, accessible insights, IMU Step can speed return-to-play after injury, aid athlete recovery, provide running analysis, and identify reinjury risk.

Consisting of two small, lightweight sensors that produce highly accurate movement data, IMU Step gives coaches and athletes the ability to precisely measure the movements and stress put on athletes' bodies in any running-based sport.

Users are able to capture external and internal workload metrics in the lab or on the field, then turn that data into usable insights that bridge the gap between research and applied sports science.

VICON  IMeasureU

Nexus connects your network of sensing technologies into a single, life-sciences-focused platform, encompassing the widest range of powerful integrations and intuitive partner softwares.

**THEIA**  
Markerless

**Motek**  
a DHX brand

**tobii**pro



# MAKING STATE OF THE ART MOTION CAPTURE POSSIBLE...

Vicon is the only motion tracking company with a dedicated software platform developed specifically for the life sciences community.

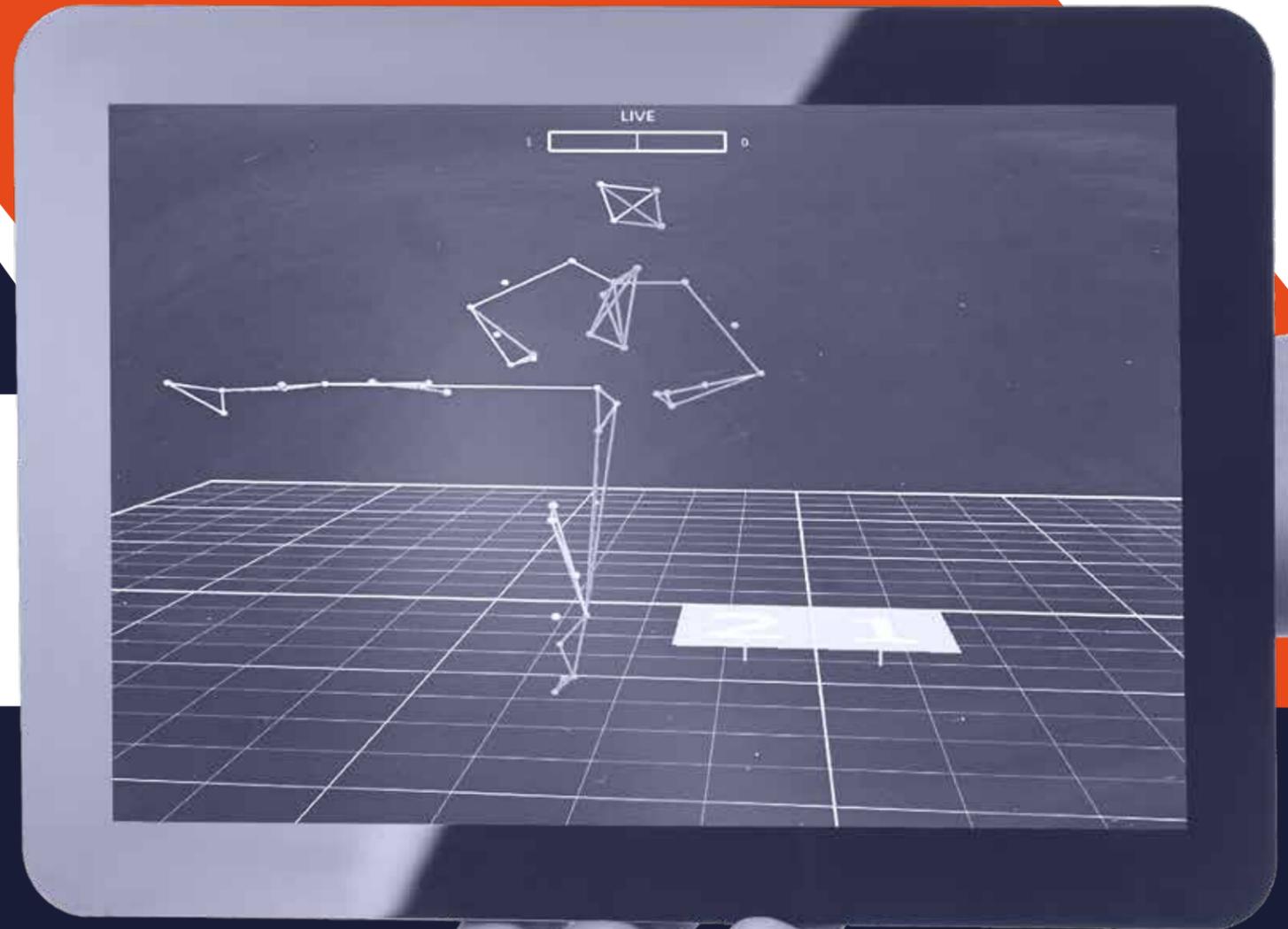
Capture using a choice of embedded models and produce model outputs from day one. Nexus gives users quick access to the most flexible and repeatable model available. To learn more about Nexus and its skeleton templates visit: [www.vicon.com/nexus](http://www.vicon.com/nexus)

## SUPPORTING OUR CUSTOMERS AND ADDING VALUE

Vicon technology never stands still. We're constantly enhancing both features and usability following feedback from customers and incorporating new features into point updates. Over 90% of our life sciences software improvements come from customer feedback\*.

Support is a crucial part of the Vicon offering. Not only do new customers receive a one year warranty on their hardware, but all of our customers benefit from phone, email and web technical support for the life of their system.

We make our solutions fit into your workflow, not the other way around.



(\*Nexus 2.12, March 2021).



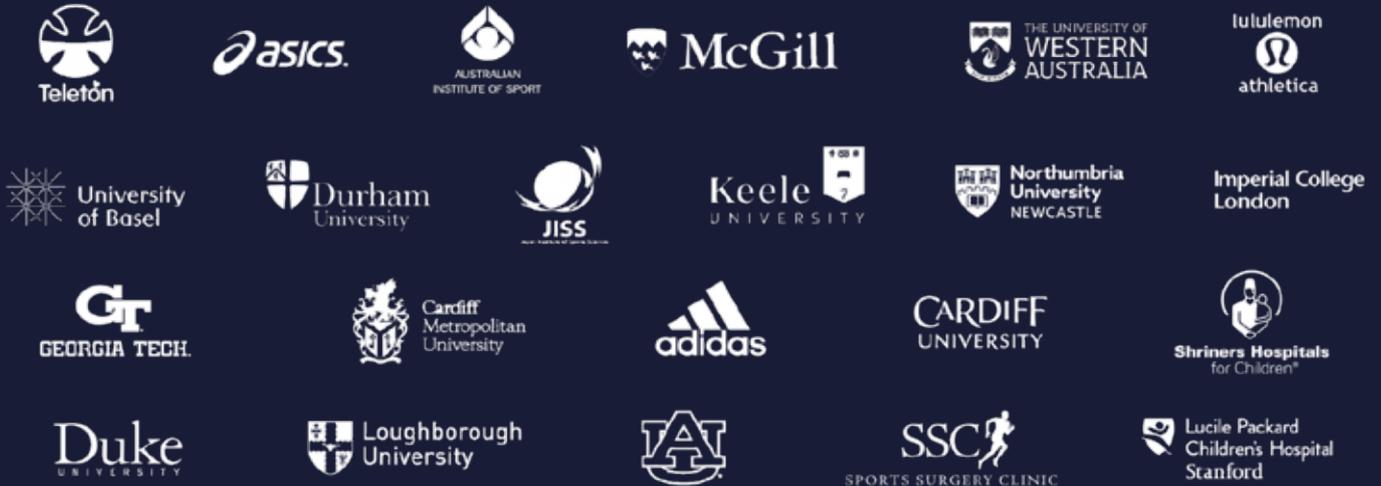
## TAILOR YOUR SYSTEM TO YOUR WORKFLOW AND AUTOMATE PROCESSES

We understand your time is important – you don't want to spend unnecessary time processing data. That's why we fully automate the entire processing pipeline: from labelling to event detection, biomechanical modelling, and data export.

To go one step further, most common processing options are available at the touch of a button: automatic marker labelling; identifying events for time normalization; automatic gap filling and more. Customers can take advantage of the ability to create their own tailored workflow, covering processes as simple or as detailed as required.



AS TRUSTED BY:



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 our website or contact us.  
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