SPIKE®

OPENING UP THE WORLD OF HIGH-SPEED PHOTOGRAPHY TO PRECISE AND ELEGANT CAMERA MOVEMENTS

THE MARMALADE
VISUAL ENGINEERING

SPIKE AN INTRO DUCTION

Spike can freely move a camera with unparalleled speed and precision, adding depth and changes in perspective to high speed imagery.

The groundbreaking High Speed Motion Control System 'Spike' brings the creative freedom of a moving camera to the world of high speed filming and allows the creation of shots that were previously impossible to achieve.

AN INDUSTRIAL ROBOT

PERFORMING REAL LIFE

We married the hardware of a sturdy and reliable industrial robot to software that we built from the ground up for the demands of motion controlled high speed imaging.

Thereby we created a unique system for performing real life camera moves where every aspect remains under complete control.

WE CREATE EXACTLY REPEATABLE CAMERA MOVES MODIFIED QUICKLY AND INTERACTIVELY

No matter where the camera is pointing, it can always be moved image left/right, up/down, forward/backwards.

The same is true for panning, tilting and rolling the camera and performing orbiting moves about any point in space. And all of this even works when periscopic lenses set up with arbitrary angles are used. Thus, working with Spike is always focused on what happens with the image and all communication between operator, cinematographer and director is always done in terms of the image and never in terms of robotic axes.

Once a move path has been set up, the camera can be easily shuttled back and forth along the move path (as easy as shuttling through a film clip in an editing system), which is extremely useful when adjusting the setup of the scene and the lighting.
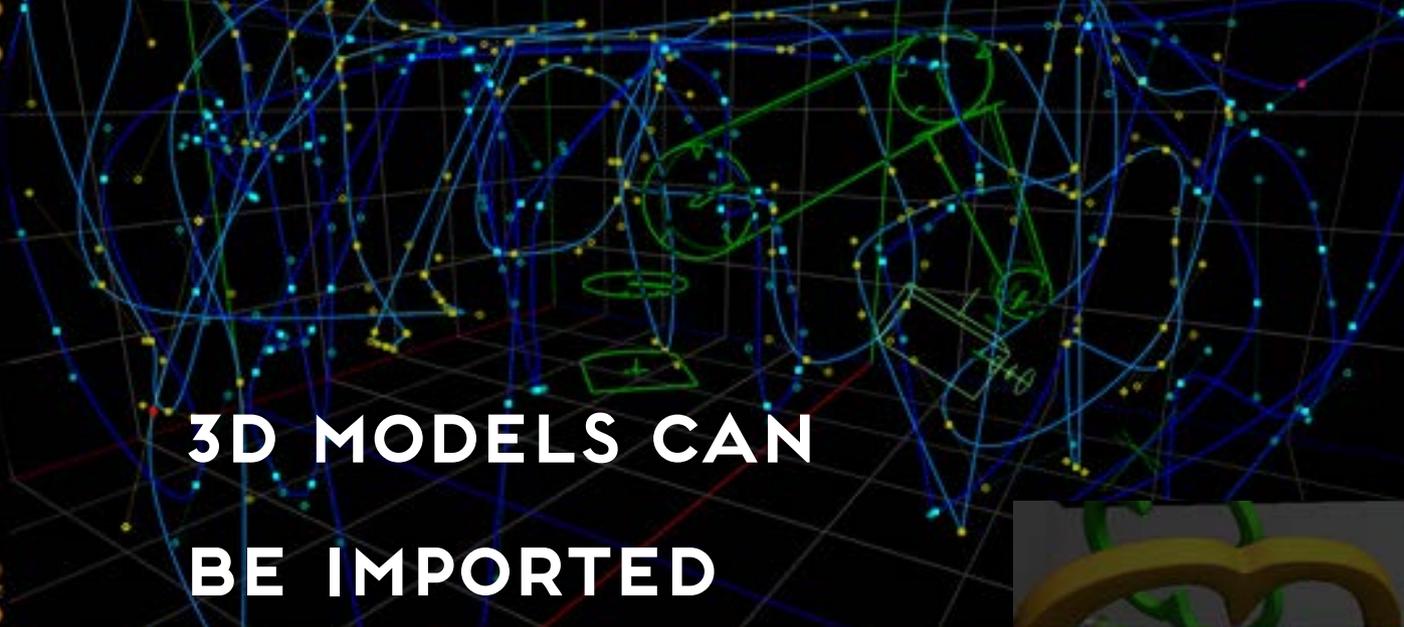
3D MODELS CAN BE IMPORTED
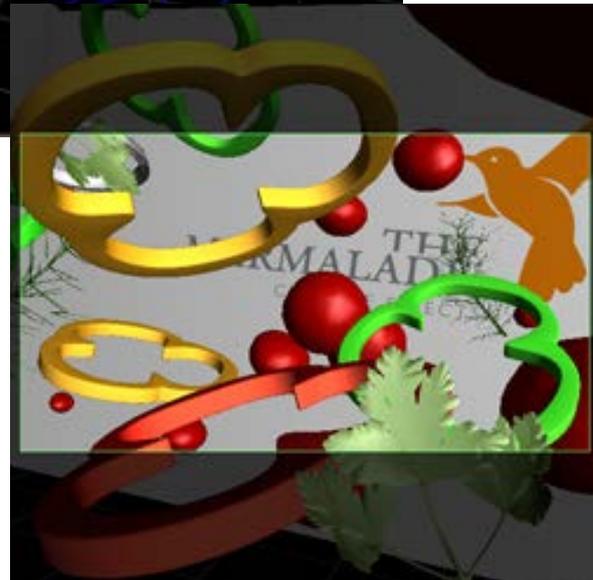
Using the rich previsualisation features of the system (taking camera settings like the frame rate, the relevant lens parameters, the size of the backplate, f-stop and focus settings into account) creative options can be quickly explored on the computer screen and the resulting changes then immediately be performed for real.

3D models can be imported, placed and animated in the virtual studio and seen through the virtual lens, so that it is also possible to work offline, away from the hardware.

Up to 8 additional external axes, for focus, turn-tables, linear axes etc. (anything that can be driven via a servo motor) can be controlled in sync to the camera move, up to 16 additional effects can be triggered with freely adjustable timing, so that complex effect sequences can be performed.

Spike has been field-tested and refined since 2010. We feel that the time has come for it to spread its wings. Spike adds a new and unique tool to your creative toolbox.

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SPIKE
FAQ

Q: Which cameras can be used
   with Spike?

A: In principle all available digital camera models can be used. We have built adaptors for the Phantom HD, Phantom Flex, ARRI Alexa, Red Epic and DSLRs. We can build other adaptors on short notice.

Q: Can I use standard
   camera accessories?

A: Yes, our adaptor cages have mounts for two 19xmm support rods, to which standard accessories can be mounted.

Q: What kind of lenses
   can be used?

A: We have successfully used a large range of standard PL-lenses (Zeiss, Cooke, ARRI, Leica) and also specialized snorkel lenses (Revolution, T-Rex, Optex Excellence, Skater Scope, Innovision). For very long lenses (the outer dimension, not the focal length) additional support brackets may be required, so that the camera lens mount doesn't have to take all the force associated with the typically high accelerations of a high speed move.

Q: How fast is Spike?

A: Very, very fast. Actually, this is quite a tricky question to answer legitimately, as it depends on a number of factors, like the weight of the camera/lens and the exact nature of the move path. As a rule of thumb, we can achieve nice camera moves at very high frame-rates. The Spike Reel is a good indicator of what's possible.

Q: How long does it take to set up
   Spike to be ready for shooting?

A: This depends on a number of factors. But typically setting it up takes about an hour from bringing it on location, including mounting the camera. Spike does not need to be calibrated. It always knows exactly where it is, immediately after switching it on (to a precision of a few 100th of a millimeter). Spike requires a three-phase 400V/32A (50/60Hz) power supply. The socket must be of the 3P + N + E, 6h type, according to the IEC 60309 standard.

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FAQ

Q: How big is Spike and how much does it weigh?

A: The fully extended arm has a reach of 1.6 meters. The robotic arm itself weighs 250kg. For high speed moves, it is important that the Spike base is fastened tightly to the floor (otherwise the force of the move would wiggle the entire rig around). Fastening Spike to the floor can be achieved by either fastening it to the floor, where this is practicable, or else by putting some very heavy weights on its base. For slower moves, a couple of wedges between the base and the floor are usually sufficient.

Q: How long does it take to program a move with Spike?

A: Programming Spike is a very straight and interactive process. Creating a smoothly accelerating and decelerating move is as easy as moving the camera first to start position and then to an end position and clicking one button. More complex moves can be programmed as easily. There is no limit to the complexity or duration of a move (the screenshot below shows a move for an art installation with 71 move points and a duration of 17 minutes). The move path is stored as a Bezier curve, which means that it can be exactly controlled how the camera moves between two programmed points. The overall duration of a move can be changed by adjusting one value. The dynamics of the move (how the move accelerates and decelerates, where it pauses, a.s.o.) can be adjusted by manipulating a Bezier animation curve, using any number of keyframes.

Q: How can I use Spike in my project?

A: Spike can be transported by truck, plane or boat. The entire setup consists of a couple of flightcases. More detailed information can be found in the 'Transporting Spike' spec sheet at www.themarmalade.com/spike. If you wish to use Spike in your project, please send us an email or drop us a call. We will then find the best way of getting things going.

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CONTACT

spike@themarmalade.com
www.themarmalade.com

The Marmalade
Films GmbH & Co.KG
Lippmannstrasse 79
22769 Hamburg | Germany
t +49 (0) 40 432 91 300
f +49 (0) 40 432 91 222

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