

ESPER

LIGHTCAGE

State-of-the-Art Lighting System for Photorealistic 3D Face Scanning & Detailed Surface Texture Capture.

The ESPER LightCage is the most advanced lighting system for 3D face scanning on the market. Transform the quality and efficiency of your 3D scanning with a lighting rig which enables the recovery of detailed surface texture data. Available fully installed and supported, worldwide.

REQUEST PRICING



Unrivalled performance for hi-res geometry and texture capture

The LightCage can replay GI and spherical lighting gradients that allow for the retrieval of accurate 3D geometry along with the generation of specular, diffuse and normal maps.



Capture 360 degrees instantaneously

The ESPER LightCage is a geodesic frame with integrated power distribution that is typically deployed with 156 MultiFlash lights. The frame is capable of mounting up to 150 cameras around the subject. When combined with rapidly cycled lighting sequences this allows the rapid capture of image data from every conceivable angle.



Unparalleled lighting control

The ESPER MultiFlash has been specifically designed for use in multi-camera capture. Flash duration and intensity can be controlled independently and the flash offset can be accurately controlled to allow precise synchronisation with the capture system. The MultiFlash comes configured with polarising filters, RGB filters can be fitted on request.



Microsecond synchronisation

The lighting states can be tightly synchronised with stills, video and machine vision camera systems, allowing for the rapid, reliable and accurate capture of an actors performance.



Pipeline-ready images

The LightCage creates even and accurate lighting states to optimise photometric data capture supporting the production of high quality photorealistic assets. The captured images require minimal clean-up and are pipeline-ready for processing.



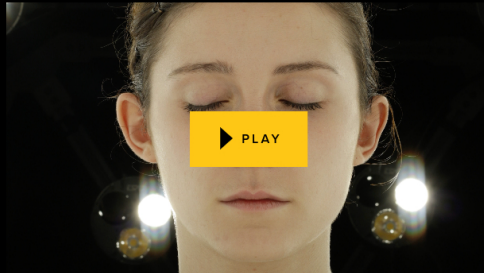
LightCage controller software

The LightCage controller software has been designed for ease of operation. No complex programming is required. No laborious command-line input or time draining second guessing. ESPER's LightCage Controller software has been designed to maximise usability, certainty and efficiency.

- Intuitive point-and-click User Interface
- Program each LED individually.
- Configure up to 32 sequence steps for each light, every step holds a flash duration and dimming value for each of the three LED's
- Precisely synchronise with video, stills and machine vision cameras using different frame rates and offsets.
- Preset illumination patterns are available.



With a LightCage it is possible to emulate the pioneering techniques originally developed by Paul Debevec and the University of Southern California Institute for Creative Technologies for generating diffuse maps, specular maps, normal maps. - Additional licensing may be required to operate the LightCage in this way.



Completely controllable multi-directional lighting perfectly synced with stills, video or machine vision cameras

Lighting states can be programmed and accurately synced with any image capture system to produce data sets that provide accurate 3D reconstructions and detailed surface detail and texture information.



Flicker-Free Dimming at high frame rates

The LightCage's MultiFlash lights have been designed to provide flicker free operation throughout their entire dimming range demonstrated here at 300fps

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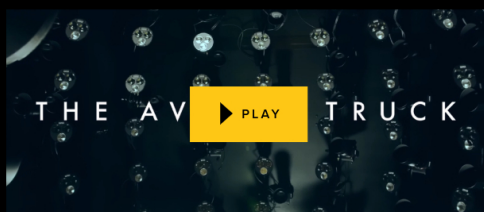
DOME

POWER HUBS

MULTIFLASH

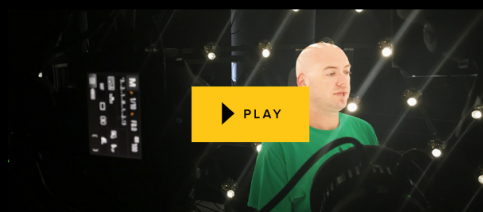
Technical Specs

- | | | |
|---|---|--|
| 1 A self supporting geodesic dome structure. | • Diameter
250cm | • Height
255cm |
| 2 Integrated ESPER power distribution hubs. | • Total structure weight (not including lights)
125 Kg | • Total system weight (including lights and cabling)
220 Kg |
| 3 6mm slots allow for a range of mounting and attachment points for camera, lighting and ancillary equipment. | | |
| 4 Our standard LightCage system is 2.3m diameter. Custom sizes and configurations are available upon agreed specification. | | |



Mobile 3D Face Scanning Rig

Custom made 3D face scanning van made for CyberHuman Productions.



Hands-on ESPER LightCage

Scanning artists share their experience about using ESPER's demo scanning rig for capturing photorealistic scans.

FAQs

What are the applications for the LightCage? ×

The LightCage can be used for any application where a subject needs accurately lighting from multiple directions. LightCages have been used to capture image data that can be used for photometric measurements, 3D mesh and texture generation and cultural heritage preservation techniques such as reflectance transformation imaging.

What does the LightCage come with? +

How do cameras synchronise with the LightCage? ×

The LightCage is supplied with a ControllerBox which can send or receive trigger signals from stills and machine vision cameras. It also accepts frame sync / genlock signals from video cameras.

What is the diameter of the LightCage? ×

We can tailor the exact diameter of the LightCage to suit the space available we'd recommend 2.3m ø diameter if you can fit it in as it doesn't feel too claustrophobic and fits in most rooms. at 2.3m ø you'd be looking at the subject being an average of 1.15m from the camera.
So on a full frame camera with a 100mm lens, the head will fill the frame nicely.

What's the maximum number of cameras that can be mounted on the LightCage? +

How does the cross polarisation work? +

What software is supplied with the LightCage? +

Do you build custom LightCages? +

Can the LightCage be installed? +

Camera Compatibility

Contact closure camera inputs and outputs are supported for stills cameras and Machine Vision setups. The LightCage Controller can also sync to incoming Genloc / Tri-sync signals.

Canon



Machine vision
compatible

Nikon

Panasonic

PHASEONE

SONY

Custom Projects

Whether you require a photogrammetry rig, volumetric capture system or a texturing process for laser scan data we'd love to talk about your project. Fill in the form and we will contact you within two business days to discuss your needs.

ASK A QUESTION



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