

The making of a workflow

disguise presents: OmniCal

At disguise, we are building the next generation
of collaborative tools to help
artists and technologists realise their vision.

Our products

disguise is a software on hardware solution.

Get designer as a software-only show design tool to visualise, design, and sequence projects wherever you are.

Then when it's time to deliver, pick one of our hardware options with the right amount of power to seamlessly turn your concept into a creation.



Workflow

disguise is an integrated show creation platform that supports your team through all stages of a production, from initial concept all the way through to showtime.

It's what allows you to **bring big ideas to life.**

Big Idea: Katy Perry, Superbowl XLIX

80 projectors

Set up & calibrate in 7 minutes

Traditional calibration
workflows are too slow

Solution:

We added X,Y,Z ‘final adjust’ for groups of projectors



Bigger Idea



OmniCal

OmniCal is a camera-based projector calibration system which gives disguise the ability to 'see'

Why OmniCal?

Why OmniCal?

Time equals money



Inaccurate models

The background features a distorted grid pattern composed of white lines on a vibrant, multi-colored surface. The colors transition from yellow at the top left to purple at the top right, blue on the left side, red at the bottom, and green at the bottom right. The grid lines are warped, creating a sense of depth and distortion, which serves as a visual metaphor for bad projection calibration.

Bad projection calibration



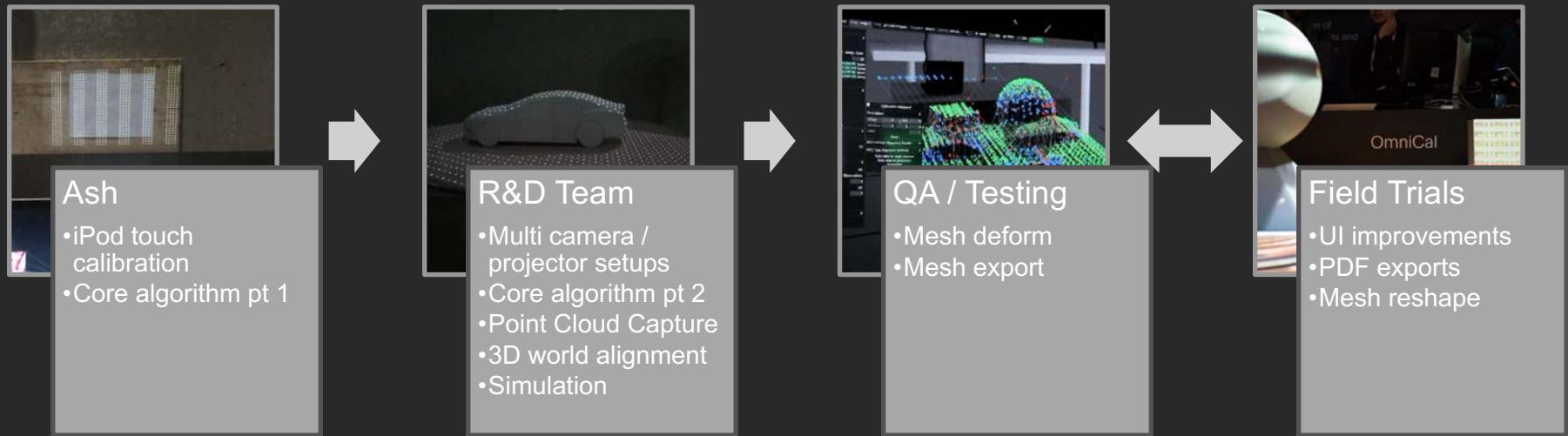
Long nights lining up

Creative compromise

ISE 2018



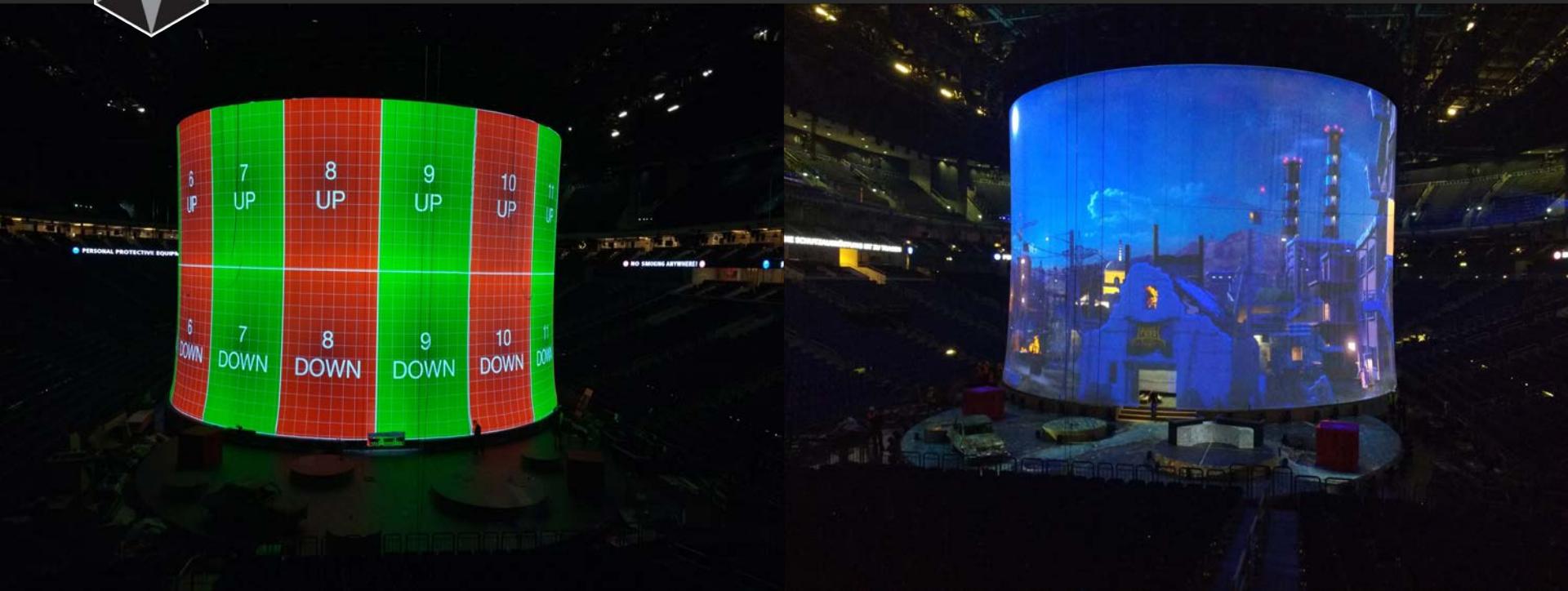
Feature Process

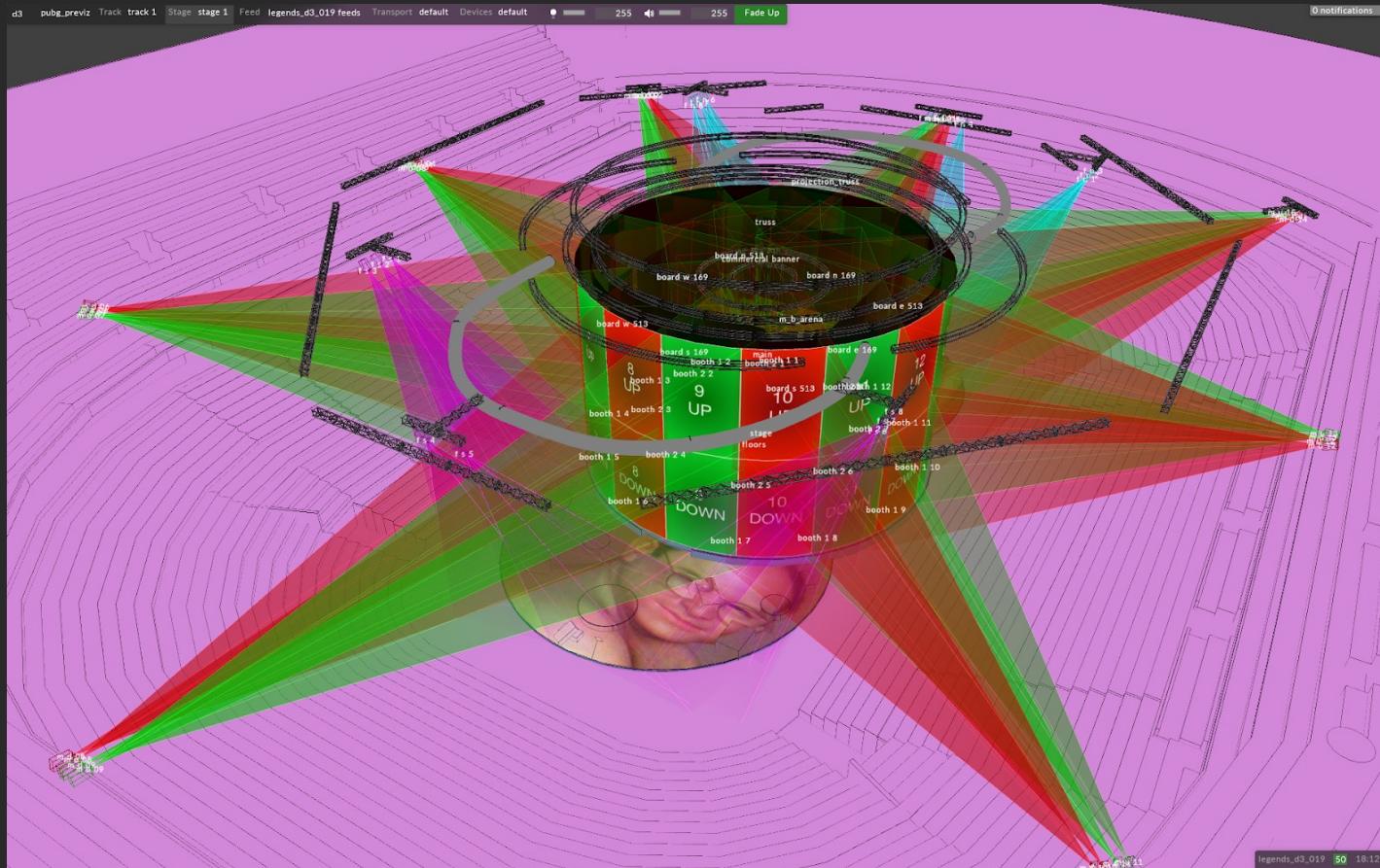


Success stories



PLAYER UNKNOWN'S BATTLE GROUND Global Invitational





disguise

National
Theatre

The Lehman Trilogy



National Theatre

The Lehman Trilogy

The screenshot shows the Omnical software interface for stage management, specifically for the production "The Lehman Trilogy" at the National Theatre. The interface is divided into several sections:

- Left Sidebar:** Lists various stage elements: Scene, LED Screens (cube, pivot point parent, centre, front cloth), DMX Screens, DMX Lights, Projection Surfaces (Projection Surfaces, EVS), and Projectors (Dynamic blend On, Blend gamma 1.67, Blend sharpness 1.12). It also includes sections for Capture Plan (mogzi rig-check plan, mogzi rig-check plan 3, result_015), Visualiser (Point Cloud visualisation, Point Cloud max line length, Point Cloud projector, Point Cloud scale), and Info (Enable Discovery Yes, Discovery Adapter Loopback Pseudo-Interface 1, Mobile Cameras, Omnical Camera Studies, Show advanced options No, Reset plan projectors to manual).
- Middle Left:** A "Capture" section showing a grid of cameras labeled 1.NAT_1 [6mm] through 10.NAT_10 [6mm]. Below this is a "Calibration" section with "QuickAlign" and "Mesh Deform" tools.
- Middle Right:** A 3D stage view showing camera positions and a grid. A red circle highlights "pivot grid PHANTOM [NAT]".
- Top Bar:** Includes buttons for Stage, stage 1, Feed, d3-master feeds, Transport, default, Devices, default, Automation, DMX, OSC, and a timeline with cue numbers 00:00:10, 00:00:22, 00:00:50, 00:02:00, 00:02:50, 00:06:00, 00:07:00, and 00:10:00.
- Bottom Bar:** Shows actions like Backup Main, Front Cloth Test, GRID, GRID 2, and a timeline with cues 00:00:10, 00:00:22, 00:00:50, 00:02:00, 00:02:50, 00:06:00, 00:07:00, and 00:10:00, along with scene descriptions: modern skyline, Water Horizon, Statue of Liberty, Cotton Fields, 1.1 The Traveller, 1844 skyline, sea Horizon, status of liberty, 1.2 The Shop (1847), and 1.3 The Bank (1855).
- Right Panel:** Displays network information (Send Transport Commands, Editors Allowed, Machines, Actions: Start All [Ctrl + Alt + S], Restart All [Ctrl + Alt + R], Quit All [Ctrl + Alt + Q], Force Quit All [Ctrl + Alt + X]), and a "Not engaged" status for various systems like Timecode, Play mode, and Event Transports.

National
Theatre

The Lehman Trilogy



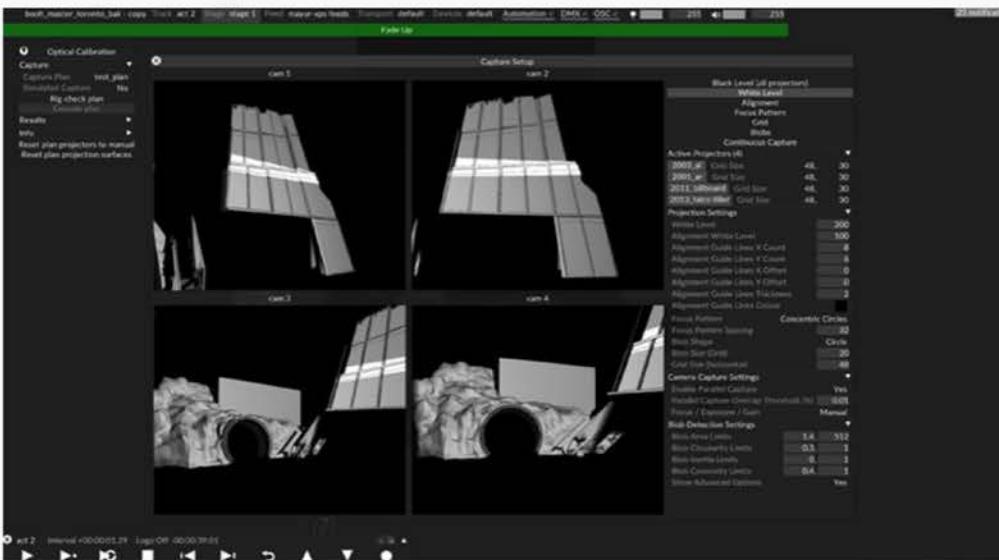
What is OmniCal?

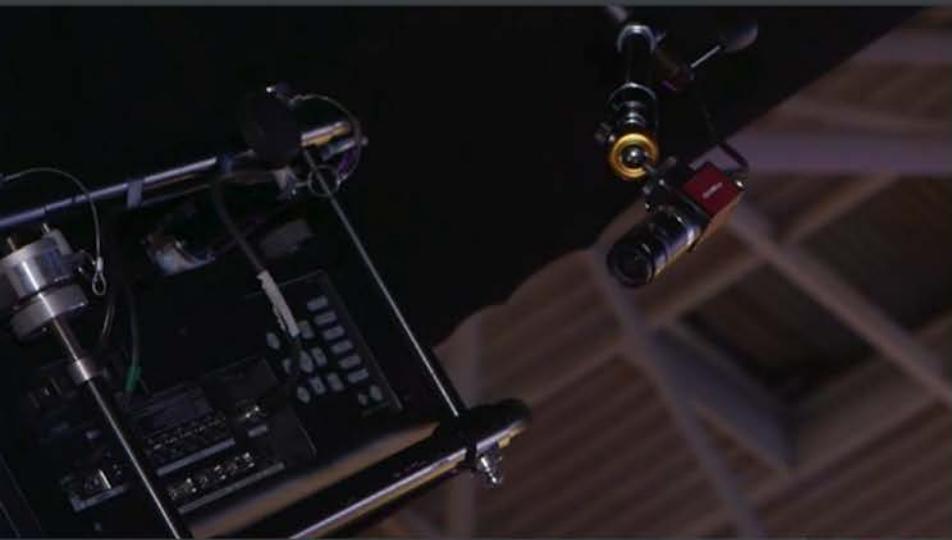
A new projection workflow
Tools to enable that
workflow

01_

Simulated camera plan

Use the virtual cameras in the stage to plan camera placements and generate test calibrations to ensure optimal camera placement once on site.





02_

Camera set-up

Once onsite check the real cameras match your simulated Camera Plan using the RigCheck feature.

The disguise OmniCal editor will also allow you to check and adjust exposure settings, identify cameras with unique names, and configure all other OmniCal camera settings.

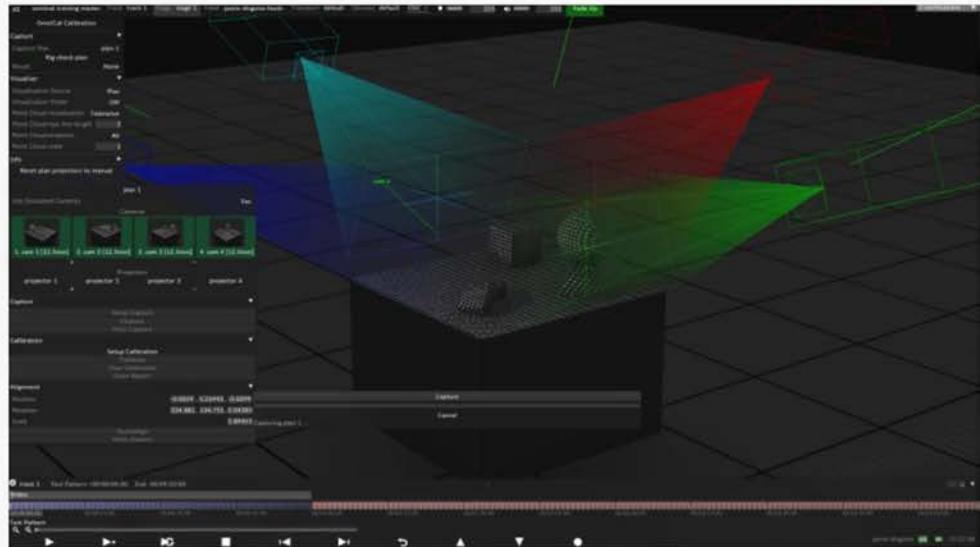
03_

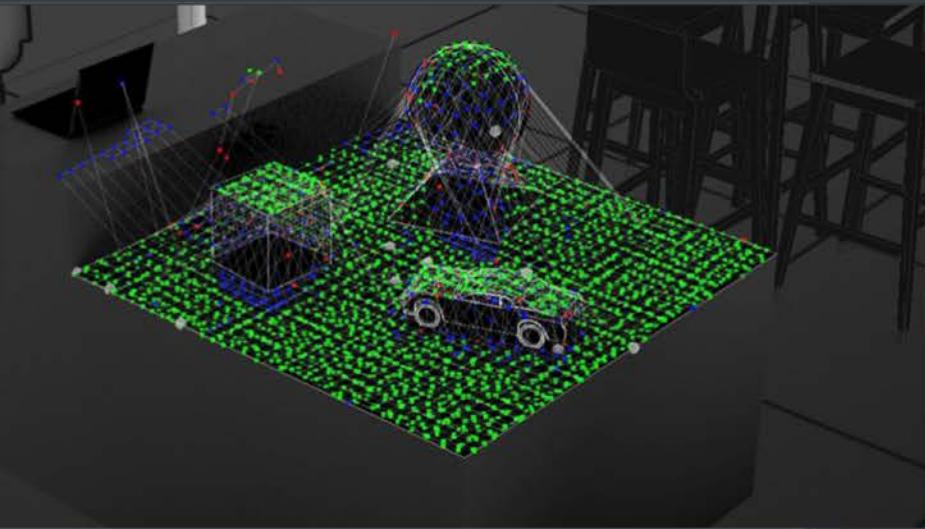
Capture

Capture is an automatic 'one-button' process that typically takes less than a minute.

Structured light patterns are projected onto the projection surfaces, while the cameras capture images of these patterns. They create a point cloud, calculating....
Ensure the stage is clear and there are no major lighting changes for this small window of time.

Once capture is complete, the stage is free and the rest of your OmniCal set up can be done remotely from your Designer laptop.





04_

Calibration

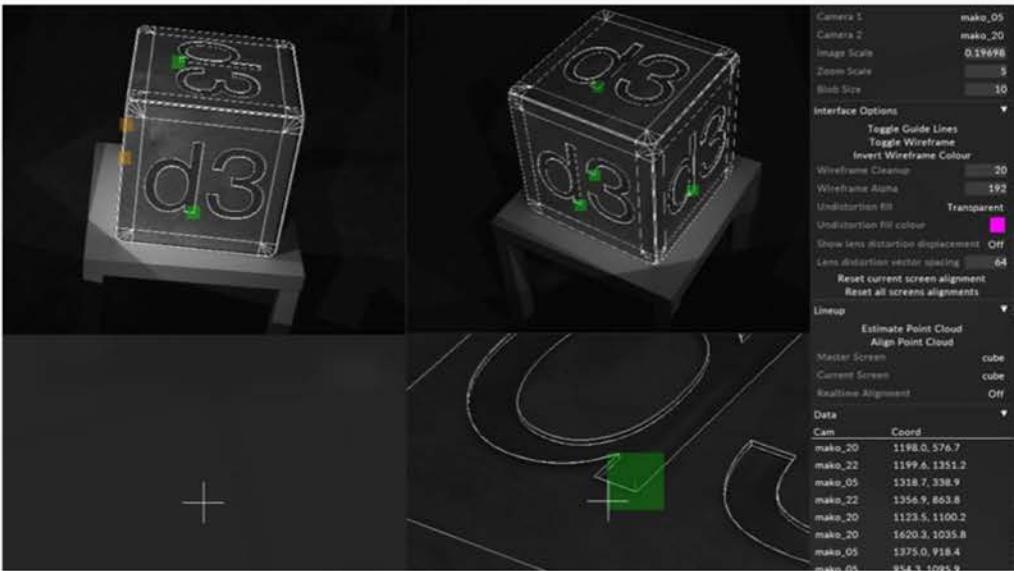
You now have your captured point cloud, the relative positions of cameras, projectors and their lens intrinsics.

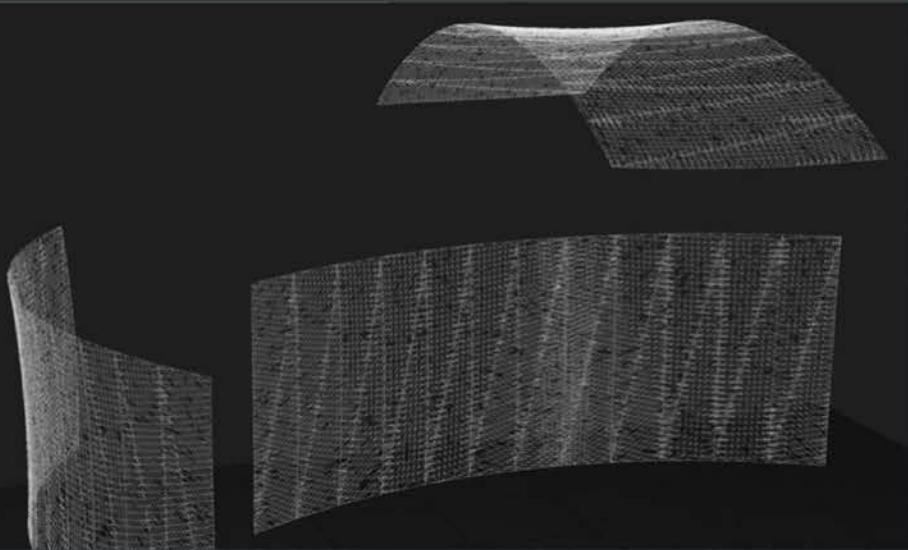
View the point cloud checking for any calibration errors in pixels for each projector and adjust as necessary.

05_ Alignment

Line up wireframe views of the projection surfaces with reality, and add re-shape points to correct the shape of the mesh if necessary.

So long as the cameras or projection surfaces don't move, you only need to do the alignment once.





06_

Mesh deform

This is a final key step which deforms a mesh in disguise to match the real world by using the depth information from the point cloud.

OmniCal key attributes

- Accurately calibrate all projectors to sub-pixel accuracy
- Scalable
- Time-saving
- Conform pre-existing meshes to match reality - not warping the projectors outputs
- Integrated workflow
- Flexible hardware solutions

OmniCal Wireless Kit

- Secure Pelicase ideal for touring environment - easily accessible for quick and hassle free set-up
- All-in-one kit including:
 - 4x iPod touch
 - wireless base station
 - charging capacity
 - Tripods
 - Super Clamps
 - Mounting accessories



OmniCal App

- iOS App, pre-installed
- Also includes a copy of the User Guide



OmniCal Wired Kits

- Small kit: 4 Machine Vision cameras
+ up to 12 lens capacity
- Large kit: 8 Machine Vision cameras
+ up to 24 lens capacity
- Lenses: 6, 8 and 12mm options,
allowing for on the fly customisation
to ensure the perfect setup



Where next?



disguise



Get in touch

If you would like to find out more about OmniCal, please get in touch.

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