



thrive
SIGGRAPH2019
LOS ANGELES • 28 JULY – 1 AUGUST

Christian Richardt

Course Conclusion



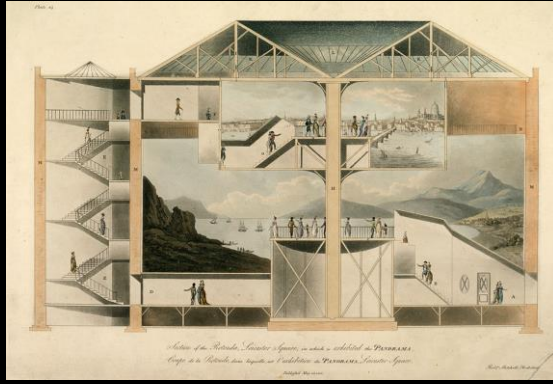
CAMERA

Centre for the Analysis of Motion,
Entertainment Research and Applications



UNIVERSITY OF
BATH

Visual summary



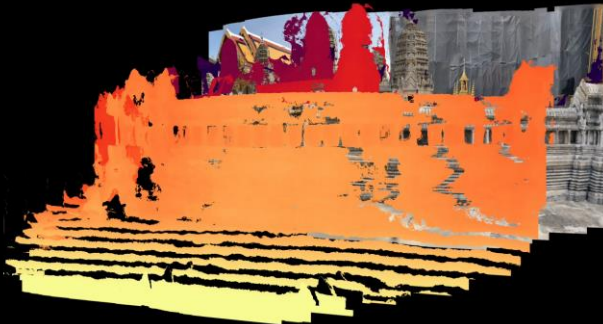
Robert Mitchell, 1901



David Tett/KCL



Facebook



Hedman et al., 2018



Overbeck et al., 2018



Facebook



Konrad et al., 2017



CNET/Facebook



Microsoft

Asking our Team

Christian Richardt

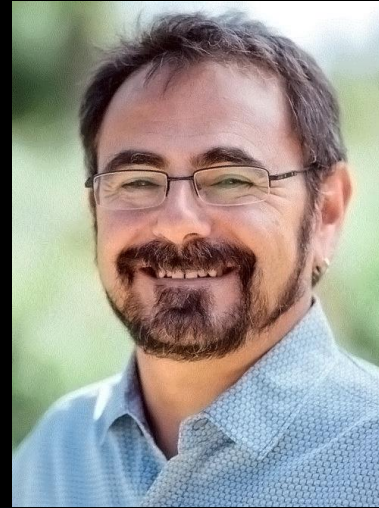
Peter Hedman

Ryan S. Overbeck

Brian Cabral

Robert Konrad

Steve Sullivan



*What single thing would most improve
VR photography or VR video?*

Robert Konrad



"I guess the single biggest thing that is missing from cinematic VR currently is supporting 6DOF.

The difference in experience in going from a single viewpoint to allowing for translations is huge.

After that I think real-time streaming of content and supporting focus cues would be the two next most important considerations."

Steve Sullivan



“From my perspective doing volumetric, I’d answer in two parts:

- more syncable camera options
(to speed innovation in capture systems)
- more support from large-scale social platforms
(to reduce consumption friction and speed adoption)”

Peter Hedman



1. "A benchmark dataset for VR multi-view stereo (MVS). If we had a 3D reconstruction benchmark [...] for VR capture, it would encourage research into robust MVS algorithms that could be used in any VR capture system.
2. A robust solution to narrow-baseline SfM would be incredibly useful for hand-held capture, facilitating even easier capture with a larger variety of cameras and lenses."

Ryan S. Overbeck



“We need to build a sustainable flywheel for VR photo and video content. This is a bit of a cop-out on the “single thing” part of the question because we need to improve the whole chain.”

We need faster and better capture methods and editing workflows, we need more quality content, we need high quality distribution platforms with solid monetization, and, of course, we need more consumer headsets in the wild.”

Brian Cabral



facebook

“We talk a lot about the crossing the ‘uncanny valley’ that limits model based VR capture.

I claim there is a ‘artifact barrier’ limiting model free capture such as presented in this course. If we could just capture the 3D scene or lightfield without artifacts as we do 2D videos we would have a much wider and quicker adoption.

Crossing that barrier is the THE challenge that is holding back VR video capture.”

Christian Richardt



“We need new, improved algorithms that can reconstruct dynamic 360-degree environments from multiple video streams to produce lifelike 6-DoF renderings in real time.

Overall, the entire VR video pipeline, from high-quality 360-degree environment video capture, over reconstruction and processing, to rendering and display in 6DoF with light field displays requires more research and engineering.



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Thank you!
Questions?

Capture4VR

From VR Photography to VR Video

richardt.name/Capture4VR