

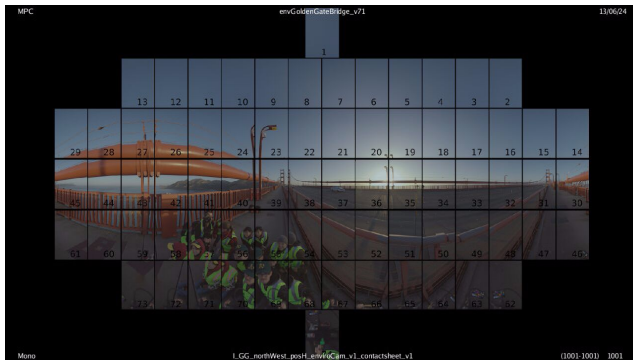
# Roundshot Pipeline at MPC for *Godzilla*

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## Abstract

For *Godzilla*, we were tasked with capturing and recreating many on-set locations. Roundshots are panoramic images captured on set for use in compositing, lighting and environments.



**Figure 1:** Roundshot Contact Sheet - ©2014 Legendary Pictures. All rights reserved.

Accurate incorporation and interpretation of the captured images for use in film is essential to maintain the visual and spatial information as well as to better accommodate creative direction. Several new processes were required to update MPC's pipeline to accommodate a large amount of data with a dynamic workflow. With such a broad array of images, a combination of automation and stakeholder visibility were needed to use them effectively.

## 1 Roundshot Ingest Pipeline

Photographic reference, Lidar scanning and other methods of capture have long been used to accurately acquire on-set data for film, but there was a need for a streamlined process that still allows for the flexibility required at shoot time. After assessment of several out-of-the-box solutions, often priced in the tens of thousands of dollars, MPC opted to build a set of internal tools. These tools had the mandate to effectively sort through hundreds of gigabytes of captured images and display them to users. Processes were needed to ingest images into an existing Asset Management System (AMS), dynamically create contact sheets for easy viewing and to enable selection of roundshots for further processing.

Previous work with roundshots at MPC had been done manually, often involving repetitive copying, naming and triage of the sequences coming in from set. It required maintenance of different Nuke scripts depending on the image count or orientation and all

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happened by hand. Our new ingest pipeline is pointed to a list of directories containing the images and uses a newly created algorithm to assess the properties of the roundshot sequence and releases it into our AMS. We then use the on-set acquired XML data from the panoramic camera rig to dynamically place images on Nuke-generated contact sheets; accounting for the camera's pitch, yaw and roll rather than user QC. This ingest also applies the correct LUTs to ensure consistency in the grading and maintains versions of the source images which are color-corrected for future use of the captured data. If the roundshot was acquired with exposure brackets the HDR images are created as well for use in the panoramic layout and downstream processes.

With these contact sheets dailied, leads and supervisors from many departments including Editorial, Compositing, 3D Digital Matte Painting and Lighting can all quickly scan through dailies to pick roundshots for further processing. These panoramic layouts give visibility on which sequences would be best suited for composited background, environment reconstruction and HDR domes for lighting.

With an easy ingest and preview solution using the contact sheets we can quickly process on-set data and provide feedback to the team for any possible re-shoots required due to capture mis-fire, data corruption or lighting requirements. By centralizing the roundshot data rather than ad-hoc placement used by individual departments we allow for greater re-use, less data duplication and better interdepartmental visibility of these essential assets. While this had not been as great a concern on films with only a couple dozen roundshots, a new pipeline was required when dealing with hundreds of these sequences.

## 2 Roundshot Stitching and Projection

With a central repository of easily viewed and accessible contact sheets the various departments consuming the images can start kicking off their processing of the source data. Stemming from recent developments for *Fast & Furious: Supercharged* we are now able to produce automatically stitched images using the artist's tool of choice; typically Kolor's Autopano or PTGui. Allowing artists the flexibility of using either tool for stitching was essential as each will have their own preference and licensing requirements may not always enable processing with a given software option.

Preliminary stitches can be processed and artist refinements can be brought in as needed via control points and command-line tweaks exposed through the tool. Upon completion of the stitched roundshot the image is then broken down into a six pack; a set of six images which can then be used in the final projection of the dome. Projection can happen using setups in Nuke or Katana depending on the result required.

## 3 Acknowledgements

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