

# Lighting *The Blue Umbrella*

Brian Boyd  
Pixar Animation Studios



*The Blue Umbrella* © Pixar/Disney

## Introduction

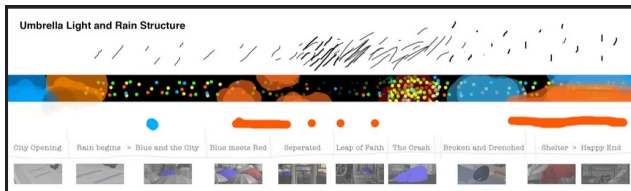
The Blue Umbrella presented our team with creating a short that had a much more realistic, photographic look while still maintaining a stylized feel, with rain and splashing effects in almost every shot. Pixar often uses our shorts program as a test-bed for new software or techniques, and *The Blue Umbrella* was no exception.

## The Look

Director Saschka Unseld wanted the city to exhibit a history and feel like a real place to contrast with the city characters coming to life. He was inspired by the films of Wong Kar Wai and the photography of Saul Leiter, among others. Saschka was drawn to the bold use of saturated color as an accent, strong bokeh with very shallow depth-of-field, off-camera flares, and stylized contrast and silhouette. We looked to incorporate many of these elements into *The Blue Umbrella*.

## The Plan

The central idea is that whenever the Red umbrella is present, warm lighting with red accent is dominant and when Blue and Red are separated, cool lighting with green accent is dominant. The film begins with the city being mostly desaturated, then becomes a bit more colorful as the rain begins to fall, and moves to much more saturated by the end. There were eight different color grades used throughout the film, each coupled with a unique look for the rain. The color script acted as a guide for the basic lighting beats.



*The Blue Umbrella* © Pixar/Disney

Other considerations to take into account are the placement of practical light sources that would inform the look and provide

much of the illumination. Stoplights, neon signs, street lamps, car headlights and taillights, and lit windows in buildings needed to be planned. These lights were moved around from shot to shot as needed, and often the base colors were changed to support the story point.

## The Process

Techniques used on this film included physically-based lighting and shading, deep compositing, and depth of field done in post.

We chose to use physically-based lighting for the short, leveraging off the work done by the Monsters University crew. It was a great fit for us, considering the more realistic look that Saschka was going for. We developed a workflow that allowed the lighting and effects artists to collaborate more closely – both in the file management of the shots, and for reviewing daily work. Some of the challenges included integrating rain, drips and splashes into almost every shot, managing complex scenes with large amounts of geometry, and managing the memory requirements needed for ray tracing. The rain look changes considerably throughout the film, from very light through very stormy, so no two shots were ever using exactly the same settings. We would have daily reviews of the latest work with the entire crew to work out issues with continuity or look differences, plus discuss ways to optimize heavy scenes as necessary. Crowds density, reflection tracing, and prop placement were often adjusted as the shot progressed in lighting to make the scenes more efficient while retaining the look.

## Compositing

We really wanted a very smooth, controllable bokeh with chromatic aberration, bloom and lens distortion in the circles of confusion. Offline rendering was too expensive to get the look we wanted and would not be as quick to iterate with. So we chose to go with doing the depth of field in the comp as a post-process. One of the benefits of this is lighter render times since DOF was turned off in the render, and because the depth of field was very shallow, we could render most of the background objects as bi-linear subdivs and polys with reduced shading complexity. Another was being able to change the focal plane or f-stop quickly without needing re-render. The downside with this method is artifacts in out-of-focus foreground objects. We would correct for this problem by splitting those objects on their own layer and convolving them separately. Lighters would have to maintain multiple render layers and their associated deep files.

The heavily processed look in compositing was a big part of the look of the film. We leaned heavily on the use of lens flares, chroma bleeding, diffused fog, and strong color grading to create a unique look for the film.