

# Crowdpainting with Light: Participatory Imaging at the Big Shot

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## Abstract

*Painting with light is a night photography technique where the photographer illuminates the subject with moving lights over a long exposure time. The Big Shot project has taken this technique to the extreme over the past 30 years by engaging large crowds for the lighting of landmarks resulting in unique night photographs. In this paper, we overview the fundamental techniques of crowd-painting with light and show representative examples of images taken through the years. We also discuss some of the social aspects of this participatory experience that make it memorable and engaging. Finally, we propose computational techniques for painting with light and demonstrate, through a small experiment, how crowd painting with light can be accessible to broad audiences for experimentation, social interaction and fun.*

## 1. Introduction

How many flashlights does it take to illuminate a building for a night photograph? Is it enough to have 50, 100 or 1000 flashlights? And why does it matter? This paper is about the RIT Big Shot project, where the crowd actively participates in illuminating the subject of night photographs. This Big Shot project started in 1987, has grown in numbers and complexity [1], [2]. It began with film cameras and 40 participants, and has evolved to using digital cameras and thousands of participants. We overview the fundamental techniques of taking such extreme pictures with the objective of motivating more groups to take on such projects and open new directions involving computational techniques. We also discuss some of the social aspects of this participatory experience, which make the Big Shot experience fun and worthwhile.

## 2. Painting with Light

The technique called painting with light is well known among night photographers. The subject is in the dark and the photographer provides the illumination using a moving light source to illuminate parts of the subject during a long exposure time. The end result can be visually striking and may vary significantly based on the photographer's

interpretation of the subject through the selection of illumination intensity at various parts of the image.



Figure 1. The Pile Gate at Old Town, Dubrovnik, Croatia, 12 April 2007, 8:30pm. Direct Digital Capture with Nikon D200 camera. Exposure time: 90 sec. with 20mm lens, f11 aperture setting. All external lighting was provided by approximately 478 people handling flash units and flashlights.

A prime example of a Big Shot photograph is shown in Figure 1 where approximately 478 people provided all external illumination with hand held flash units and flashlights. Looking at the image of Figure 1, one might ask: Where are the 478 people who are lighting the scene? When people move fast across the scene without getting illuminated during a long exposure, their silhouette does not contribute any light to the scene and they become effectively “invisible” to the camera. The only visible people are the actors on the bridge who are dressed in period costumes. They were also illuminated by a handful of other people who quickly moved away from the scene.

Another question might be: How does the flag stay still during a long exposure? The answer is: it doesn't have to. A carefully positioned participant was there to illuminate the flag while upright for about 5 seconds while the flag was held off the pole using monofilament fishing line.

The camera settings are typically exposures that range from 30 seconds up to 2.5 minutes at f11 to f16 so that the entire landmark is in focus.

The image of Figure 2, the historic Erie Canal, is another intriguing night image illuminated by over 600