Books
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The Art and Craft of HDR Photography

How to create quality Photos from high dynamic range Scenes

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Contents

Introduction

Why this book about HDR?

Since 2004 we looked into HDR photography. It took some time for the tools to mature so that we finally in 2006 got first results we liked. Since then HDR is a fixed part of our artistic photography tool set. During this time we took more than 20,000 bracketed photos. Not all of these sequences were used for HDR but we could tap into it if we needed to. Now in 2011 we finally feel confident to share our personal experience with HDR. There are also some new tools now in the market that make HDR more viable than ever before.

There are many books about HDR now in the market. Is one more needed? Not sure, but we still find that many books cover too much the "wow" effect and often don't show the fine details that make a big difference. If a HDR book does not cover much CA (Chromatic Aberrations) and how to deal with it would not work for us.

We will concentrate only on the topics that matter for shooting HDR and won't delve into the very technical details of HDR file formats. For us only things matter that we need to master getting the photos we want. We also won't deal with all the settings of the HDR tools out there. They all come and go but the basic principles stay. Best you check the manuals for these tools and follow our basic principles.

Chapter Overview

Chapter 1: **Understanding Dynamic Range and HDR**. Without a basic understanding of dynamic range it hard to make good HDR photos.

Chapter 2: **HDR Challenges**. Hardly any gain in photography comes for free. That is why you need to understand what challenges you face if you want to create excellent HDR photos. Know your enemies.

Chapter 3: **Essential HDR Workflow**. Learn about the entire HDR workflow from shoot to final image.

Chapter 4: **Workflow Examples and some notes on advanced Topics**. We have look at some real world examples

Chapter 6: **HDR Portfolio Images**. We show and discuss some of our HDR portfolio images.

Bettina and Uwe Steinmueller

2011

Acknowledgments

There are many influences but most of what we write is based on our personal journey. Photomatix from HDRSoft got us started and excited about HDR photography. We want to thank them for their support.

Main Tools we use for HDR in this book

- Adobe Photoshop CS5
- Adobe Lightroom 3
- Photomatix 4.0
- Unified Color HDR Expose + Express
- Nik Software HDR Efex Pro
- HDR Darkroom Pro
- Digital Outback Photo Scripts for CS3/CS4/CS5

CHAPTER 1 Understanding Dynamic Range and HDR

Fort Point Arcades

High Dynamic Range (HDR) is dealing with the dynamic range of the scenes we capture and the limited abilities of our cameras/printers to capture scenes like in the above image properly.

Let's start with a basic definition of Dynamic Range:

Dynamic range is defined by the ratio of darkest and brightest element that matter for your photographic view (measured in brightness levels).

This is not an absolute range as it very much depends on your personal goals. There are great photos that show very dark shadows without any details and this way represent only a lower dynamic range part of the scene.

There are actually different types of dynamic ranges to consider:

- Scene
- Camera
- Output (screen, print)
- Human vision

During the photographic process the dynamic range gets transformed like

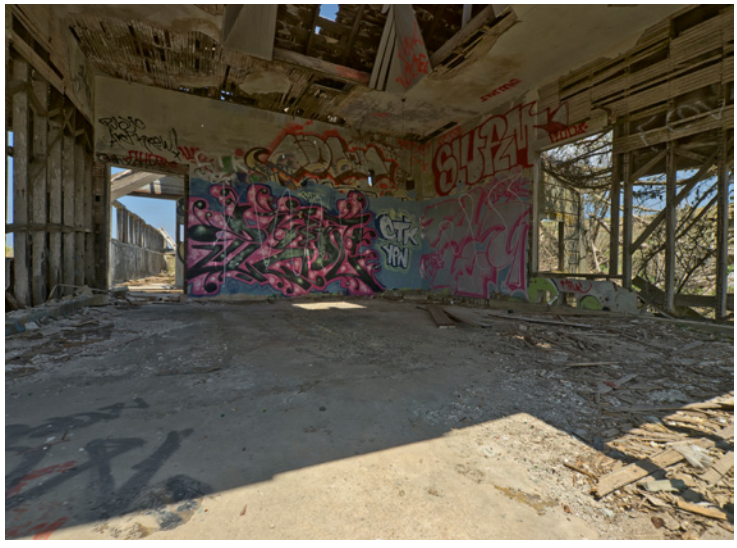
- Scene --> Capture Device (here we think of cameras)
- Capture --> Output (monitor or printer)

Important to remember is that any detail that gets lost during Capture can never be recovered (we get in more detail later). In the end it only matters that the final output image pleases your own vision. There are hardly any absolute rules.

Different Types of Dynamic Range

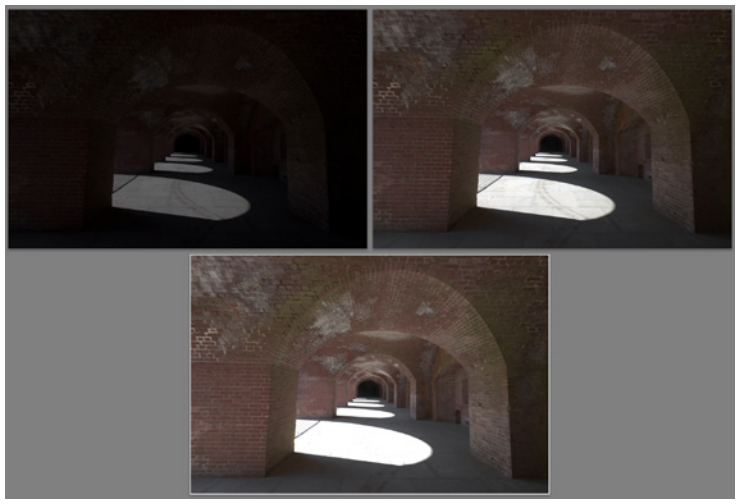
Dynamic Range of the Scene

What are the brightest details and darkest details that you want to portray? This is your artistic decision. Best we look at some example scenes.



Lost Cabin

In this scene we wanted to show inside and outside details.



Fort Point Arcades

Again we want to show detail in the bright and dark areas. In general we consider highlight areas to be more critical than shadows. Major blown out highlights look often bad in prints (show as plain paper white).

A dynamic range of 1:30000 can easily be reached in these situations and even more if you photograph a dark room with windows to a bright outside scene.

Actually for us HDR photography is all about creating pleasing images in these circumstances.

Dynamic Range captured by the Camera

If our cameras could capture high dynamic range scenes we would have a lot less problems capturing them. Unfortunately the dynamic range of cameras is much lower. How is the DR of a camera defined.

- Dynamic Range of the camera is measured from brightest details to shadows that have good detail well above the noise floor

The key is that we measure from highlight details (not a pure white) to shadow details that are not degraded by too much noise.

- Today's normal DSLRs can capture 7-10 f-stops (1:128 to 1:1000). We don't try to be too optimistic here. Don't get caught up by numbers. Some photographs can look still great with a lot of noise in them and others may lose their beauty. It is your decision. Of course the print size matters too.
- Slide film 6-7 f-stops
- Negative film about 10-12 f-stops
- Highlight recovery in some RAW converters can gain up to +1 extra f-stop

DSLRs got much better over the last years, but don't expect miracles. There are some specialized cameras that can capture a higher dynamic range. These are mostly cameras

REFERENCES

Web Links

We learned a lot from many resources on the Web. But there are no books out there that we used for detailed research and work. We mainly derived the material from our own work and the use of many HDR tools. Overall Photomatix was a tool we used for a long time and had some influence on our thinking. If you read our HDR articles you can see what we learned over the years (mainly from 2006 to now).

Digital Outback Photo

Outback Photo HDR articles

Our General Image Processing Workflow