Focus Stacking

The What
The Why
The How
What's the Catch?
Examples
Summary
Resources

The What

- A [digital image processing](link) technique which combines multiple images taken at different [focus](link) distances to give a resulting image with a greater [depth of field](link) (DOF) than any of the individual source images, a [digital image processing](link) technique which combines multiple images taken at different [focus](link) distances to give a resulting image with a greater [depth of field](link) (DOF) than any of the individual source images http://en.wikipedia.org/wiki/Focus_stacking

The What 2

- Also know as Focal Plane Merging, Z-stacking and Focal Plane Blending
- In French - zedification

The Why

- Greater depth of field than a single image
- Use large apertures for background control but maintain more depth of field

The How

- Take a bunch of images focused on different parts of the subject:
  http://digital-photography-school.com/an-introduction-to-focus-stacking

- What lens should you use?
  http://www.laurieknight.net/article/view/4
  http://macrostop.com/pdf/ArtofFocuStacking.pdf

- Can I hand hold or do I need a tripod?
  http://macrostop.com/pdf/ArtofFocuStacking.pdf

The How 2

- So how the heck do I know what to focus on and how to focus?
  - Manual Focus
    http://macrostop.com/pdf/ArtofFocuStacking.pdf
  - "Automatic" systems
    http://www.heliconsoft.com/helicon_focus.html
    http://www.laurieknight.net/article/view/2
    http://www.cognisys-inc.com/stackshot/stackshot.php

The How 3

- So, I'm close to the subject for Macro, what about lighting?
  - Off camera flash
  - Diffusers
  - Light Tents
    http://macrostop.com/pdf/ArtofFocuStacking.pdf
- OK, so show me …
  http://macrostop.com/pdf/ArtofFocuStacking.pdf
  http://macrostop.com/
  http://www.youtube.com/watch?v=F3Dz34MMjQ0
  http://www.youtube.com/watch?v=fJiEw4VCcYU

So, what's the catch?

- It is an Art, not a Science
  http://macrostop.com/pdf/ArtofFocuStacking.pdf

- Artifacts and other stray annoyances
  http://www.dennisgoulet.us/2012/01/focus-stacking-part-3/

- Can be quite time consuming

- But VERY rewarding

Some Examples

- Helicon Focus:
  http://www.heliconsoft.com/focus_samples.html

- Macrostop:
  http://macrostop.com/pdf/ArtofFocuStacking.pdf

- Laurie Knight:
  http://www.laurieknight.net/gallery/bugs/1

Simulated Stacking

- Photoshop – new de-blur
  http://jameshaverstock.com/?p=6166

- onOne Focal Point
  http://www.ononesoftware.com/products/focalpoint/

Summary

- Create focus throughout an image
- Useful for landscape and macro/micro
- Many ways to accomplish the results
- Can also be used to create selective focus only in parts of an image
- Any movement hampers the ability to properly align all images
- More images are not always better

Summary 2

- Cost will vary based on:
  - Software: Photoshop, Helicon, Zerene
  - Automation: Rails, Stackshot
- Could become addictive

Resources

- Michael Erlwine
  http://macrostop.com/
- Laurie Knight
  http://www.laurieknight.net/index
- Wikipedia – see the list of Software
  http://en.wikipedia.org/wiki/Focus_stacking
- Cognisys – Stackshot – see their Stopshot as well
  http://www.cognisys-inc.com/home_cogn.php?osCsid=acae3b39efe76176edc89d67bd435340
- Helicon Focus
  http://www.heliconsoft.com/
- Zerene Stacker
  http://zerenesystems.com/cms/stacker/docs/purchasing
- A Comprehensive Introduction to Focus Stacking – one hour video
  http://photo.tutsplus.com/tutorials/post-processing/a-comprehensive-introduction-to-focus-stacking/