

Beginning Photo Retouching and Restoration Using GIMP



Phillip Whitt

Apress®

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This book is dedicated to my lovely wife, Sally, and my wonderful daughter, Myra, whose encouragement helped carry me over the bumps I encountered on occasion.

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About the Author



Phillip Whitt is a professional digital retoucher and restoration artist, as well as a film-to-video transfer technician. His love for everything related to photography began when he was ten years old. His favorite aunt gave him her old Kodak Brownie camera, and from the joy of seeing his first developed photographs, a new hobby was born. His foray into digital image editing began in the 1990s with the purchase of his first flatbed scanner, which came bundled with a basic image-editing program. Fixing a few family photographs soon led to a new passion and profession that he continues to enjoy to this day.

Mr. Whitt has digitally edited countless photos and served a number of professional clients, such as photographers, photo labs, and camera outlets, over the years.

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I would first like to thank Ben Renow-Clarke and Christine Ricketts for their patience, kindness, and assistance during the process of writing this book. They are both professionals of the highest caliber.

I also owe a great deal of thanks to Alexandre Prokoudine for his input in the creation of this book; his expertise is unrivaled!

Introduction

The Joy of Restoring Photos

When you look through your family photo album, chances are you'll notice that some of those pictures are showing their age. They might have faded, lost a great deal of color, have stains, tears, or other forms of damage. There may be only one picture of a favorite aunt or uncle in existence, possibly in poor condition. If you have photos that are precious to you, you know how important it is to rescue and preserve them for posterity (Figure 1).



Figure 1. A faded image rescued for future generations

With the advent of digital imaging software, it's now possible to perform minor miracles and revive damaged photographs that might have been considered beyond repair. In my profession, there's nothing more gratifying than the look of surprise and joy on a client's face when he or she sees a fresh, new copy of a restored family photo for the first time. Sometimes, the client is moved to tears, which reiterates how important family photographs are. Most of us in the photo retouching and restoration profession love what we do. I personally find it very therapeutic—even when wrestling with some of the more challenging jobs that come my way. Learning these skills is a plus for photographers who want to add an extra revenue stream to their business. Genealogists can greatly benefit from knowing how to digitally resurrect images from generations past. The family archivist will have fun preserving the history of Mom and Dad, as well as an assortment of cousins, aunts, and uncles.

Why Photographs Are Important

Our old family photographs go largely unnoticed in our day-to-day lives. They are tucked away in aging photo albums (Figure 2), displayed in frames (often exposed to damaging light), or stored in drawers and boxes. Improper storage and exposure to UV light cause the majority of damage to photographs.



Figure 2. Photographs kept in an aging album

Our photographs are linked to our history. The fact is, we often don't give them much thought until a milestone anniversary or birthday, a loved one passes on, or other such event. Throughout my career, I've had many desperate clients hire me to restore their treasured images for all of these occasions. Preventing damage is always preferable to repairing it. Keeping photos in acid-free albums, displaying them in frames with UV resistant glass, and keeping them out of junk drawers and boxes will go a long way toward preserving your images. It's also important to digitize them, so copies can be given to family members. Those images of our parents, grandparents, kids—even distant relatives—are part of our heritage and well worth preserving. It would be a shame if our visual family history couldn't be passed on to future generations. Fortunately, with the aid of this book, and the image-editing power of GIMP 2.8, you'll be able to rescue all of the damaged images in your family's collection, as well as those of your clients, if you choose to make a profession out of this fun and challenging activity.

GIMP: The Powerful Free Image-Editing Alternative

Years ago, there weren't many options available for full-featured photo-editing programs. Adobe Photoshop was by far the most powerful—and the most expensive. While it is still considered the leading photo-editing software, there are other options that have narrowed the gap over the years.

One of the most powerful free photo editors is the open source GIMP, currently in version 2.8. GIMP stands for *GNU Image Manipulation Program*. The best part about it (other than being free) is that you can share it with friends and install it on multiple computers—all without fear of committing piracy or violating licensing agreements. It is issued under the terms of the GPL, which stands for *General Public License*. Photoshop is probably *the* most pirated software on Earth. With GIMP, that isn't possible. The developers *encourage* you to distribute copies (and, yes, it says so on their web site).

Open source software such as GIMP means that the source code is openly available. Anyone with programming skills can make improvements and enhancements. There is a large community of GIMP users that develops fixes: *plug-ins* (software add-ons that improve functionality). Over the years, GIMP has matured into a powerful tool used by many independent photographers, graphic designers, and artists who require a full-featured image editor.

In May 2013, Adobe Systems, Inc., changed to a subscription-only business model. It no longer sells physical boxed software packages or downloads with perpetual licenses. Adobe customers must pay a monthly fee to use the company's current products on a continual basis. This apparently angered many of Adobe's customers, many of whom began seeking alternatives to Adobe products, especially Photoshop. There was a dramatic increase in the download frequency of GIMP in the months that followed Adobe's decision. It would be reasonable to assume that GIMP will become more popular over time, as it keeps improving.

Although GIMP lacks some of Photoshop's features, such as the CMYK color model, adjustment layers, or 16-bit-per-channel mode (that is due to arrive in version 2.10), it is still an extremely capable editor for photo retouching and restoration tasks. There are plug-ins available that can restore some of the missing features, so GIMP will become more on par with Photoshop.

To download the software and access the documentation and license, visit the official web site at www.gimp.org. GIMP can be installed on Windows, Macintosh, Linux, and Unix derivatives. The web site will help direct you to the correct installer (or source code) for your system. Even though this book is a beginner's guide to photo retouching and restoration, it's not a beginner's guide to GIMP. For the benefit of those new to GIMP, Chapter 1 is an overview of this software's important features. It should provide beginners with enough information to follow the tutorials, but the GIMP User Manual will provide much more specific information about the software itself. I recommend *GIMP for Absolute Beginners* by Jan Smith, with Roman Joost (Apress, 2012), as an excellent companion book.

The retouching and restoration techniques in this book can be replicated by other programs, such as Adobe Photoshop, Corel Paint Shop Pro, among others. However, some of the tool names and command names will differ.

If you've been eager to learn photo retouching and restoration without the high price tag that accompanies Photoshop, I encourage you to get started with GIMP 2.8. You can download the practice photos with which to follow along in each lesson from the companion web site: www.gimprestation.com.

This book will teach you how to do the following:

- Acquire the best scans and digitize oversized photos
- Improve contrast to make faded photos look their best
- Correct exposure problems
- Make color corrections in photos that have color shifts or color casts
- Colorize black-and-white photos
- Digitally clean up dust on photos (great for scanned images acquired from old 35mm slides or negatives)
- Repair images with tears, cracks, and stains
- Remove unwanted objects from photos
- Recompose portraits (add or remove people, change backgrounds, or make other changes)
- Digitally remove skin blemishes, whiten teeth, etc.
- Protect and preserve your restored images

Visualizing the Editing Steps

It will be beneficial to evaluate each photo and visualize your steps from start to finish. This may be a little challenging in the beginning, but it gets easier with practice. Outlined below is the progression of an image restoration that should serve as a general guide.

1. **Straighten the image.** Sometimes, the image you are working with will be tilted slightly. GIMP can easily correct this. You can see in the example (Figure 3, right-hand example) that the porch has been straightened. Now the edges are at an angle and will have to be cropped.



Figure 3. *The image straightened*

2. **Crop the photo.** In the next example (Figure 4), I cropped the image to the client's specifications. Photos from the 1950s were often square, and cropping eliminates the excess foreground.



Figure 4. *Image cropped (left) and contrast improved (right)*

3. **Make the necessary exposure and contrast adjustments.** By using a combination of layers set with the *Multiply* and *Overlay* blending modes, the photo has much better contrast and brightness (Figure 4, right-hand example). When editing color images, make the needed color adjustments after exposure corrections.
4. **Do your digital cleanup/editing.** Remove scratches, spots, blemishes, and any distracting elements. After editing, recheck the exposure and contrast. In color photos, recheck the color correction.

5. **Recheck the photo for overlooked dust, blemishes, etc.** Give the photo a final overview, to make sure you removed all of the imperfections that might have been overlooked the first time. Once you're satisfied with the outcome, it is finished. Be sure to save a layered version of your work. (I'll explain this in greater detail in "Working with Layers," in Chapter 1).
6. **Resize the image.** Resize the photo to its final output size.
7. **Sharpen the photo.** Last, sharpen the image slightly. The end result looks much better (Figure 5).



Figure 5. Before and after comparison

■ **Note** This process will vary somewhat, depending on the image and the editing requirements. For example, it's better to repair images with heavy damage (large cracks, tears, or missing areas, in which large patches of underlying white from missing image emulsion are visible) before making tonal and/or color corrections.

Improving with Practice

The tutorials in this book will help you learn a great deal about photo retouching and restoration. Mastering the lessons in this book will help you along the way to becoming an expert retouch or restoration artist, and with *dedicated* practice, you will become one. This is especially important if you plan to become a professional retoucher and restorer. Top-notch work that exceeds your clients' expectations will make them very happy, which can promote glowing word-of-mouth testimony leading to potential clients.

You'll discover that some restoration work requires experimentation with different approaches, before you achieve the results you want. You won't achieve perfect results with every image; some will be too far damaged, and making the best attempt you can make will have to suffice. You can still end up with pleasing results!

As mentioned earlier, if you are going to professionally restore and retouch photographs, skillful work will thrill your customers. That's why improving and maintaining your skill level is vital. There will be the occasional hard-to-please client, and there will be times when revising work will be necessary. While it's important to keep revisions to a minimum, they can also serve as learning experiences. Many times, I've learned a new and better way of restoring a photo because my first attempt wasn't satisfactory. After the revision, I'd end up with a very happy client—often leading to repeat business.

After you've spent a great deal of time editing a particularly difficult photo, it helps to leave it alone for a day or so and then reexamine it with a fresh set of eyes. (It also helps to have someone else look at it.) It can be frustrating to print your finished work, only to discover it wasn't *quite* finished, because you overlooked something. After mastering the tutorials in this book, you might consider asking family and friends for practice photos. It's a great way to build a portfolio to show prospective clients. Just be sure to ask for permission to use them first—especially if you plan to put them online.

Equipment Purchases to Consider

These days, most people own a computer, scanner, and printer. All-in-one printer/copier/scanners have become popular in recent years. These are the minimum requirements for scanning, editing, and printing photographs up to 8" × 10". For many people, this will probably be sufficient. For those editing images at the serious amateur level or offering a professional service, there are a few purchases you might want to consider. They will make your workflow smoother and more efficient and will also enable you to handle a wider range of editing tasks. If you're a professional, you probably already have this equipment. If not, the following are some items you might require at some point:

- **A multi-format flatbed scanner** (Figure 6). Using a multi-format photo-quality scanner will capture images with a wide dynamic range (greater detail in shadow areas), as well as transparencies, such as 35mm slides and negatives. They typically range in price from about \$99.00, for basic models, to \$700.00, for models that can scan 12–16 slides at one time.



Figure 6. A multi-format flatbed scanner

- **A good quality tripod.** You may encounter large images, such as 16" × 20" portraits. With a tripod and a good camera, you can digitize large images for editing. A decent consumer-quality camera will work, but a camera that captures in the RAW format is best. The tripod should have a head that tilts 90 degrees, so that the camera can be aimed straight down.
- **Lighting.** Digitizing large images outside on an overcast day works very well but may not always be possible. You can purchase from your local camera shop lighting equipment to illuminate large images. Photo-flood bulbs emit light at 3200 or 3400 degrees Kelvin to work with your camera's indoor setting.
- **Graphics tablet** (Figure 7). A graphics tablet can make your work much easier and faster. It mimics the feel of using a brush, pencil, or pen. This is especially useful when applying colors to an image, such as colorizing a black and white photograph.



Figure 7. A graphics tablet can make your work easier. (Image © iStock by Getty Images)

Copy with Caution

If you are learning the art of digital photo restoration for professional purposes, you'll have to be careful when duplicating and editing some images, to avoid committing copyright infringement. Because I'm not an attorney, I can't really offer this as specific legal advice, but more as a general cautionary guide for you to keep in mind. *You should always consult an attorney who specializes in intellectual property law for legal specifics.*

On occasion, a customer will request retouching or modifying a professionally shot portrait. Legally, the photographer who took the picture owns the copyright to the image (unless other arrangements were agreed upon beforehand). When possible, have the customer obtain written permission from the photographer or studio that owns the copyright, before proceeding with any work. Naturally, some portraits will be decades old, and the photographer will have passed on or closed his/her business, or there simply may not be any way of knowing who the photographer is. In those cases, it's probably a moot issue.

It's good practice to have the customer sign a waiver (your attorney can help you draft one) releasing you from any copyright infringement liability. However, if the picture is obviously the work of a professional (especially a local photographer), obtaining permission to edit the image is very important. Photographers can be very protective of their work (trust me, I know), and you can't really blame them. If it happened to get back to him or her that you were editing his/her work, a lawsuit might follow. (I personally know of a photo lab owner who was almost sued over just such an incident.)

Many people believe that because they paid for the photography service and prints, they own the copyright to those images. It can sometimes be difficult to convey the concept that the photographer (or studio that employs him/her) owns the copyright. However, it's important that you do. Customers won't always understand why they need to obtain permission or sign a waiver, but you must legally protect yourself. It's also just professional courtesy to ask for permission to edit someone else's work.

So, be sure to remember these important points.

- When possible, have the customer sign a waiver releasing you from any potential copyright infringement. Most of the images you work with will be family snapshots or an old portrait that was the work of a professional. It may be impossible to identify the photographer.
- When it's obvious that a photo is the work of a professional, obtain permission from the copyright owner to edit the image, if at all possible. There is usually an embossed signature at the bottom-right corner of a photo and a "Do Not Copy" warning on the back.
- *Consult an attorney when you need more specific legal advice.* It pays to be careful.

Macintosh Users

The tutorials in this book use the Windows/Linux keyboard shortcuts, but if you are a Macintosh user unfamiliar with the aforementioned keyboard shortcuts, the Mac equivalents are shown in Table 1.

Table 1. Mac/Windows Keyboard Shortcuts Equivalents

Editing		
Function	Mac OS	Windows
Cut to clipboard	Command + X	Control + X
Copy to clipboard	Command + C	Control + C
Paste from clipboard	Command + V	Control + V
Undo	Command + Z	Control + Z
Contextual Menus	Control + Click	Right click

Plug-ins

Plug-ins are software components that add functionality to GIMP. There are a few tutorials in this book that will require that certain plug-ins be installed. These plug-ins, like GIMP, are free of charge. The easiest way to acquire most of the plug-ins you’ll use in the upcoming tutorials is to install the GIMP Extensions Pack (for Windows) and the Repository of optional extensions for GIMP (for popular Linux distributions such as Ubuntu). These extension packs include Resynthesizer, G’MIC, and Wavelet Decompose.

- The extensions pack for Windows allows you to choose which plug-ins you want to install (Figure 8).

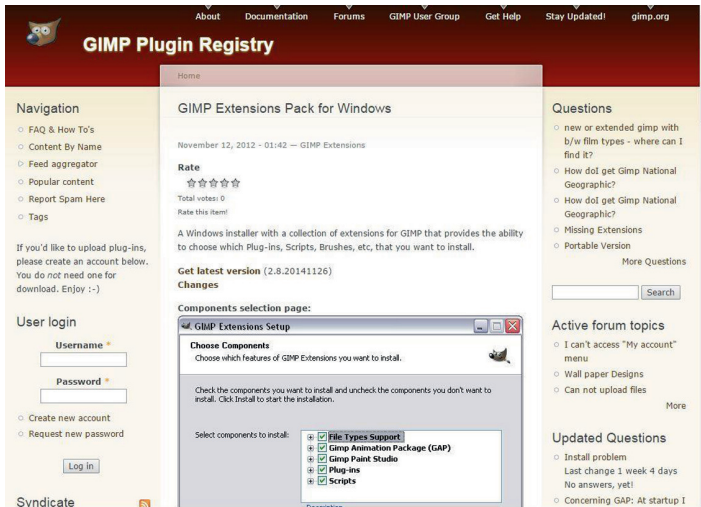


Figure 8. The set-up for installing the GIMP Extensions Pack on Windows

- Log on to <http://registry.gimp.org/node/27656> to see the complete list of available plug-ins in the extensions pack and to get the latest version.
- The GIMP extensions for Linux distributions such as Ubuntu are available from the Software Center (Figure 9). Just type *repository of optional plug-ins* in the search field to pull it up, and click on it to open the Install option.

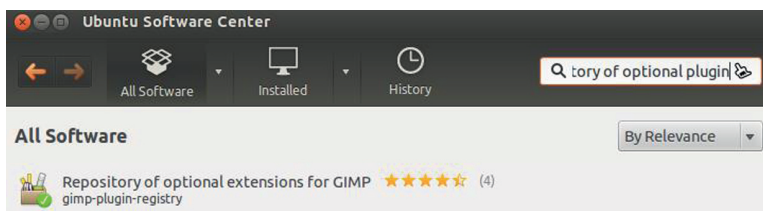


Figure 9. The GIMP extensions in the Ubuntu Software Center

For Mac OS, Partha’s Place (Figure 10) provides GIMP builds that already include these plug-ins, in which case Mac users can download GIMP from Partha’s Place instead of the GIMP website as described in Chapter One. Log on to www.partha.com to access the web site.

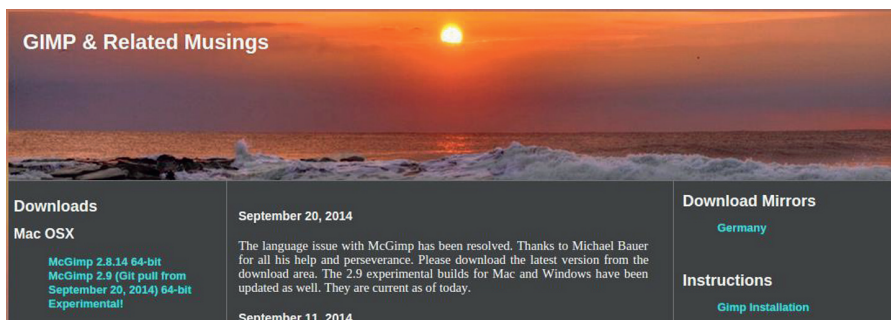


Figure 10. GIMP builds for Mac OS with preinstalled plug-ins are available from Partha’s Place

Here are the plug-ins that will be used throughout this book:

- **Resynthesizer.** This is actually a suite of scripts, but the one that you’ll be using is called *Heal Selection*. This function is very useful for removing unwanted objects from images and is also useful for repairing large, damaged areas.
- **G’MIC.** The G’MIC (which stands for *Greyc’s Magic for Image Computing*) plug-in adds a wealth of filters and effects. One could easily spend hours exploring all it has to offer. There are many artistic filters that can turn your photographic images into digital works of art.
- **Wavelets Decompose.** This plug-in is very useful for portrait retouching. It allows retouching without the result looking artificial. It essentially separates the image into layers called wavelets containing varying degrees of detail for precise editing.
- **GimpLensfun.** This plug-in can be used to correct lens distortions. When digitizing large images with a tripod and camera (as you’ll see in Chapter 2), there is usually some distortion that results. GimpLensFun is available from <http://seebk.github.io/GIMP-Lensfun> (Figure 11).

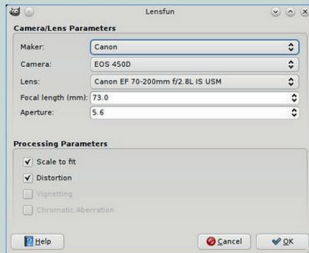
GimpLensfun

About

GimpLensfun is a Gimp plugin to correct lens distortion using the lensfun library and database.

Move mouse over the example image to see the effect after lens correction. This image has been taken using a Fuji F200EXR compact camera in wide angle position and the distortion is clearly visible at the curved horizon in the original shoot.

Screenshot from GIMP



You find the plugin under "Filters > Enhance > GimpLensfun".

It autodetects your camera, lens type and corresponding parameters from the EXIF information embedded in the image file. Please check if it matches the equipment you took the photo with. Otherwise distortion correction would not work as expected.

Figure 11. GimpLensFun is a useful plug-in for correcting lens distortion

Practice Images

You can download the Practice Images folder that contains the images that accompany each tutorial in this book. The images are contained in each corresponding sub-folder. To download the Practice Images folder, download the source code package here: <http://www.apress.com/9781484204047>.

If you're ready now, you can start on your path to becoming an image retoucher and restoration artist!