Photo Storage & Video Editing

Analog vs Digital

- Clocks are a good way to understand the differences between analog and digital information.

    analog  

    vs 

    digital

- Data in modern devices is stored in digital form, as a collection of 1’s & 0’s.
- Analog data degrades over “generations” of copies.

    vs

- Digital data is less susceptible to degradation due to copies.
- An exception to this is when the data is stored in a “lossy” compressed format.

Lossy compression

- Some common, lossy compression formats:
  - mpeg, mpeg2, mp3, mp4 – Audio and video
  - jpg and gif – Images
- Most modern, digital cameras use jpg by default.
• Rule of thumb: When editing jpeg photos, avoid multiple editing sessions on the same photo file.
  o Instead, go back to the original photo, if you can.

**Taking digital photos**

• This is not the topic of today’s session.
• I suggest you visit the website Glade Presnal shared with us (http://www.jasonrichclasses.com) and view these two presentations:
  o “Take & Share Awesome Photos Using Your iPhone or iPad”
  o “Showcase and Share Your Vacation Photos”

**Converting analog photos to digital**

• A flatbed scanner is the best way to digitize your photos.
  o Many “consumer-grade” scanners available today will be good enough for most needs. Most of these will scan at pixel densities of 300 – 2400 dpi (dots-per-inch)
  o For higher-resolution needs there also are photo scanners, which have a much higher dpi capability. For example, the Epson Perfection V550 Photo Scanner ($170 on Amazon.com) is a highly-rated product that can scan at 6400 dpi
• Rules of thumb for scanning:
  o The higher the dpi, the more space the storage the photo will take. (But storage is cheap and getting cheaper by the day.)
  o It is better to scan at a higher dpi and then scale the photo down to a smaller size for printing than to scan at a lower dpi and then scale the photo up.
  o When uploading photos for printing, your printing company may have suggestions on resolutions for particular print sizes.
Printing your photos

- Rule of thumb: Upload your photos and have them printed on photo paper (for example, with Wal-Mart) rather than printing them on your home printer.
  - If you use plain paper on your home printer, the quality of the paper and image will be lower than a commercial print.
  - Whether you use plain paper or photo paper at home, the cost of paper + ink will be (significantly) higher than for a commercial print.
- Check with your photo printing company to learn the suggested resolutions for particular sizes of prints.
- For example, Wal-Mart suggests these minimum image resolutions:
  - 4 x 6: 540 x 360 pixels
  - 5 x 7: 546 x 390 pixels
  - 8 x 10: 960 x 780 pixels

Multi-Scan

- *Multi-scan* is the term used to describe scanning multiple photos at one time.
  - Many of today’s scanners come with this capability built into the included software.
  - Multiple photos (perhaps of differing sizes) can be scanned in one take.
  - One photo file will be created for each photo, cropped to its edges.
  - There are a number of commercial products can split photos out of a scanned image, if your scanner software cannot do so.
  - *Gimp* (free) also has a plug-in available for splitting photos from a scan.

Digitizing slides

- Most photo scanners digitize not just photos, but also negatives and slides.
  - Digital photos can be created from negatives.
  - There are trays included with or available for photo scanners that align slides and allow you to scan several at a time.
• For folks with hundreds or thousands of slides, there are scanners with manual or automatic slide feeders built in.
  o Many of these are dedicated devices, only usable for slides.
  o Google “35mm slide scanner”.
• Rule of thumb: After scanning the slides, examine them to see if you need to rescan after cleaning the slide.

**Storage needs for digital photos**

• Most cameras today store their images on removable, SD or micro-SD memory cards.
  o Older devices or some smartphones may not have removable memory.
  o Whether the device has removable memory or not, you almost certainly can connect the camera to your computer via USB or wireless.
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• Whether the device has removable memory or not, you almost certainly can connect the camera to your computer via USB or wireless.
• Current capacities for Micro-SD card include:
  o 8GB (about $6),
  o 16GB (about $8)
  o 32 GB (about $15)
  o 64 GB (about $25)
  o 128GB (about $50)
  o 256GB (about $100)
• Your camera may not work with the larger sizes; check your user’s manual for limitations.
• A typical 10-megapixel (about 10,000,000 dots) photo stored in jpg format ranges from 10MB to 18MB in size.
So, about how many 10-megapixel photos will fit on a micro-SD card (worst case)?
- 8GB – 455
- 16GB – 910
- 32 GB – 1,820
- 64 GB – 3,640
- 128GB – 7,280
- 256GB – 14,560

Safely storing your photos

- If you **DropBox**, you can install its app on your Apple, Android, or Windows phone or tablet, and then enable the *Camera Upload* feature.
  - This feature automatically uploads photos from your device to your DropBox account immediately after the photos are taken.
  - The photos are stored (by default) in a DropBox folder named *Camera Uploads*.

- **Use caution with the Camera Uploads feature!**
- If your device is connected to DropBox via your carrier’s cellular network, you may exceed your monthly data plan.
  - Thus, you may want to synch your photos manually, once you have access to a wireless network.
- If you upload your photos to your computer, there are many options for safely storing them.
  - Keep them on your hard drive or SSD. (Not safe!)
  - Burn to CDR/DVDR/BDR.
  - Store on a flash (thumb) drive – 64GB for about $30.
  - Store on an external drive – 2TB Western Digital drive for about $90 – about 116,500 10-megapixel images.
  - Store them in the Cloud.
- Whichever you choose, you should keep an “off-premises” copy.
Arguably, the safest storage solution for your digital photos is “the Cloud”.
  o A backup service, such as Carbonite or Mozy – monthly fees.
  o Free backup services, such as iCloud, Google Drive, Microsoft OneDrive, Flickr, Picasa, etc. – data mining may occur, plus they may share your information with 3rd party advertisers. Read the fine print if concerned.

**Video editing – Why?**

• Perhaps you have a video camera
  or a smartphone capable of capturing video.
    o Today’s smartphones can take very good video.
    o Most are capable of capturing at 720p or 1080p.
    o More and more are capable of capturing 4K video (4 times the resolution of 1080p HD video).

• Even if you are an expert cinematographer, you will need to edit your raw video if you want it to look its best.

• What type of editing might you do on your video?
  o Add title and trailing text.
  o Create smooth transitions between scenes.
  o Rearrange or edit out scenes.
  o Add voiceovers, soundtracks, or sound effects.
  o Add pointers or text overlays for emphasis or clarification.

**Video editing products**

• In addition to the expensive, commercial products, there are a number of video editors that you can use for free.
• In general, there will be a tradeoff between complexity of use and availability of features.
  
  o Larger feature set → more complex to use
  
  o Easier to use → fewer features

• Video editing products

• The product that we will look at today is less complex, but still has a good selection of features.

• It’s name is HitFilm 4 Express.
  
  o It is available for both Windows and MacOS computers.
  
  o We will use the free version today.
  
  o There is a professional version, which has more features.
  
  o You can download it from the site https://hitfilm.com/express

• Video editing products

• There are a number of other good video editing packages available for free.

• You can learn more about them at the URL http://www.techradar.com/news/software/applications/the-best-free-video-editor-1330136

• VideoPad Video Editor

• Demo time!