INSTITUTE OF ENGINEERING, JIWAJI UNIVERSITY

Alpana Sharma

Subject:-Digital image Processing (CS-8302)

Topic:- Different file formate

Semester:- B.E. Eight Semester

Summary

- GIF
- JPEG
- JPEG2000
- PNG
- TIFF
- PSD
- EPS
- SVG
- BMP

Image File Formats

- Standardized means of organizing and storing digital images.

- Image files are composed of digital data in one of these formats that can be rasterized for use on a computer display or printer.

- An image file format may store data in uncompressed, compressed, or vector formats.

- Once rasterized, an image becomes a grid of pixels, each of which has a number of bits to designate its color equal to the color depth of the device displaying it.

1. GIF File Format

- GIF stands for Graphic Interchange Format.

- This format compresses images.

- The compression is lossless.

- GIFs also have an extremely limited color range suitable for the web but not for printing.

- This format is never used for photography, because of the limited number of colors.

- GIFs can also be used for animations.

2. JPEG

- JPEG stands for <u>Joint Photographic Experts Group</u>.

- JPEG files are images that have been <u>compressed</u> to store a lot of information in a <u>small-size file</u>.

- Most <u>digital cameras</u> store photos in JPEG format, because then you can take <u>more photos on one camera card than you can with other formats</u>.

- A JPEG is compressed in a way that <u>loses some of the image detail during the compression</u> in order to make the file small (and thus called "<u>lossy</u>" compression).

- JPEG files are usually used for photographs on the web, because they create a small file that is <u>easily loaded on a web page</u> and also looks good.

- JPEG files are <u>bad for line drawings or logos or graphics</u>, as the compression makes them look "bitmappy" (jagged lines instead of straight ones).

3. JPEG2000

- It is a compression standard enabling both lossless and lossy storage.

- The compression methods used are different from the ones in standard JFIF/JPEG

- They improve quality and compression ratios, but also require more computational power to process.

- JPEG 2000 also adds features that are missing in JPEG

- Used in professional movie editing and distribution

4. PNG

- PNG stands for Portable Network Graphics.

- Created as an open format to replace GIF.

- It also allows for a full range of color and better compression.

- It's used almost exclusively for web images, never for print images.

- For photographs, PNG is not as good as JPEG, because it creates a larger file. But for images with some text, or line art, it's better, because the images look less "bitmappy."

5. TIFF

▸ TIFF stands for <u>Tagged Image File Format</u>.

▸ TIFF images create very large file sizes.

▸ TIFF images are <u>uncompressed</u> and thus contain a lot of detailed image data (which is why the files are so big)

▸ TIFFs are also <u>extremely flexible in terms of color</u> (they can be grayscale, or CMYK for print, or RGB for web) and content (layers, image tags).

▸ Most common file type used in photo software (such as Photoshop), as well as page layout software (such as Quark and InDesign), again because a TIFF contains a lot of image data.

6. PSD

▸ Photoshop files have default file extension as .PSD, which stands for "Photoshop Document."

▸ A PSD file stores an image with support for most imaging options available in Photoshop.

▸ These include layers with masks, transparency, text, alpha channels and spot colors, clipping paths, and duotone settings.

▸ This is in contrast to many other file formats (e.g., .JPG or .GIF) that restrict content to provide streamlined, predictable functionality.

▸ A PSD file has a maximum height and width of 30,000 pixels, and a length limit of two gigabytes.

7. EPS

- Encapsulated PostScript (EPS) is a DSC–conforming PostScript document with additional restrictions which is intended to be usable as a graphics file format.

- In other words, EPS files are more-or-less self-contained, reasonably predictable PostScript documents that describe an image or drawing and can be placed within another PostScript document.

- Simply, an EPS file is a PostScript program, saved as a single file that includes a low-resolution preview "encapsulated" inside of it, allowing some programs to display a preview on the screen.

- At minimum, an EPS file contains a *BoundingBox* DSC comment, describing the rectangle containing the image described by the EPS file.

- Applications can use this information to lay out the page, even if they are unable to directly render the PostScript inside.

- EPS, together with DSC's Open Structuring Conventions, form the basis of early versions of the *Adobe Illustrator Artwork* file format.

8. SVG

- SVG (Scalable Vector Graphics) is an open standard created and developed by the World Wide Web Consortium to address the need for a versatile, Scriptable and all-purpose vector format.

- The SVG format does not have a compression scheme of its own.

- But due to the textual nature of XML, an SVG graphic can be compressed using a program such as gzip.

- Because of its scripting potential, SVG is a key component in interactive web pages that look and act like applications.

9. BMP

▸ It is called <u>Windows bitmap</u>.

▸ It <u>handles graphic files within the Microsoft Windows OS</u>.

▸ Typically, BMP files are <u>uncompressed</u>, and therefore <u>large and lossless</u>.

▸ Advantage is simple structure

REFERENCES

- Anil K. Jain , "Fundamentals of digital Image processing", Prentice Hall, 1997.

- Rafael C. Gonzales , Richard E. Woods,"Second Edition,Pearson Education,2004.

- Chi-Wah Kok, Wing –Shan Tam," Digital Image Interpolation in Matlab", John Wiley & Sons, 14-Dec-2018.

THANKS