

Haas Computing Services Presents AN INTRODUCTION TO



Adobe Photoshop® cs

The professional standard in desktop
digital imaging



What is Photoshop?

- The premiere *raster* image editing tool
- Used to create, edit, or correct images for almost any conceivable purpose
- Used by photographers, advertisers, the film industry, and many more

But before we introduce Photoshop, a brief introduction to computer imaging...

Image Representations

- Vector vs. Raster

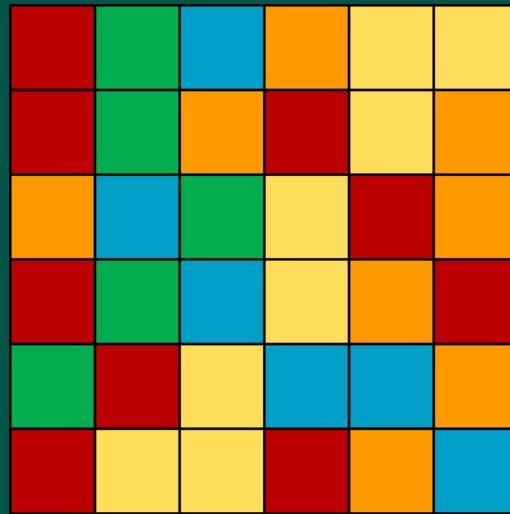
Vector Images

- Represented in the computer mathematically
- Allows for the image to be scaled arbitrarily to any size
- Simplest example: clip-art
- Why not just always use vector images? 2 very good reasons...
 - Many useful manipulations not possible
 - Cameras don't take vector images!
- Vector art programs: Illustrator, CorelDraw, etc.

Raster Images

- Represented in the computer as many, many dots, called pixels
 - This means that a raster image contains a fixed amount of detail
 - Thus, can only be scaled down without loss of quality
 - Photoshop is almost entirely Raster, though it has some components that are Vector-based (such as text)
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- Design point: make sure that you make your image large enough
 - You can always scale it *down* later, but you won't be able to scale it up and maintain good quality

Raster Images



An array of pixels—this is precisely a raster image.

Raster Images



Over-exaggeration of the pixels that make up a raster image

Image Resolution

- Resolution: the number of dots (or pixels) per inch in an image
- Some examples of resolution:
 - Screen images: 72 pixels per inch
 - Home printers: ~300 dots per inch
 - Laser printers: 600 dots per inch
 - A full-page image printed at 300 dpi contains about 9 million pixels—still less than a regular film negative
- Design point: know what your intended medium is, and choose your image size and resolution accordingly

- RGB vs. CMYK
- RGB: Red, Green, Blue—
 - Used by computers, digital cameras, any digital imaging
 - Wider range of colors
- CMYK: Cyan, Magenta, Yellow, Black—
 - Used by printers
 - Narrower range of colors

- Converting from one color space to the other requires approximating all the colors in your image
- This process is imperfect, so your image may look slightly different
- Since RGB contains a wider range, converting to CMYK can result in a loss of color data; converting from CMYK to RGB will not
- Design point:
 - If your medium will be digital (presentation, web, etc.)
always work in RGB
 - If you will be printing, either work in CMYK, or work in RGB first, and then convert to CMYK at the end and color correct

- Photoshop allows you to save colors that you use in your scene as swatches, so that you can retrieve the exact same colors later
- Can make a set of swatches which define the color scheme for your scheme
- Photoshop also provides libraries of preset swatches
 - Many of these (like Pantone, Trumatch) are matched to printed swatches
 - Allows you to know *exactly* what your colors will look like when you print