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Intro to Code as a Liberal Art

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*A Formalist Analysis of an Image*

An image is known as a digital representation of the external form, taking a visual and transforming it into a digitized copy that can be manipulated, stored and shared in electronic form: a binary representation of digital data. The term *object* is used in the computer industry to emphasize the modular nature of programming languages that help theorize computer culture (Manovich 2000, 11). The digital object of an image is constantly being used by those who participate and are consumed by the new media. This constant consumption of digital visuals and technology frequently results in the automatic dismissal of the layers and properties that come together to make what an image is.

The ingredients to a digital image can be broken down into the smallest bits and pieces of the entire whole. Such bits include the resolution, definition, color depth, image metric, histogram, and exposure latitude. The resolution is the number of pixels of an image, which determines the clarity, how clear it can be seen, and how much it can be enlarged without losing the quality of the visual. The definition is the number of shades in an image, or the number of bits used to encode each pixel’s value. Color depth is the indicator of digital imaging quality, more complex and rich color values result in more accurate images. In image processing algorithms, image metrics are a way to estimate the distance between pixels in an image to approximate the distance value. A digital image is made up of a grid of pixels that are arranged in rows and columns, and each pixel has a specific location and intensity value. The more pixels an image contains, it is more likely for that image to have higher definition compared to an image with fewer pixel value. Image histogram is a graphical representation of an image's brightness and contrast characteristics, which can be used to evaluate contrast deficiencies. The histogram coincides with the exposure latitude as it relates to the extent to which a light-sensitive material can be underexposed or overexposed to create an accurate representation of the digitized image. All of these factors essentially work together to compose visual data.

An image is one of the countless objects that are part of the New Media: new mediums of the digital computer. New Media which includes the forms, illusions, operations and interfaces that create a rotating function and system to allow the digital world to exist. As Lev Manovich elaborates in *The Language of New Media*, there are five principles: Numerical representation, Modularity, Automation, Variability, and Transcoding. New media objects are created from scratch in a computerized way or are converted from media sources. The first principle, Numerical representation, discusses how new media objects, such as an image, are made of digital code that can be represented mathematically and manipulated with algorithms. For instance, a grayscale image contains each pixel’s intensity that is defined by an x,y function. As an image is a two-dimensional object, x and y represent the pixel coordinates on the image plane, and the value of f represents the grayscale intensity at that point. Additionally, with specific algorithms, an image can be manipulated through its pixels whether it is rotating the image, blending multiple images, changing the colors of an image or specific parts, or eliminating parts of the image. With well rounded knowledge of how to use and format such algorithms in relation to the context of the image/s that are being manipulated, the outcomes can be endless. The second principle of New Media is modularity. Modularity focuses on how objects are made of parts that are made of smaller parts. As mentioned prior, an image is made up of miniscule fragments “atoms” or pixels that are the smallest bits that an image can be broken down into. If one takes an image and enlarges it to its highest degree, it is likely that one can see the small fragments, or squares, of those tiny pixels that piece together like a puzzle to create a complete visual. These complete visuals can be stored in a variety of file formats, including JPEG, GIF, TIFF, OpenEXR, and RAW. Millions of pixels can be used to assemble a larger-scale object such as an image, but it still has its independence (Manovich 2000, 30). This analysis creates a clear perspective on how images are structured from their smallest form into completion, which allows those who are just becoming introduced to computer culture to grasp the idea with somewhat ease.

The language of new media allows for an image to be changed with computerized technology that aligns with human intention without arduous effort. The third principle of new media further elaborates this operation: Automation. Programs, templates, and softwares allows for easy streamlined processes of changing and customizing data in digital objects by removing some direct human contribution. For example, programs in adobe such as photoshop and lightroom contain powerful controls for media creation: enhancing clarity, changing hues, filters, reducing noise, color correcting, eliminating backgrounds, and so on all made so quick and easy! This option of automation allows for another principle of new media: variability. An image is not an object that is fixed indefinitely, it is an object with the potential to change infinitely. The liquid identity of an image, which coincides with its modularity and being able to be manipulated, results in the possibility of many different versions of that singular object. The ability for an image to be saved, stored, changed, then saved and stored again is all quite impressive.

As an image can be deeply dissected into its most miniscule details and pieces of binary definition and digital “truth” of fragmented pixels and composed algorithms and data, it also has a strong relationship with human culture and society. The pixels that are modularized and translated onto various screens are solely the surface of its truer meaning. There are social and psychological implications of the image object that have yet to be discussed in this whole analysis. The culture of computerization is constantly changing, it is never stagnant, and with its continuous transformation there comes the constant relation between cultural layer and computer layer are intertwined indefinitely. Human culture and computer culture constantly influence one another and how each part operates in the revolving world.

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