

Motion

animation

A sequence of images that when played in succession at a high enough speed (frame rate) can create the illusion of motion.

frame rate

The speed at which images are played back, measured in frames per second (fps). There are hundreds of standards. Conventional movie film is played back at 24fps, digital video at 30fps, and blu-ray is 60fps.

frame (or canvas) size

The resolution of a video, measured in pixel dimensions of a frame - its width by its height, expressed in number of pixels.

standard definition video (SD)

In NTSC (North American Standard), this would be video frame sizes at or under 480 vertical pixels.

high definition digital video (HDV)

Frame sizes above 480 vertical lines. Common references in society today are 720p (1,280x720px), 1080p (1,920x1,080px - considered “full-HD”) and 4k (4 times full-HD’s pixel density, meaning 3,840x2,160px).

progressive vs. interlaced scanning

Progressive (p) scan refreshes the entire image at once whereas interlaced (i) refreshes only the even-numbered horizontal lines, then the next frame only refreshes odd-numbered horizontal frames. 1080i pictures are still considered full-HD, but will look blurry with a lot of motion.

frame aspect ratio

The ratio of a frame’s width-to-height dimensions. SD frame aspect ratio for standard format is 4:3, and for widescreen format is 16:9. The frame aspect ratio for HDV is 16:9.

Interaction Design

multimodality

A theory of communication and social semiotics. Multimodality describes communication practices in terms of the textual, aural, linguistic, spatial, and visual resources – or modes – used to compose messages.

media

Communication; informs or entertains.

digital multimedia

Media that has become data and can be manipulated.

multimedia

A term used in art or education that uses more than one medium of expression or communication.

interactive multimedia

Any computer-delivered electronic system that allows users to control, combine, and manipulate different types of media: text, sound, video, computer graphics or animation.

interface design

User interface design (UI) is the design of user interfaces for machines and software, such as mobile devices, with the focus on maximizing usability and user experience.

Generative Art

generative art

Art that has been created with the use of an autonomous system. This is generally non-human and can independently determine features of an artwork that would otherwise require decisions by an artist.

processing

A programming language that joins software concepts to principles of visual form, motion and interaction, created to teach fundamentals of computer programming within a visual context.

object oriented programming

A programming language model organized around objects and data (rather than logic). It takes the view that we only care about the objects that we want to manipulate rather than the logic required to manipulate them.

algorithm

A series of instructions that performs a mathematical or logical task, usually to solve a problem like sorting a list or searching for text.

canvas

A coordinate system defining a drawing area on screen.

setup

The statements in the `setup()` function execute once when the program begins.

draw

The statements in the `draw()` function are executed until the program is stopped (closed). The lines are executed from top to bottom, on repeat. Draw rate can be altered.

function

A command that tells Processing to perform an operation or return a value. Functions can take variables as input when you call them. These are called the parameters of the function call. The parameters of a function go in the parentheses after its name.

parameters

Data input to a function that affects the output. Each function has a specific number and type of parameters.

argument

The values with the parameters of a function.

statement

A complete instruction to the computer. Statements can define a variable, assign a variable, run a function or construct an object.

comment

Descriptive text within a program that are meant to help human programmers understand the code. Ignored by the computer.

variable

A data element (or container for data) that is reference with a name. Every variable has a value, data type, and scope.

variable data types

The categories of data that can be stored in a variable:

`char` for alphanumeric symbols;

`float` for decimal numbers;

`int` (integers) for whole numbers

code block

A group of code defined by a set of matching braces `{}`. Blocks are used to group code into classes, functions, if structures and for loops.

loop

Normally, blocks with `draw` repeat indefinitely at a rate defined by `frameRate()`, (the default frame rate is 60 frames per second). `noLoop` can stop `draw` from looping. `Loop` and `redraw` can restart the loop.

translate

function that designates a new x,y origin.

rotate

A function that rotates the amount specified by the angle parameter. Angles must be specified in radians (values from 0 to `TWO_PI`), or they can be converted from degrees to radians with the `radians()` function.

scale

A function that increases or decreases the size of a shape by expanding and contracting vertices. A single argument affects x and y equally. Two arguments affect x and y separately.

array

A list of data elements referenced with one name. Each element is accessed according to its order within the list.

conditional statement (if/then/else)

Fundamental building blocks of programming. Causes a program to execute a different path based on the results of a question: IF some condition is true, THEN perform a specified function, otherwise (else) if it is false, THEN perform a different specific function.

Practice

time-based media

Experience and meaning unfold over time.

linearity

A fixed order of information that unfolds over time without navigational control by the user.

non-linearity

Structure allowing for arbitrary ordering of info by user.

interface

Software or hardware based controls which allow a user to interact with data.

form vs. content

The idea of the relationship between data (content) and the structure (form) that allows us to interact with data.

form

The way a work of art looks-how content is presented and how it embodies an idea. Includes the basic elements of art, such as lines, shapes, values and colors, and composition-how these elements are put together to make the whole piece of art work into a unified whole.

diegetic

The world that is seen on-screen where the story's events occur and the characters exist. Includes sounds of footsteps, a door closing, or a gun shot.

non-diegetic

Elements that are addressed to the viewer only and are not accessible to any of the characters. Includes background music and narration.

off-screen space

Space outside the frame. Can be acknowledged by using off-screen sound or implied through dialogue between characters.

figure-ground phenomenon

Tendency to identify foreground as having brighter color, clear enclosure, larger shapes or more active movements.

repetition

Multiple appearances of an element within the work.

rhythm

How multiple appearances of an element are repeated over time.

variety

Rather than repeating the exact duplicate of an element, variation prompts the viewer to recognize the similarities by comparing and contrasting related elements.

unity and harmony

Each element or action included in a video has to have a purpose. Irrelevant actions and unrelated events may even contradict with other actions and events causing distraction to the viewer.

emphasis and focus

Within a shot, emphasis can be changed by shifting the camera focal distance to direct the viewer's attention from one subject to another in a frame. Temporally, repetition of an element can be used to create emphasis.