THE VIRTUAL PRODUCTION
GLOSSARY

Term	Description	Primary Category
Acquisition team	The VAD team responsible for the world/reality capture of real-life locations and textures via photogrammetry, Lidar, photography and other methods. See also building team.	*Production Design/Art Direction*
Action design	A form of visualization which uses 3D assets and physical simulation to plan live-action stunts. Also called safetyvis and stuntvis.	*Action Design/Stuntvis*
Active marker	A physical reference for tracking purposes with a unique i.d. such as a strobing LED bulb.	*Tracking*
Aperture	The opening of a diaphragm through which light passes through a lens on a camera to its objective, either a film negative or a digital sensor. Measured in F-Stop, which is the theoretical value of a len's aperture based on its construction and T-Stop, which is the actual measured results of the lens. Aperture influences the depth of field of a shot.	*Cinematography*
Architectural lines	Design indications within a set plan or digital asset which indicate perspective. When combined with parallax on an LED volume, helps to create the illusion of depth.	*Production Design/Art Direction*
Artificial intelligence (AI)	The usage of computers and algorithms to mimic the problem-solving and decision-making processes of humans. Artificial intelligence and machine learning techniques can be used to process performance capture data and apply it to a digital character with markedly different anatomy.	*Performance Capture*
Aspect ratio	The ratio between the width and the height of an image or screen. Some common film/TV production asset ratios are 1.85, 2.35, 16:9.	*Cinematography*
Asset	A piece of content for use in a virtual production, can include props, lighting, environments, etc.	*Real-Time Engine*
Atmospheric	Fog, smoke, fire, and other physically-based visual effects rendered by a real-time engine.	*Real-Time Engine*
Augmented reality (AR)	Technology which integrates virtual elements into a physical environment. See also simulcam.	*Virtual Production*
Avatar	A virtual representation of a real-world user, often operated via performance capture or physical control interfaces; see also digital humans.	*Real-Time Engine*
Baked lighting	An asset with highlights and shadows baked into its surface texture which does not directly respond to lighting changes; useful for increasing real-time render performance. See also interactive lighting.	*Real-Time Engine*
Bi-color	A luminaire with the ability to toggle between daylight and incandescent color temperatures, as opposed to a full-color luminaire which covers a much broader color spectrum.	*Cinematography*
Bit-depth	The number of binary digits used to store a value, such as a pixel's color. Higher bit-depths offer greater accuracy. An 8-bit image can display 256 color values for red, green, and blue, equaling ~16.7 million colors. A 16-bit image raises that number to ~4.3 trillion colors. Some common bit depths in cinematography include 10 and 12-bit.	*Cinematography*
Bokeh	The aesthetic quality of the blur in out of focus areas of an image. Bokeh is often used to make virtual cinematography appear more realistic. See also circle of confusion.	*Cinematography*
Brain bar	The team of artists and engineers operating the equipment that drives a smart stage or any space used for virtual production. Areas of responsibility include content distribution, image manipulation, camera tracking, recording, and creative visualization of data. Also known as the brain bar and volume operations. Also known as volume operations and mission control.	*Volume Operations*
Building team	The VAD team responsible for taking the data captured by the acquisition team and transforming it into digital assets.	*Production Design/Art Direction*
Camera calibration	The process of aligning a real-world camera to its virtual counterpart, essential for integration between live-action and virtual elements.	*Real-Time Engine*
Camera extension	The process of augmenting footage from original live-action or virtual cinematography during post-production. Extensions may involve adding additional frames to existing angles or creating entirely new angles.	*VFX*
Camera tracking	The process of tracking the camera's position in physical space in order to coordinate its movements with content displayed by the real-time engine.	*Tracking*
Cave	A projection screen array built with a curved screen, sidewalls, and a ceiling for increased immersion and interactive lighting.	*Systems Integration*
Central processing unit (CPU)	The brain of a computer, which processes a variety of computer commands. As opposed to a GPU, which is dedicated hardware for graphics-intensive processes.	*Systems Integration*
Cinematic	A non-interactive animation sequence in an otherwise interactive experience as referred to in real-time engines. Also called a cutscene.	*Real-Time Engine*
Circle of confusion	The measurement of where an unfocused point of light becomes a circle passing through a lens onto the film back or digital sensor of a camera. Is a characteristic of the lens's depth of field. See also Bokeh.	*Cinematography*
Cleanup	The use of post-production visual effects and compositing to address visual imperfections captured during production.	*VFX*

Term	Description	Primary Category
Clipping	1. In image processing, the loss of detail of an image in areas whose intensity falls outside of the minimum or maximum range of the capture device. 2. In rendering, the area of a scene which falls outside of the field of view or near/far clipping plane of the virtual camera. 3. In production design, a method used to create cutaway views of a model.	*Cinematography*
Color rendition	The ability of a light source, such as a cinema luminaire or an LED wall, to render the color spectrum accurately; units include CRI, SSI, TLCI, and TM30. Current LED volumes have a reduced color rendition when compared to daylight and to incandescent lights.	*Cinematography*
Color science	The field and techniques for measuring, processing, and displaying color accurately.	*Cinematography*
Color space	Standards for representing the range of color in an image, based on components such as color bands (i.e., Red, Green, Blue), spectrum, hue, saturation, lightness, value, and other measurements.	*Cinematography*
Crossover volumes	Different configurations of the same volume load which encompass overlapping physical areas. See also volume variants.	*Production Design/Art Direction*
Cutscene	A non-interactive animation sequence in an otherwise interactive experience. Also called a cinematic.	*Real-Time Engine*
Cycle	A loopable sequence of movements. Can be used to depict a virtual character's walk or other repeatable actions.	*Performance Capture*
Data capture	The capture of important details during principal photography such as photographic reference, lighting reference, LIDAR scans, camera metadata, etc.	*Virtual Production*
Data manager	A crewmember who manages on-set data, which can include camera telemetry, footage, tracking telemetry, real-time scene, metadata, etc. Also referred to as data wrangler.	*Role*
Decimation	The reduction of geometry and texture to optimize an asset's real-time performance; a key difference between assets created for real-time vs. post-production animation.	*Real-Time Engine*
Degrees of freedom (DoF)	The number of dimensions an object or headset can move or be tracked in 3D space. A 3 DoF system can track position or orientation, but not both simultaneously, while a 6 DoF system can track position and orientation simultaneously.	*Tracking*
Depth compositing	The use of machine vision or other techniques to derive a depth matte which can then be used to realistically composite elements live for simulcam or other visualization purposes. Can be advantageous when compared to earlier chromakey type compositing techniques.	*Tracking*
Depth of field	The nearest and furthest area in focus on a camera lens. Determined by the focal length, aperture, camera-to-subject distance of the lens, camera sensor size, etc.	*Cinematography*
Digital asset manager	1. A software tool used for the management and tracking of digital assets including stills, footage, sound, etc. 2. The crewmember responsible for the tracking of assets between departments and for organizing the file server's hierarchy. Different departments may each have their own digital asset manager.	*Production Design/Art Direction*
Digital backlot	A collection of virtual assets designed for reuse and repurposing throughout the course of an ongoing series or set of projects.	*Production Design/Art Direction*
Digital content creation (DCC)	The category of applications used to create different forms of creative content such as 3D, 2D, video, etc.	*Production Design/Art Direction*
Digital human	Photorealistic character rigged for real-time, performance capture driven animation, also referred to as avatars.	*Real-Time Engine*
Digital production	The phases of production within a project which involve visual effects development, in which many tasks can occur simultaneously. See also physical production and virtual production.	*Virtual Production*
Digital twin	A real-life physical prop or piece of set dressing converted into a digital asset to provide continuity between live-action and virtual elements.	*Production Design/Art Direction*
Distributed rendering	Multiple instances of an engine processing the same scene in parallel to achieve a much higher total resolution.	*Systems Integration*
DMX	Digital Multiplex protocol for controlling lighting instruments, used extensively with pixel mapping.	*Systems Integration*
Dolly wall	A section of LED panels built onto a mobile platform for easy repositioning and use as a reflection source and other purposes. Also called roaming panels or roaming walls.	*Cinematography*
Edge diffraction	A light-interference phenomenon that occurs around high-contrast edges of an object, such as LED screens.	*Cinematography*
Encapsulant	The physical support structure for individual LEDs within an LED panel for a volume.	*Systems Integration*
Encoder	A data capture device used to collect performance capture data from physical inputs, such as camera rigs, jibs, drones, etc.	*Performance Capture*
Engine operator	The crewmember responsible for maintaining and operating the real-time engine within the volume, and loading and operating assets.	*Role*
Extended reality (XR)	An umbrella term for virtual reality (VR), augmented reality (AR), and mixed reality (MR), and all future realities such technology might bring.	*Virtual Production*

Term	Description	Primary Category
Eye tracking	The capture of eye movements and gaze, typically part of facial capture.	*Virtual Production*
Eyeline	Where an actor looks during a scene; must match to preserve spatial continuity shot to shot. Eyelines can present a particular challenge in virtual production when characters may be filmed asynchronously or at varying scales.	*Cinematography*
F-stop	The mathematical measurement of the aperture of a lens, which determines how much light it lets in and affects exposure and depth of field. A T-stop is the actual measurement of light transmitted through the lens.	*Cinematography*
Facial capture	The capture of facial expression using a head mounted camera or other methods; a part of performance capture.	*Performance Capture*
Facial performance replacement (FPR)	A form of facial capture intended to replace an original facial performance while retaining the original body performance.	*Performance Capture*
Feed	The live or nearly live footage coming from cameras, real-time engines, or other live-action sources. Often used for remote collaboration to provide camera feeds remotely to editors and other crew members to assist with rapid feedback.	*Systems Integration*
Field of view (FOV)	The portion of the world that can be seen at any given moment by a person or camera. For a camera, FOV is measured in degrees and based on the focal length of the lens and the size of the camera's image sensor or film back.	*Cinematography*
Final pixel	The goal of achieving final image quality live, in-camera, without the need for additional major visual effects work.	*Real-Time Engine*
Fix it in pre	A philosophical tenet of ICVFX referring to the preparation of assets to be camera-ready during pre-production; as opposed to the traditional visual effects paradigm of fix it in post.	*Virtual Production*
Focal length	The measure of the magnification power of a lens, typically given in millimeters; the higher the number, the greater the magnification.	*Cinematography*
Four-dimensional (4D) capture	A recording of a performance from multiple angles over a period of time. Typically using a synchronized array of cameras, lights, and sensors surrounding the subject. See also volumetric capture.	*Performance Capture*
Frames per second	1 The current speed of a motion picture camera. 2 The current rendering speed of the real-time engine, which should never run below that of the camera for proper results. In a real-time engine, frame rate is influenced by the complexity of the assets, the processing power of the render node, and the overall resolution/size of the volume environment.	*Real-Time Engine*
Frustum	The region of a virtual world which appears as a viewport to the camera. On an LED volume, the inner frustum moves in sync with the camera, while the outer frustum is unseen by the camera and maintains the remainder of the environment static to provide consistent, realistic lighting. Typically there is a buffer zone outside of the inner frustum to accommodate latency issues between camera movement and real-time rendering.	*Real-Time Engine*
Frustum culling	The process of removing objects or reducing rendering quality for areas that lie outside the inner frustum since they are not directly visible to the camera.	*Real-Time Engine*
Gamut	The portion of the visible spectrum that a display can accurately reproduce or a camera can accurately capture, e.g., Rec.709, DCI-P3, and Rec. 2020.	*Cinematography*
Genlock	A technique used to synchronize the signal coming out of a signal generator or similar source to other video signal sources. LED walls must be genlocked to the shutter of a camera to avoid visible scanlines.	*Cinematography*
Global Illumination	A method of virtual lighting which achieves greater photorealism by simulating the indirect, bounced properties of physical light; a crossover between virtual and physical cinematography.	*Real-Time Engine*
Graphics processing unit (GPU)	A specialized type of microprocessor optimized to display graphics and do very specific computational tasks. Modern real-time engines rely heavily on GPUs for performance.	*Systems Integration*
Hand capture	Capture of 3D hand movements using gloves with sensors, haptics, or visually; a form of performance capture.	*Performance Capture*
Haptics	Technology that creates forces, vibrations, or temperature changes to simulate real-world sensations such as g-force and impact.	*Virtual Production*
Hard disk drive (HDD)	A computer storage device, typically using a spinning magnetic disk. See also SSD.	*Systems Integration*
Head tracking	The method used by a head-mounted display to project the correct image by tracking a user's head movements via gyroscopes, sensors, cameras, etc.	*Performance Capture*
Head-mounted camera (HMC)	A special camera rig designed to capture an actor's facial performance.	*Performance Capture*
Head-mounted display (HMD)	A head-worn device used to display CG content for VR, AR, and MR	*Virtual Production*

Term	Description	Primary Category
Head-up display (HUD)	A transparent overlay which presents data about the virtual world to a viewer without their having to look away from their current perspective. Used in conjunction with virtual camera to approximate the display of a real-world camera during virtual scouting, techvis, etc.	*Real-Time Engine*
High Dynamic Range (HDR)	The representation of a greater dynamic range of luminosity than is possible with standard digital imaging techniques. HDR images retain detail in a fuller range of lights and darks than standard images.	*Cinematography*
High dynamic range imaging (HDRI)	An omnidirectional set of images shot in a bracketed wide range of exposures that captures the real-world illumination values of an environment. An HDRI is often used as an Image Based Light (IBL) to light virtual assets and environments.	*Production Design/Art Direction*
Hybrid data	The combination of photogrammetry and Lidar scans for digital asset development.	*Production Design/Art Direction*
Image-based modeling	The process of using two-dimensional images to develop three-dimensional content. See also photogrammetry.	*Production Design/Art Direction*
Immersion	The sensation of feeling present in a digital environment.	*Virtual Production*
Imperfection	The intentional introduction of subtle real-world flaws and visual artifacts to make virtual footage appear more like real-world live-action footage.	*VFX*
In-Camera Visual Effects (ICVFX)	The process of capturing visual effects live and in-camera on set, such as within an LED volume.	*Virtual Production*
Incident lighting	Lighting on a subject which comes directly from a source; as opposed to indirect lighting, which is reflected or bounced before reaching the subject.	*Cinematography*
Indirect lighting	Lighting on a subject which is reflected or bounced before reaching the subject; as opposed to incident lighting, which comes directly from a source.	*Cinematography*
Inside-out tracking	A method of camera tracking which uses a sensor mounted directly on the camera and searches for trackable features such as markers in the ceiling or a map of the physical set using machine vision techniques. See also outside-in tracking.	*Tracking*
Interactive lighting	When light from virtual objects interacts with real-world objects, such as when the emitted light from an LED volume illuminates a physical object or when movie lights are used to simulate the characteristics of objects on an LED wall.	*Cinematography*
Interactive lighting	An asset whose highlights and shadows will respond interactively to lighting within the environment. See also baked lighting.	*Real-Time Engine*
Judder	Shaking or stuttering between frames. Judder can be experienced inside of a VR headset as well as in video imagery.	*Virtual Production*
Latency	The delay between when a signal is sent, passes through all of the equipment in the signal flow, and is received at its destination; experts consider under 10 milliseconds of latency to be critical for LED volumes displaying real-time content.	*Tracking*
LED engineer	The crewmember responsible for the operation and maintenance of the LED walls on a volume. Can also be called creative supervisor or screen manager.	*Role*
LED panel	A modular array of LED lights designed to display video content. Originally designed for indoor/outdoor advertising, entertainment venues, and broadcast use, LED panels are now used to create volumes for motion picture cinematography.	*Systems Integration*
Lens mapping	The process of quantifying the distortion of a lens by shooting a lens chart and then analyzing it. Used for matching visual effects with real-world cinematography. See also camera calibration and alignment.	*Tracking*
Level of detail (LOD)	The representation of a 3D asset, with a specific image quality and render performance. Multiple levels of detail may be produced for various applications.	*Real-Time Engine*
LIDAR (Light imaging, detection, and ranging)	A survey method that illuminates a target with laser and measures the reflected light via infrared sensors to derive a point cloud; useful as part of asset creation and to capture real-world locations.	*Cinematography*
Light card	A virtual light placed on the surface of the volume to assist with lighting the subject, can be any shape, hue, intensity, and opacity.	*Cinematography*
Light contamination	The presence of unintentional light effects on a given surface, such as the spill from movie lights onto an LED wall.	*Cinematography*
Load	An assembly file that includes elements such as virtual sets, characters, and performances prepared for shooting with virtual camera, simulcam, in a LED volume, etc.	*Virtual Production*
Look up table (LUT)	A mathematical formula or matrix that acts as a color correction, such as transforming between a RAW camera image and the desired display appearance such as an SDR or HDR monitor.	*Cinematography*
Loom	The protective bundle wrapped around video and networking cables on a volume to tether between equipment carts and other connection points.	*Systems Integration*
Luminaire	A discrete, integrated device designed specifically for lighting; LED panels create incident lighting but are not designed as luminaires.	*Cinematography*

Term	Description	Primary Category
Machine learning	The application of artificial intelligence which enables a computer to automatically learn and improve without being specifically programmed.	*Real-Time Engine*
Machine room	The enclosed room on or near a volume where the main computer networking, video server, render nodes, and other critical infrastructure are housed. Also called server closet.	*Systems Integration*
Map	Refers to a set environment within a real-time engine.	*Real-Time Engine*
Marker	A physical reference for tracking purposes. See also active marker and passive marker.	*Tracking*
Matte	A mask used to isolate areas of an image for use in compositing.	*VFX*
Media server	A repository for digital assets designed to distribute them over a network; can be directly connected to LED volume nodes for distribution.	*Systems Integration*
Methodology	The chosen technical approach to the needs of a specific shot or scene. This may include an LED volume, green screen setup, partial set or location.	*Directing*
Mission control	The team of artists and engineers operating the equipment that drives a smart stage or any space used for virtual production. Areas of responsibility include content distribution, image manipulation, camera tracking, recording, and creative visualization of data. Also known as the brain bar and volume operations.	*Volume Operations*
Mixed reality (MR or XR)	The process of anchoring virtual objects to the real world and enabling users to interact with them.	*Virtual Production*
Moiré	An undesirable interference pattern caused by the mismatch between the sensors on a digital camera and a complex, repetitive pattern. E.g. moiré can be caused by focusing a camera directly on an LED screen.	*Cinematography*
Motion base	A physical platform used to move an object, typically driven by manual input or motion control with capabilities described in axes of motion, such as a 6-axis motion base.	*VFX*
Motion capture (Mocap)	The process of recording 3D movement and applying that information to virtual characters, props, and cameras.	*Performance Capture*
Motion capture suit	A special costume with sensors used to capture human performance movement to puppeteer virtual characters. Sensor types include retro-reflective markers for optical tracking and inertial motion sensors.	*Performance Capture*
Motion capture supervisor	The crewmember in charge of managing motion capture data, which can come from performers in suits and camera tracking systems.	*Role*
Motion control (Moco)	A special rig which uses mechanical servos and computer control to create precise, repeatable movements for visual effects shots. Can be applied to camera rigs or to physical elements.	*Tracking*
Motion data	The raw data derived from performance capture for use in visual effects, blocking, visualization, etc.	*Performance Capture*
Motion match	A process that creates much higher realism by matching animations to desired poses.	*Animation*
Motion processing	The clean-up of raw motion capture performances to eliminate errors or artifacts from the original capture.	*Performance Capture*
Motion study	The observation and analysis of the motion of an object or character to aid in reproducing it virtually.	*Performance Capture*
Nit	A measurement of the light intensity of a display screen. One nit is equal to one candela (one candlepower) per square meter.	*Cinematography*
On-screen control (OSC)	Interfaces used for controlling real-time attributes via tablets and other devices.	*Real-Time Engine*
On-set operations	The team responsible for managing any technical difficulties related to the volume during production operations and maintain the key creatives.	*Volume Operations*
OpenColorIO (OCIO)	A system that enables color transforms and image display to be handled in a consistent manner across multiple graphics applications.	*Cinematography*
Optimization	A stage in the process of asset development where assets are optimized for real-time performance while maintaining high visual quality. See also level of detail and performance.	*Real-Time Engine*
Outside-in tracking	A method of camera tracking which uses cameras or sensors mounted on the perimeter of a volume to analyze the position of the camera and other objects. See also inside-out tracking.	*Tracking*
Parallax	The perceptual difference in an object's position when seen from different vantage points.	*Cinematography*
Passive marker	A physical reference for tracking purposes such as a retroreflective spheres. Fiducial passive markers are printed glyphs used for image-based tracking.	*Tracking*
Performance	1 The performance quality and render rate of the onscreen real-time content, measured in frames per second or in milliseconds, also referred to as perf. Perf must meet or exceed the camera's frame rate for optimum visual appearance with an LED volume. 2 The actions of a character in a scene. Performances can be captured via motion picture camera and various motion capture methods.	*Real-Time Engine*
Performance capture	A combination of techniques used to capture an actor's entire performance, including facial expressions, head, hands, and body position.	*Performance Capture*

Term	Description	Primary Category
Photogrammetry	The automated construction of a 3D model asset triangulated from multiple 2D photographs; can also be combined with point clouds derived from LIDAR scans, aka sensor fusion. See also image based modeling.	*Cinematography*
Physical production	The phases of production within a project which involve physical and linear work, as opposed to digital production in which many tasks can occur simultaneously. See also digital production and virtual production.	*Virtual Production*
Physical simulation	The calculation of real-world accurate physical interactions and collision detection within a real-time engine.	*Action Design/Stuntvis*
Pitchvis	The visualization of a script or sequence prior to production, used to get investors and studios onboard by demonstrating a concept before it's greenlit.	*Virtual Production*
Pixel mapping	The process of sampling the pixels of a specified onscreen texture and outputting their hue and intensity as DMX for lighting control and synchronization.	*Systems Integration*
Pixel pitch	The distance between LEDs on a volume panel. The lower the number, the more dense the pitch. Denser panels have greater visual resolution and are usually more resistant to moiré artifacts although they are also much more expensive and can sometimes be less bright. 2.8mm is considered the minimum standard for LED panels in virtual production while the optimal panel size is determined by size of the volume, typical distance of camera/subject to wall, brightness demands, etc.	*Systems Integration*
Plate	Footage intended as an element in a composited visual effects shot. Plates often consist of location or sets for use as backgrounds or other elements as needed.	*VFX*
Postvis	The process of visualizing and/or reconceptualizing the visual effects of a film, after the live-action elements have been shot.	*Virtual Production*
Pre-cap	A pre-production motion capture session used for motion studies and to help guide previs.	*Performance Capture*
Pre-light	The process of lighting a scene before the main production unit arrives in order to facilitate complex setups and maximize the full crew's efficiency. Can apply to physical production or to prelighting virtual environments as they are developed.	*Cinematography*
Pre-production	Any planning, testing, visualization, or design done before actual production begins.	*Producing*
Precision time protocol (PTP)	A form of timecode with sub-microsecond timing accuracy. See also timecode.	*Systems Integration*
Previsualization	A collaborative process that generates preliminary versions of shots or sequences using a virtual environment. It enables filmmakers to visually explore creative ideas, plan technical solutions, and communicate a shared vision for efficient production. Also known as previs.	*Virtual Production*
Projection mapping	A method for warping and conforming content onto a surface. Projection mapping can be used to map content onto the geometry of an LED volume. especially for complex shapes like curves and multiple surfaces.	*Volume Operations*
Prop	A physical or virtual item which can be interacted with.	*Directing*
Proxy	A scaled-down file that is used as a stand-in for a higher resolution original.	*Animation*
Quality assurance	The process of searching for errors, flaws, and imperfections within an environment or asset, often abbreviated as QA or as quality control (QC).	*Real-Time Engine*
Raster scan lines	Visible distortion which can appear as lines or wave patterns on camera such as when capturing an LED panel without proper genlock or a camera shutter out of phase with the display's timing.	*Cinematography*
Ray tracing	A rendering technique that traces rays from the camera and lights in a scene, simulating how the lights and virtual objects' materials interact.	*Animation*
Real-time composite	A live, real-time image or environment composited from different 2D or 3D elements. Real-time composites can be used to create tracked green screens over virtual environments on an LED wall, or to create finished composites in-camera instead of deferring to post.	*Real-Time Engine*
Real-time compositor	The crewmember responsible for compositing different 2D and 3D elements live during production within a volume.	*Role*
Real-time engine	A software development environment designed for the creation and display of real-time interactive content; initially for video games and interactive experiences, now used for many other applications including virtual production.	*Real-Time Engine*
Real-time rendering	The translation of a scene into display pixels for instantaneous playback at real-time speeds such as 24, 30, 60, 90 frames per second. In contrast, traditional offline rendering may take minutes or even hours to produce each frame.	*Real-Time Engine*
Rear projection (RP)	A in-camera compositing process in which an image (such as a previously photographed, or printed background plate or 3D environment) is displayed behind the foreground subject. Often used for driving shots when a fully 3D environment may be unnecessary, although real-time engines can also be used for this effect.	*Volume Operations*
Refresh rate	The frequency at which an electronic display is refreshed, usually expressed in hertz (Hz). Higher refresh rates can make motion appear smoother.	*Systems Integration*

Term	Description	Primary Category
Remote collaboration	The use of video conferencing services to connect a virtual production studio to offsite crew members for purposes of collaboration, footage review, live feeds, content and equipment operation, etc.	*Systems Integration*
Render	The digital process of generating an image or video content based on 2D, 3D, and lighting information.	*Animation*
Render node	A member of a group of computers rendering the same scene in parallel. Multifaceted LED volumes generally require several synchronized render nodes to generate a complete environment.	*Systems Integration*
Retargeting	The application of performance capture data to a CG character's skeleton; can be used to convert motion captured such as from a human to a larger character.	*Performance Capture*
Retiming	The process of converting motion captured at one rate to another; useful for synchronizing mocap captured in different sessions or deriving slow-motion or high-speed frame rate effects for virtual shots.	*Performance Capture*
Room-scale	A 1:1 correspondence between a physical space and a virtual environment.	*Performance Capture*
Safetyvis	A specialized form of techvis designed to test out safety precautions for complex shots, action design, and on-set mitigation procedures. See also action design and techvis.	*Action Design/Stuntvis*
Scene assembly	The integration of discrete elements such as environment, lighting, animation, motion, etc, into a unified file. See also load and DCC.	*Real-Time Engine*
Selects	The performance(s) or take(s) chosen for further usage in editorial or visual effects development. Select may include live-action footage and motion capture performances.	*Editorial*
Set decoration	Physical objects on the set to help blend with the virtual world; elements may also appear replicated within the virtual environment. Also referred to as set dec.	*Producing*
Set extension	A virtual continuation of a physical set which gives the illusion of a much larger area to the camera.	*VFX*
Show quality	Virtual content determined to be of sufficient visual quality to be suitable for final pixel, in-camera visual effects.	*Real-Time Engine*
Simulcam	The live compositing of virtual elements with live-action. Used for previewing virtual characters and environments during live-action cinematography. See also augmented reality.	*Virtual Production*
Simultaneous localization and mapping (SLAM)	A method of tracking which analyzes physical features of the real-world to compute position and translation in real-time.	*Tracking*
Smart stage	A stage purpose-built for virtual production which might include LED walls, tracking systems, real-time animation, performance capture, and VR capabilities.	*Virtual Production*
Solid state drive (SSD)	A hard drive with no moving parts, which improves performance and reliability; M2 SSD's are faster, enabling optimal virtual production capabilities. See also HDD.	*Systems Integration*
Spectral response	The portion of the color spectrum a given light source emits. LED panels, due to their use of RGB LED bulbs, have a reduced spectral response compared to full-spectrum cinema lights.	*Cinematography*
Spectrum management	The process of managing all of the various wireless hardware, including non-visible infrared tracking, etc, on a stage or volume to avoid crosstalk and interference.	*Systems Integration*
Sputnik	Nickname for the tracking marker affixed to a motion picture camera for outside-in tracking within an LED volume. Also referred to as The Crown.	*Tracking*
Storage	The media in which assets are stored including magnetic and solid state hard drives. Storage performance is a critical factor for real-time workflows.	*Systems Integration*
Stuntvis	A form of techvis which uses 3D assets and physical simulation to plan live-action stunts. Also called Action design.	*Action Design/Stuntvis*
Systems administrator	The IT professional overseeing areas including network infrastructure, servers, and spectrum management.	*Role*
Systems integration	The process of assembling, testing, and validating components from different vendors into a single, integrated solution.	*Systems Integration*
Systems technical director	The crewmember with overall responsibility for the operation for all real-time specific hardware on a volume, including but not limited to LED walls, real-time render nodes, tracking systems, DMX lighting control, etc.	*Role*
Tearing	The visual discrepancy between the output of two render nodes when they are out of sync on a display, such as a monitor or LED wall.	*Systems Integration*
Techvis	The use of 3D assets to perform technical analysis on scenes: determine camera type, lenses, rigging, portions of sets which need to be physically built vs. virtual, stunts, etc.	*Virtual Production*
Telepresence	The feeling of immersion within a virtual environment when using an HMD.	*Performance Capture*
Three-dimensional space	The geometric parameters describing the position and orientation of an object in 3D space, expressed as X-Y-Z coordinates and pitch-roll-yaw.	*Real-Time Engine*
Timecode	A numeric code sequence used in video production, show control, and other applications to provide temporal coordination between different devices. See also PTP.	*Systems Integration*

Term	Description	Primary Category
Tracking	The process of determining the position and orientation of a camera or other object relative to the scene via various optical/digital methods; used for integration between the virtual and physical worlds.	*Tracking*
Transliminal set	A physical set that extends beyond the boundaries of LED volume doors to mitigate the proscenium feeling, which can occur when set builds all feel the same size in relation to the volume.	*Production Design/Art Direction*
Truss	The physical mounting hardware and infrastructure used to hold LED panels for volume and related equipment such as tracking, lighting, network hardware, etc.	*Systems Integration*
Universal Scene Description (USD)	An open-source scene interchange and assembly scene format, created by Pixar and widely adopted in the visual effects industry.	*Real-Time Engine*
Version control	A system for tracking and managing changes to digital assets, highly useful for the art development cycle during pre-production.	*Production Design/Art Direction*
Video engineer	The crewmember in charge of maintaining and routing video signals to and from sources and destinations on a volume.	*Role*
Video processor	Within an LED volume, this device distributes a video signal to the individual panels which comprise the volume's screens.	*Systems Integration*
Video routing	The process of routing video signals through devices such as switches and matrices.	*Volume Operations*
Videogrammetry	The automated construction of a 3D model triangulated from video. See also photogrammetry.	*Cinematography*
Virtual art department (VAD)	The department which produces all real-time assets such as characters, props, and environments for traditional previs, and virtual production. VAD artists help design and assess which set builds will be practical and which will be digital.They capture physical sets and locations, virtually scout digital locations, and develop preliminary environments that the DP can pre-light.	*Virtual Production*
Virtual art director	The person responsible for managing the design and development of virtual environments and sets.	*Production Design/Art Direction*
Virtual blocking	The use of previs to setup virtual environments for the filmmakers to block action and plan shots.	*Virtual Production*
Virtual camera (Vcam)	A camera in a real-time engine which behaves the same way a real-world camera would with respect to optics, aspect ratio, etc. A Vcam can be manipulated using a tracked device such as a mobile device, tablet, game controller, or a physical object with a tracking reference attached such as a real-world tripod, dolly, crane, drone, etc.	*Real-Time Engine*
Virtual camera operator	The physical operator of a virtual camera.	*Role*
Virtual character	A humanoid, animal, or other living creature whose animated movements are created in real-time via the input of a human operator via performance capture.	*Performance Capture*
Virtual cinematography	The process of creating virtual imagery which may incorporate aspects of real-world cinematography. Virtual cinematography can be used to build complete virtual worlds from scratch and manipulate them with real-world input. The process includes all of the visualization phases of a virtual production from previs through live-action shooting and into post.	*Cinematography*
Virtual green screen	A green screen created directly on an LED volume surface; often constrained around the frustum to preserve the rest of the virtual environment for interactive lighting.	*Real-Time Engine*
Virtual lighting	Light created within a real-time engine, often simulated with real-world physical and optical behaviors. Can be used on an LED volume to directly light a scene or act as interactive/reflective lighting. See also light cards.	*Real-Time Engine*
Virtual preproduction	An extended period of prep and asset creation prior to the start of a virtual production which ideally engages the VAD, cinematographer, director, and other key production personnel in non-consecutive contracts. Also referred to as soft prep.	*Producing*
Virtual production	Virtual production uses technology to join the digital world with the physical world in real-time. It enables filmmakers to interact with the digital process in the same ways they interact with live-action production. Some examples of virtual production include world capture (location/set scanning and digitization), visualization (previs, techvis, postvis), performance capture (mocap, volumetric capture), simulcam (on-set visualization), and in-camera visual effects (ICVFX). The key to the successful use of this technique is choosing the right tools to solve production problems and empowering the creators without detracting or distracting the crew from the content creation process.	*Virtual Production*
Virtual production supervisor	Acts as overall supervisor of the real-time visual effects efforts. Acts as the liaison between the real-time crew, art department, VAD, physical production, visual effects, and post-production.	*Role*
Virtual rapid prototyping (VRP)	A previs process which leverages virtual production techniques, and enables a small crew to plan, shoot and edit sequences in real-time using actors in mocap suits.	*Performance Capture*

Term	Description	Primary Category
Virtual reality (VR)	An immersive experience using headsets (HMDs) to generate the realistic sounds, stereo images, and other sensations that replicate a real environment or create an imaginary world.	*Virtual Production*
Virtual scouting	The use of tools such as virtual cameras and VR headsets to share and interact with a model of a set for shot planning and production design.	*Virtual Production*
Virtual space	An area which exists within the virtual world and which may correspond either 1:1 or proportionately with a real-world space.	*Virtual Production*
Visual effects supervisor	The crewmember responsible for the creative and technical aspects of visual effects. Real-time assets often overlap with post-production visual effects and the virtual production supervisor.	*Role*
Visual fidelity	The degree to which an asset resembles its real-world counterpart in texture, lighting, properly weighted animation, etc.; another name for quality.	*Animation*
Volume	The physical space in which performance capture is recorded. Also refers to a nearly enclosed LED stage in which a volume of light is emitted, or a display surface for projected content.	*Volume Operations*
Volume operations	The team of artists and engineers operating the equipment that drives a smart stage or any space used for virtual production. Areas of responsibility include: content distribution, image manipulation, camera tracking, recording, and creative visualization of data. Also known as the brain bar and volume operations. Also known as the brain bar and mission control.	*Volume Operations*
Volume operator	A crewmember from the volume operations team; involved with the operations and content related to the LED volume. Includes Key Volume Operator, Assistant Volume Operator, VIT, etc.	*Role*
Volume variant	A variation of a given volume load and physical set configuration, typically due to a desired change in set appearance or camera position.	*Production Design/Art Direction*
Volumetric capture	A recording of a performance from multiple angles over a period of time. Typically using a synchronized array of cameras, lights, and sensors surrounding the subject. See also 4D capture.	*Virtual Production*
Waldo	A mechanical input device with encoders attached so that any motion of the device can be read by a computer as locations or rotations in 3D space. Waldos are used to assist in the animation of motion-controlled rigs for virtual environments and to puppet virtual characters.	*Tracking*
Witness camera	Camera(s) placed on set to provide alternate perspectives on a shoot and provide a comprehensive understanding of the action within a scene. Often used to facilitate remote collaboration, or to capture additional data for later visual effects work.	*Tracking*
World capture	The use of LIDAR, photography, video and other references to translate real-world spaces into digital assets. Also referred to as reality capture.	*Production Design/Art Direction*
World-building	The process of developing a coherent virtual world for use in a production whose qualities may include history, geography, and ecology.	*Production Design/Art Direction*
Z-space	The distance of a 3D object from the camera, real or virtual.	*Animation*
Zulu set	A physical set or prop designed for actors to interact with and stand in as a proxy for a virtual asset. Sometimes built at different scales to accommodate for major size differences in actor to character.	*Performance Capture*