

A/V Technology at Work

At the heart of any broadcast or film production are the visual and sound technicians who capture, refine, and transmit the images and recordings from one location to another. These include highly trained audio and video technicians, professional sound and visual designers, and experts who develop the technology used to record productions. The variety and scope of the careers available in film, broadcast, and arts have increased considerably thanks to developments in audio and video technologies. As someone interested in these careers, you will want to have an informed perspective on the many types of jobs in the field.

When you consider any and all presentations of content that include audio and visual components, you can be sure that A/V technicians were involved in both the production and presentation. Careers in A/V technology are available in a wide variety of workplace environments. If you are interested in a career in this field: where do you dream of working? Do you want to be in a huge production company with thousands of coworkers, a quiet editing studio working on an indie film, a college campus helping presenters with their lectures, or perhaps a television studio production room taking cues from a producer? These are just a handful of possibilities available to someone skilled in A/V technology. In this lesson we'll explore careers in this constantly growing field, and the educational and work experience needed for each one.

Objectives

- Describe the work of A/V technician.
- Discuss A/V technician positions.
- Compare educational programs for A/V technician careers.
- Identify work environments and types of equipment used by A/V technicians.
- Explain research methods that may be beneficial in career and educational pathway selection.

Vocabulary

acoustic footprint	use of recorded sound to evaluate the noise produced by objects and structures in their surroundings
digital audio work stations	professional consoles with computer interfaces and outputs for A/V technicians
digital camera	a camera that stores images on digital memory instead of film—both still images and video recordings can be digital
equalizer	sound engineering board used to set parameters at each frequency level
mastering	the process of sequencing, equalizing, and transferring recordings from various sources onto a permanent storage device
Musical Instrument Digital Interface	(MIDI) a computer protocol that makes it possible to control a musical synthesizer using a computer's sound card

overdubs	additional audio tracks in a recording, such as when a singer records one track for the melody and another to harmonize with the melody
production designer	professional responsible for the physical look of a film or video project

A/V Technician Overview

When you think of working as an audio technician, what do you imagine? In order to explore the occupational opportunities for A/V technicians, let's categorize careers into more specialized areas.

Before we break down these subjects, it may be helpful to note that developing knowledge and skills in A/V technology could prepare you to pursue more than one career. For example, if you work at a school or conference center, you might be responsible for setting up equipment for people giving presentations one day, and helping bands with their equipment or making your own recordings another day. You could even be experimenting with sound systems, recording nature sounds, or making videos for a movie company.

With the wealth of equipment capable of recording, mixing, and presenting audiovisual content, it's easier than ever for amateurs start working with sophisticated technology. Becoming a professional requires knowledge, skills, and experience in high-end equipment, methods, processes, and workplace environments specific to a given job. Because equipment constantly changes and improves, you will need an underlying knowledge of how it works, and an ability to maintain and make repairs. An interest staying ahead of new technologies is essential for a successful a/v technician. A technician who knows a particular type of equipment and can operate consistently under stressful conditions and tight schedules can have a good career. This career path begins with an interest and some amateur experience, such as working with your school's A/V department. You can go on to get professional training in college and work experience in summer or full-time jobs, and with each job, you add to your reputation as a technical professional. As you consider different careers, remember you will be working with other people as well as with equipment, and your reputation will depend on how well you do both. Being a careful student and conscientious coworker is as important as your talent and interest in audiovisual arts. Your work behind the scenes is critical to the success of any film, digital or television production.

Audio Technician Training Programs

Your educational pathway will include a combination of training and work experience. Audio technician training programs allow you to learn about equipment and operations as well as the science, theory, and history of the art. Community colleges offer two-year associate degree programs and certification programs that validate you as proficient in certain technologies and operating skills. A bachelor's degree is a more advanced, 4-year college degree. Any of these training programs can give you verifiable levels of skills and abilities that qualify you for different types of A/V jobs.

Degrees and Internships

Earning a degree or certification while gaining work experience and establishing your professional reputation is another successful path. It requires the ability to put in the hours, focus your attention, and do the work. Internships are an excellent way to work in professional situations, learn by doing, and glean knowledge from the pros. Internships can be paid or unpaid, and are often available to participants in college programs. Going for an internship position with personal recommendations from

teachers in the field, and some previous amateur experience can increase your chances of appealing to potential employers. A successful internship helps build your résumé, which will be key to your entire career. By doing whatever is asked of you as an intern, cheerfully, competently, and consistently, is an excellent entry into the industry. Working effectively with production teams as a valuable team player is essential, even if you dream of working in your own studio someday. Your reputation as someone who is great to work with, reliable and smart is as important to your career as your training or degree.

Colleges

Technical colleges offer audio engineering certification through programs that run from nine to 12 months. Training includes learning to operate professional equipment in real production environments as well as classroom and lab work. Students learn digital technology, such as Musical Instrument Digital Interface (MIDI) sequencing, which is a computer protocol that makes it possible to control a musical synthesizer using a computer's sound card. They also work with audio equipment, microphones, and digital audio work stations (DAWs), which are professional consoles with computer interfaces and outputs for A/V technicians. All this provides hands-on learning of the techniques you will need for future jobs, with the guidance and support of a teacher. You will also learn how to use specific audio software such as ProTools, a much-used digital recording program, and professional recording techniques. You might learn the design of an equalizer, which is the sound engineering board used to set parameters at each frequency level. Furthermore, you may explore processor design and live sound reinforcement. These terms may not be familiar to you, but that is part of how this introductory course can benefit you. Doing research to expand your vocabulary and awareness of programs is a proactive start to embarking on an exciting career.

Notebook

You say you don't know what live sound reinforcement is? You may know the concept but not the terminology. Increase your knowledge in a few minutes by exploring the term on the web. Then, using your own words, write a definition of live sound reinforcement in your notebook.

Technical colleges offer an excellent career pathway through certification training programs. These programs prepare audio technicians for a variety of jobs working with sound, both live and recorded.

Jobs for Certified Audio Techs

With a technical college certificate, you can work with sound in a variety of industries, including film, television, live performance, radio, advertising, recording and audio system installation. You can go into a recording studio as an assistant and move into a career as recording engineer. You could work with live music groups setting up recording systems and mixing recorded sound. You could find work in television production or help create the audio components for in-house advertising agency work. Even a job at a movie theater working with the sound system would give you a start in this varied field.

Did you know?

When you watch a nature documentary, for example, that a sound engineer recorded the audio on location, perhaps traveling to distant locations and handling equipment in wilderness or jungle conditions? Can you imagine recording in Antarctica? What type of special equipment and skills are needed to record sound in subzero temperatures? If you enjoy travel and adventure, becoming a sound engineer with such skills might be a great career for you.

Audio Tech Jobs for Travelers and Homebodies

Possible audio tech work includes sound engineer positions you may not have considered. For example, when you watch a nature documentary, do you think about the sound engineer who recorded the audio on location, and perhaps traveled to distant locations and handled equipment in wilderness or jungle conditions? Can you imagine recording in Antarctica? What type of special equipment and skills are needed to record sound in subzero temperatures? If you enjoy travel and adventure, becoming a sound engineer with such skills might be a great career for you.

On the other hand, sound engineers also stay in studios working on those same documentaries or films, doing sound editing and working with the recorded sound components to create the finished audio tracks. You may not realize how much editing goes into recording and mixing the background sounds, dialogue, and voiceovers or overdubs for music recordings and movies. Overdubs are additional audio tracks in a recording, such as when a singer records one track for the melody and another to harmonize with the melody. Voiceovers are audios of an announcer or narrator speaking over filmed sequence.

You might be the boom person on a shoot, spending long hours holding a microphone above the actors in their scenes, learning to stay out of the shot while capturing the necessary sound quality. Sound mixers also work on the set to record the boom-mic'd audio and ensure that all needed sound components are captured with sufficient level and quality. The recorded tracks are sent to the studio where the editors work with all of the audio content on editing consoles, along with the visual editors.

The Art and Science of Sound

The art and a science behind sound editing require high levels of knowledge and skills. Some sound engineers are known for their ability to creatively capture background sounds, while others are known for their skill in editing and mixing sounds to create a seamless aural accompaniment to the visual action in a film. Some sound engineers are masters at coordinating the musical soundtrack with the dialogue and sound effects. Others work in the sound effects departments or on sound sets where Foley artists use their training and talent to produce sounds audiences perceive as the actual sound of the actors running or fighting or crashing cars. There are so many sound engineer careers in so many environments; you can take a life-long journey of exciting exploration and artistic achievement. There are now Academy Awards given for Best Sound Editing and Best Sound Mixing, proving just how important sound is to a film's success.

Did you know?

Two sound technologies, Dolby Digital Sound, from Dolby Labs, and THX, from LucasFilms Ltd., were developed to enhance surround sound capabilities in theatres while using less data? To verify the settings of theater sound systems, movie companies create short opening audio/video test sequences called "start tests." Sound rushes around the theater, alerting viewers that the movie will be starting soon, and demonstrating to the A/V technician that the system is operational.

Film production is not the only career for audio technicians, the music industry, live and recorded, is another giant arena for audio technicians. You might be in the recording studio, recording, mixing, or mastering music - sequencing, equalizing, and transferring recordings from various sources onto a permanent storage device. Each type of recording work requires specific audio engineering expertise. You might be a sound person out on the concert tour circuit, an audio system designer or installer for clubs, a DJ, or the audio tech for a venue, from stadiums to the schools themselves. Your interest in sound and audio equipment could lead you to invent a feature that enhances cinema sound and becomes the industry standard, such as Dolby Digital.

Certification and Beyond

You can explore the differences between training programs and associate or bachelor's degree programs by doing a little research on your preferred field of study. While similar topics are taught in these programs, they do differ on how much time and emphasis they put on theory and advanced techniques. Individual learners may advance their knowledge of specific techniques or elements of sound in their own discovery of applications - past, present or future. For example, mathematicians with acoustic statistical knowledge are employed to reconstruct an acoustic footprint from crime scenes where audio was captured. Forensic experts use the recorded sound to evaluate the noise produced by objects and structures in the surroundings, providing useful evidence for evaluation. This is an example of how advanced education and specific interests, including sound, can be used professionally in many fields. As digital audio technologies continue to evolve, the applications for audio technicians in many fields will continue to expand.

Visual Technicians

What about the visual side of technical careers? It is just as exciting and full of potential careers, with training and experience. Let's take a look.

The term visual technician, similar to audio technician, refers to a broad spectrum of professionals who work with video and/or film. In the digital media age, the words video and film refer to visual media created without the use of either video or film! Movies are now made with digital cameras that store images on digital memory instead of film. The first major film to include digital photography footage was Star Wars Episode 1: The Phantom Menace, made in 1999. Slumdog Millionaire, an Academy-Award-winning film released in 2009, was the first major film to be shot primarily with digital photography. Most major motion pictures made today use digital cinematography instead of film or video tape. As with the audio field, when you see a film, TV show, or even moving images from space, you can be sure visual technicians have been involved in capturing, recording, transmitting, editing, and broadcasting it.

When you embark on a career as a visual technician, cameraperson, or cinematographer, you will learn to operate equipment that is constantly changing. Top cinematographers, who have been shooting movies for decades, must regularly learn new techniques. Directors and cinematographers work together, artistically, with the production designer to determine and create the best look for a specific film to effectively convey the mood and setting of the story. For film projects, different cameras, film stocks, and types of cinematography can create a customized look and feel for the final product. In general, it is not a question of learning one technique and being an authority on it, nor is it a question of knowing all the techniques and being indifferent to which is used. Successful A/V technicians demonstrate a passion for cinematography and an eagerness to develop and refine techniques for superlative filmmaking. They are distinguished by an expert command of cutting edge technologies and earlier techniques, a familiarity with the science of film and digital filmmaking, and an understanding of the history of filmmakers and equipment innovators. This passion is evident in many visual technicians, no matter what their position. If you have an avid interest in film and video production or photography, you have an opportunity to operate many visual capture and recording systems.

Certification Program Offerings

Film schools, institutes, and technical colleges offer excellent courses and training programs for visual technicians. Access to equipment and the ability to learn in real-life simulations, control rooms, TV stations, film sets, work stations, and editing bays is important in learning environments. Sitting in a

library studying filmmaking is good for background and technical study of equipment, but hands-on learning is essential for technicians. Your success depends on your ability to operate the equipment correctly, safely, and artistically. Remember that being a visual technician requires many artistic choices, including deciding what is captured in the frame. Composition, design, lighting, camera angle, and movement are considerations in every shot. Despite the use of the best equipment and sets, a poorly held camera, bad lighting, an out-of-focus shot, inexpert starting and stopping, and poorly designed framing can ruin a movie, or at least require expensive re-shooting or editing. Becoming a visual technician means developing the skills of design, focus, and narrative, as well as proficiency in equipment operation.

Depending on your interests, you will want to study both technical and artistic theory and practice to varying degrees. As with other film and television industry career pathways, a mixture of training and work experience is common, starting with internship-type positions and working up. Part of working your way up in the business means becoming familiar with how much the group process plays a role in filmmaking and television production. These fields require professionals to excel at accomplishing their own jobs and their ability to work well with other talented and skilled professions, under the supervision of a director who is in charge of the whole. The director makes the decisions and issues commands to make sure the company achieves its artistic vision. Producers make sure everything is acquired and in the right place to complete the project, while not going over budget or schedule. No matter where your visual technician job takes you, the reality of this field is that you will be working alongside members of a crew. Your ability to work well, under time pressure and other constraints, must be evident, and internships are good places to learn how to do this.

Technical college degrees offer equipment training. Some operate their own television stations, which are excellent training grounds for students. Film schools such as the American Film Institute (AFI) are exciting educational options for students considering careers as cinematographers, directors, editors. These advanced programs immerse students in filmmaking history as well as process and innovations.

Notebook

For a quick reminder of how many types of visual technicians might work on a film, run the end credits of one of your favorite fantasy or action movies. Examine the different job titles with visual in their description. Look at the number of names underneath those job titles. Add in all the job titles with camera, focus, film editing, fx, special effects, lighting, and motion capture, and see how many technicians are listed. If you thought the cinematographer was the only visual technician on the crew, think again.

Your own trajectory to a career as a visual technician can go a million ways. You will need hands-on learning, technical training, work experience, experimentation, knowledge of the business, a wide interest in equipment technology and the history of your area. You could begin in technical college, and find yourself in George Lucas's company, Industrial Light & Magic, as a visual technician on an Iron Man film. Check out ILM's website at <http://www.ilm.com/> for an inspiring interactive experience with their innovative visual creations.

Start Right Where You Are

As someone interested in careers in A/V technology and visual arts, you have likely already started down the educational pathway to your career. Your interest means you are probably experimenting with sound and motion in your own way, and have some favorite films, shows, or recording artists that inspire you. Whether you want to be a DJ, a sound engineer, a special effects computer graphic CGI

artist, or a technician in a TV production booth, your career starts now. Your ability to research and study pertinent information about the professionals and equipment being used, the training programs and schools best suited to your plan, and what steps you need to take to get your hands on the equipment is the first step to making your dream come true.

Let's Review!

In this lesson you have learned:

- technology constantly changes, and with it, the jobs available to a technician;
- how the change from analog to digital and film to all digital production has affected the A/V field;
- visual and audio techs may work in studios, clubs, TV stations, outdoors, schools, among many other places;
- when they are starting out, most technicians combine training and work experience; and
- being a team player is essential for a career in audio and visual arts.