

Laptop Requirements for the Bachelor of Science in Visualization

The College of Architecture requires that all incoming students(Freshmen, Change of Majors and Transfer Students) have a serviceable laptop computer and suggests a minimum system configuration. Because the requirements for a useful system vary from program to program, these suggestions supersede College requirements and apply only to students in the Bachelor of Science in Visualization degree program. It is important to note that no student will be denied admission to the College because of an inability to provide a laptop.

Background

As in most programs, computing requirements are uneven, based on the class and the individual instructor. In Visualization, the most computational intensive applications are rendering, video editing, programming and real-time interaction. Of These, rendering(creating visual images from 3D models) is the most resource intensive. It is not unusual for projects to require several days of computing to create a animation of 30 seconds. In some classes, in excess of 20 hours may be required to render a final image. Coupled with the requirement to produce intermediate animations/images for review and critique, it is easy to see that the fastest affordable systems can be insufficient to meet demand. However, students can – and do – find moderately priced systems that, with careful planning and judicious use of resources, are sufficient to meet program demands.

As previously mentioned, not all classes require a high level of computing power, so its helpful to understand when those courses occur in the curriculum. Looking at the four major application areas, the chart below indicates when those resources will be most in demand.

| | Rendering | Video Editing | Programming | Interactive Use |
|-----------|------------------|----------------------|--------------------|------------------------|
| Freshman | None | None | Light | Light |
| Sophomore | Moderate | Moderate | Moderate | Light |
| Junior | Heavy | (Moderate) | (Moderate) | Light |
| Senior | (Heavy) | (Moderate) | (Moderate) | (Heavy) |

Note: parentheses indicates that requirements are variable depending on student interests and elective classes.

“Light” demands can be accomplished with very moderate resources. A functional laptop even 3 or 4 years old will be sufficient for the first year in the program. In the second year of the program and beyond, usage increases substantially. As technology progresses, we certainly expect that similar equipment purchased next year will either be more capable, cheaper or a combination. A laptop purchased next year will most certainly be a better value than one purchased today. For that reason, if you have usable laptop for the first year of the program, we recommend delaying a major laptop purchase until the beginning of the second year. As the useful life expectancy of a computer system is 3 years, this approach will provide the highest level of computing resources during the time of greatest need.

Remember, the major advantage of a laptop is its portability, not its computational power. A number of students maintain a separate, more powerful desktop system for use outside the classroom environment.

Hardware Requirements

PC or Mac? Both platforms are used in the program. Macs are generally preferred by students more interested in 2D applications, like graphic design, while PCs are generally preferred in the 3D modeling/animation environment. The division is not very clear as representative software is available for both platforms. Both platforms have advantages and disadvantages so the choice is more a matter of personal preference than programmatic requirements. Students will have opportunity to use both platforms in the program. Additionally, the Linux operating system is used for the programming classes and some computing electives. In the PC environment, the easiest way to gain access to Linux is through the installation of a “virtual appliance” which allows Linux to be installed and appear as a regular application to the host operating system. With the Mac, the native operating system is very similar to Linux and can be used for programming courses.

Listed below are requirements that should be met by either platform.

1. a multicore system with 1.5 GB of memory per core
2. wifi
3. minimum screen size
4. on-board camera
5. DVD burner
6. external 3 button mouse
7. an 8GB USB flash drive
8. Nvidia graphic chip(recommended for future software which includes GPU rendering capability but not a firm requirement as ATI graphic chips have a similar but incompatible functionality)

There are several additional devices that are useful at various times throughout the program. These are not required, but increase productivity. Graphic design classes, digital painting and related classes frequently use a Wacom Tablet as an input device which allows pressure sensitive input. These courses are generally taken during the 3rd and 4th years in the program but may occur during the second year for change of majors and transfer students. A 300GB external USB hard drive is very useful for backup and to transfer large volumes of data between personal and University machines. External drives that are usb powered are more convenient and flexible than drives that require an external power source. This requirement will be more prevalent in the 3rd and 4th years of the program.

If the laptop is the primary system, there are additional devices that can make the system more productive. An external keyboard and full sized monitor actually increases the speed with which the system can be used. A spare battery can be useful, however, all the studios are now provided with power drops.

Software Requirements

It is completely possible to complete the BSV program using only open source software. However, students may choose to use industry standard commercial software based on personal preference. As commercial software is available through the university at discount, consider waiting until the need exists so that the latest version of the software can be purchased.

Existing Departmental Resources

The Department maintains a laboratory used for both teaching and general access outside of class hours. The lab contains 22 Mac systems with software used in the various courses and is available after hours on a first come-first served basis. A number of PCs and mac are also available outside the laboratory and are sufficient for most applications.

A variety of printers, scanners and other input/output devices located throughout the college are available to the student.