Clemson Visualization Lab

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How do you describe your lab to visitors? The Clemson Visualization Lab is an interactive 3D visualization lab. We work with 3D

visualization, virtual reality, scientific visualization, and interactive data visualization. We focus on maintaining a positive and exciting interactive 3D environment. Our lab works with researchers and faculties at Clemson University to assist with visualizing their work and making it interactive.

How many people are in the lab, and what is the mix of backgrounds and roles? The Visualization Lab, part of Clemson Computing and Information Technology, is made up of five interns and the director of visualization. The interns are all undergraduate students and paid part-time employees; the students work in the lab for at least their second semester. Each student, whose majors include mechanical engineering, computer engineering, marketing, and visual arts, plays an important role because each works with a different project and technology. Often these reflect the student's interests. The mix of diverse backgrounds, interests, and project roles allows for our lab to be the hub of many creations.

Briefly describe a day in the life of your lab. The work hours vary from day to day due to class schedules, but the lab is open regular business hours. On a typical day, the lab may welcome outside guests to work on renovation projects or just to check on progress. Every Thursday, the interns and visualization director meet to discuss current progress and future goals. Throughout the rest of the day, the interns work on their projects. One student is working with Oculus Rift to create a simulated 3D environment that makes the user feel like they are driving a car. Another student is working with animation and modeling. The goal: to implement scanned avatars of a Clemson athlete into a Unity program that displays the newly renovated basketball stadium. Two students are working with the Palmetto Cluster, which contains 598 NVIDIA Tesla GPU accelerators

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and is ranked No. 4 among academic research clusters. Even though each project is separate, all interns collaborate during weekly meetings and throughout the week.

What is a unique feature of your lab? The unique feature is our newly renovated space. The lab has several new additions, including a tiled display wall with six monitors and a 3D-projection screen. Previously, the lab was enclosed by walls and doors. Now it has a door with a glass window and a wall that faces the hallway with a large window. Anyone walking by can glance in at the technology and students working, and stop by for demonstrations. With

the new upgrades, we are constantly finding ways to improve projects. The upgrades also allow us to be competitive with other universities and support other departments on Clemson's campus.

What is one feature of your lab that you could not do without?

Our lab could not do without our virtual reality equipment. Our work with virtual reality can also be considered a unique feature of our lab. We have an Oculus Rift, a Samsung Gear VR, and a Leap Motion device that allows users to have an immersive experience

in the virtual worlds we create. Working with virtual reality allows us to be at the forefront of innovative technology. Whenever we have visitors, the main attraction is the Oculus Rift. People love to put on the headset and be transported into a virtual world. We have virtual worlds ranging from campus buildings to the basketball stadium. The multitouch table is also an important feature of our lab. Our next project for immersive reality is to create a projector set up for it. This would allow people to interact with the multitouch table while viewing a 3D environment.

What is one feature of your lab you want and do not have? We really would like a CAVE (cave automatic virtual environment)! CAVEs are immersive projection systems that enable life-size 3D interaction. Our lab emphasizes exploring virtual reality, and a CAVE would expand our capabilities of immersing users in a 3D virtual world. It would fit perfectly with the goals and interests of our lab. Having a CAVE would also draw a lot of new visitors to the Visualization Lab.

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