Novel system developed to turn data into real-time, interactive 3-D images

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Seeing is believing, especially in medicine. From magnetic resonance imaging (MRI) to computed tomography (CT) scan, images of the body's tissues and organs have become the primary tools physicians use to diagnose disease and make recommendations for effective treatment.

New, innovative data display technology developed at Kent State University will provide doctors with a dramatically improved ability to evaluate medical images that are commonly used. This patent-pending technology allows for interactive viewing of large image data sets from virtually any medical imaging device and has led to a licensing agreement with Northeast-Ohio-based Standing Rock Imaging, LLC.

Dr. Robert Clements, senior research scientist, and Dr. James Blank, professor and chairperson, department of biological sciences, Kent State University, developed the technology.

"We believe the system we have developed can move rapidly into a clinical setting and significantly improve the ability of physicians to make diagnoses from a variety of imaging techniques," Blank says. "Our approach allows the physician to rapidly and efficiently study hundreds of images at once by turning the data into a three-dimensional (3-D) object that appears to float in midair."

The technology will allow for manipulation of the volume-rendered object in real-time, giving physicians the ability to add and remove data, as well as to instantly view internal structures not otherwise visible.

"Data viewing is rapid and allows accurate diagnosis in a fraction of the time that physicians must now spend using current image viewing technologies," Clements says.

The technology can be applied to any large 3- or 4-D data set but is most readily applicable to medical images. For instance, CT scans generate large 3- and 4-D data sets. The new technology will produce a 3-D, high quality, real-time image of the data to help physicians and other medical professionals more clearly view, and rapidly extract important diagnostic information about, the body's structures or disease processes.

The new system will be available commercially and improve upon current technology, in terms of image quality and cost-effectiveness. It is compatible with all imaging devices, will translate and display data immediately and in its entirety, and allows for user-friendly manipulation of the data for evaluation and analysis.

Gregory Wilson, associate vice president for economic development and strategic partnerships says the license agreement represents a first for Kent State University.

"This is the first novel imaging system licensed from the university," Wilson says. "The agreement illustrates the diversity of research activity and commercial potential within the Kent State University system."

Standing Rock Imaging, LLC, has committed to maintaining a presence in Northeast Ohio, and hopes to employ residents of the region in the further development and production of the technology.

Source: Kent State University