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RSNA16: Researchers Generate 3-D Virtual Reality Fetal Models

New research to be presented at the annual meeting of the Radiological Society of North America (RNSA) reveals that parents may be able to watch their unborn babies grow in realistic 3-D immersive visualisations using technology that transforms MRI and ultrasound data into a 3-D virtual reality model of a fetus.

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The 3-D fetal models were created by researchers in Brazil using sequantially-mounted MRI slices. Using a segmentation process, the physicians would then select the body parts they need reconstructed in 3-D. A 3-D model is thus created using the womb, umbilical cord and fetus.

Study co-author Heron Werner Jr., MD, PhD, from the Clínica de Diagnóstico por Imagem, in Rio de Janeiro, Brazil explains that the goal of these models is to enable physicians to further understand fetal anatomical characteristics and to use this information for educational purposes and as a tool through which parents could visualise their baby. The model is fairly comprehensive and recreates the complete structure of the fetus thus providing doctors a detailed view of the respiratory tract in order to assess any possible abnormalities.

The researchers have used Oculus Rift 2 headset which puts the user in an immersive environment where they can hear the baby's heartbeat as well as study the 3-D fetal anatomy. Dr. Werner points out that compared to ultrasound and MRI images, the Oculus Rift providers sharper and clearer images.

"The physicians can have access to an immersive experience on the clinical case that they are working on, having the whole internal structure of the fetus in 3-D in order to better visualise and share the morphological information," Dr. Werner said. "We believe that these images will help facilitate a multidisciplinary discussion about some pathologies in addition to bringing a new experience for parents when following the development of their unborn child."

Source: RSNA
Image Credit: RSNA

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