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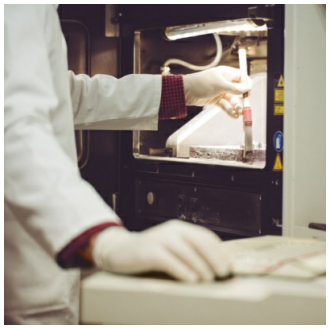
Pioneering Machine Learning Techniques in 3D Printing and Radiology



3D printing applications in radiology – an early adopter of this technology – are poised to grow rapidly with availability of new, more flexible materials and pioneering machine learning techniques.

The advancement in the nature of materials available can be considered as one of the biggest developments in 3D printing, according to experts with the Radiological Society of North America (RSNA).

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Kenneth Wang, MD, PhD, staff radiologist at the Baltimore VA Medical Center, has noted that the ability to use more flexible and transparent materials, wider colourisation options and material gradients, "and as costs decrease, the scope for clinical 3D printing will expand further."

Dr Wang, who is adjunct assistant professor at the University of Maryland, Baltimore, serves on the RSNA Radiology Informatics Committee (RIC) and as a liaison to the RSNA 3D Printing Special Interest Group (SIG).

With regard to artificial intelligence, which has become useful in terms of detecting abnormalities within images, Dr Wang says there is also huge potential for machine learning to be applied in 3D printing.

"People are starting to use machine learning-based techniques for image segmentation, a trend that could have a major impact on the workflows for creating 3D printed models," he explains.

These developments are great news for radiology, according to William Weadock, MD, chair of the RSNA 3D Printing SIG. With expanding use of medical 3D printing, radiology departments will become more essential to a hospital by providing virtual and printed models for clinicians.

"But most importantly, as 3D printing becomes even more mainstream, patient care will improve," Dr Weadock, professor of radiology at the University of Michigan, points out.

The RSNA is spearheading efforts to help radiologists become more familiar with the technology. For instance, the RSNA 2019's programme offers a full range of 3D printing-related content, including educational courses, scientific sessions, and educational exhibits. In addition, the annual congress features an expanded "3D Printing & Advanced Visualisation Showcase" to include daily presentations from industry leaders and RSNA 3D Printing SIG members.

"There's a lot of exciting work being done in 3D printing and the full potential of this powerful technology will be on display at RSNA 2019," says Dr Weadock.

Furthermore, the SIG will host the RSNA Medical 3D Printing in Practice, which is set for 6-8 March 2020 in Chicago. The meeting will convene

physicians and professionals working in the advanced imaging and medical 3D printing industry to present didactic lectures, scientific posters and hands-on workshops. Registration for the meeting will open 20 November, and RSNA 2019 attendees will have the opportunity to register onsite.

Source: Radiological Society of North America

Image: iStock

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