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**Leveraging Deep Learning for Advancements in MR Reconstruction,
Cardiac MRI Analysis, and Interventional Imaging**

Date/Time: Jan 30, 2023 09:30 AM Eastern Time (US and Canada)

(Attendance is free but please register in advance using the zoom link below)

Presenter: Dr. Shanhui Sun, Senior Director, AI and Medical Imaging, UII America Inc., Cambridge, Massachusetts (a subsidiary company of Shanghai United Imaging Intelligence Healthcare Co. Ltd. (UII)).

Abstract: The integration of deep learning in medical imaging devices offers many opportunities including enhancing images, facilitating computer-aided diagnosis, and enabling image-guided interventional surgery. To address the challenge of recovering fine details for MRI reconstruction from under-sampled data, pyramid convolutional recurrent neural network and neural ODEs have been proposed. In the case of Retrospective Cine Cardiac MRI (CMR), the requirement for prolonged breath-holding during data acquisition can cause discomfort for patients. A close-to-real-time acquisition method has been proposed that does not rely on either ECG gating or multiple breath-holds. Additionally, a fully automated CMR myocardium strain (an early indicator of cardiac dysfunction) assessment system has been proposed for accurate strain analysis. In percutaneous coronary intervention procedures, devices such as stents need to be deployed in arteries under the guidance of X-ray fluoroscopy. The limitations of image quality and cardiac and respiratory motion can make it challenging for physicians to accurately assess the device's status. To address this challenge, we propose a stent tracking method that combines a CNN and a GCN. The tracked devices can be utilized to enhance the view during the procedure.

Bio: Dr. Shanhui Sun is a Senior Director of AI and Medical Imaging at UII America Inc. in Cambridge, Massachusetts, a subsidiary company of Shanghai United Imaging Intelligence Healthcare Co. Ltd. (UII). His research interests include medical image and video analytics and machine learning, specifically focusing on MRI reconstruction, image enhancement, computer aided diagnosis, cardiac MRI analysis, object detection and tracking for image guided interventional imaging, and medical image segmentation and registration. He has held positions as a Principal Scientist at CuraCloud Corporation and a Staff Scientist at Siemens Corporate Technology in Princeton, New Jersey. Dr. Sun obtained his Ph.D. in 2012 from the University of Iowa.

Zoom link: [[click here](#)]