Medical Physics Seminar
Monday, November 2, 2015
1345 HSLC ~ 4:00 P. M.

Kai Niu

Research Assistant
Student of Dr. Guang-Hong Chen
Dept. of Medical Physics
UW– Madison School of Medicine and Public Health

Ultra Low Radiation Dose Digital Subtraction Angiography (DSA) Imaging using Low Rank Constraint

Digital Subtraction Angiography (DSA) based image-guided interventional procedures have been routinely used in angio-suites to treat the vascular diseases in cardiology, neuroradiology, and body interventional radiology.

The accumulated radiation doses to both patients and operators are of concern due to the high dose rate and/or long exposure time used in interventional procedures and the follow-up exams. The well-documented cumulative radiation dose for patients can be in the range correlated with mild-to-moderate skin injury, with DSA imaging contributing most in the total radiation dose. Therefore, it is crucial to develop new image processing and data acquisition hardware to reduce the radiation dose in DSA data acquisitions. In this study, we will present a new method to explore the low rank nature of the DSA image sequences to enable a dramatic reduction in either radiation dose or contrast dose or both in DSA imaging.

1345 HEALTH SCIENCES LEARNING CENTER—
4:00 TO 5:00 P.M.