Information Intensive Guided Therapy: Moving Beyond Tracking Surgical Devices to Tracking Therapy

The brunt of image-guidance used in surgery today is still provided by co-registering anatomical images from pre-operative diagnostic imaging with the geometric space of the operating room. This approach is somewhat akin to printing out turn by turn driving directions before you leave the house. You will have a good idea of where you are going, but traffic, accidents, and state troopers will still surprise you. This seminar will show how real-time imaging during surgical procedures can provide information that not only tracks devices, but allows interventionalists to quantitatively track treatments precisely as they are administered. Applications in cancer therapy, gene therapy, and stem cell delivery will be shown.