Prostate imaging and guidance systems

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1:00 P.M. ROOM 333 - DUFF MEDICAL BUILDING
3775 UNIVERSITY ST.

We will describe our work in prostate imaging, which includes ultrasound and magnetic resonance elastography, and preliminary work in photoacoustic imaging. We have acquired ultrasound prostate images prior to radical prostatectomy and we correlated our images with histopathology results. We are currently using ultrasound imaging during robot-assisted radical prostatectomy, and we have put together a system to provide fused ultrasound and MRI guidance during surgery. We will describe our image acquisition and registration techniques, and our results of cancer imaging using elastography.

Tim Salcudean received the B. Eng (Hons.) and M.Eng degrees from McGill University and the Ph.D. degree from U.C. Berkeley, all in Electrical Engineering. From 1986 to 1989, he was a Research Staff Member in the robotics group at the IBM T.J. Watson Research Center. He then joined the Department of Electrical and Computer Engineering at the University of British Columbia, Vancouver, Canada, where he is now a Professor and where he holds a Tier I Canada Research Chair and the C.A. Laszlo Chair in Biomedical Engineering. He is also an Associate Member in the Department of Urologic Sciences and the Vancouver Prostate Centre, and is the Science and Engineering Advisor to the UBC Vice-President Research. Professor Salcudean’s research contributions have been in the areas of medical imaging, medical robotics, simulation and virtual environments, haptics, teleoperation and optimization-based design. Several companies have licensed his technology and his gland-contouring software for prostate cancer radiotherapy has become the standard of care in British Columbia, and has been used in well over 2000 patients so far. Prof. Salcudean has been a co-organizer of several research symposia and has served as a Technical and Senior Editor of the IEEE Transactions on Robotics and Automation. He is a Fellow of MICCAI, the IEEE, and the Canadian Academy of Engineering.

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