Plenary Speech I

13:30 – 14:15, Tuesday, July 11

CYT LT1

Where are all the medical robots?

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Abstract

Enthusiasm for robots is at an all-time high worldwide and academic researchers have created a broad range of medical robots in their laboratories. Since most new medical devices are developed by start-up companies, academic researchers are – at least in theory – well positioned to commercialize their robots through startup

ventures. In practice, however, this happens infrequently and, to date, robotics has had a limited impact on medicine. There are many reasons for this. First, the definitions of success in academia and industry are very different. Second, predicting when a medical robot will outperform manual technology can be harder than predicting the stock market. Third, the regulatory costs are perhaps the highest of any industry. This talk will explore the challenges faced by an academic researcher working in medical robotics and suggest practices that can be employed to maximize the commercialization potential of one's research. These issues will be addressed using examples from the robotics research community as well as my own hospital-based laboratory.

Biography

Prof. Pierre E. Dupont is Chief of Pediatric Cardiac Bioengineering and holder of the Edward P. Marram Chair at Boston Children's Hospital. His research group develops robotic instrumentation and imaging technology for medical applications. He received the BS, MS and PhD degrees in Mechanical Engineering from Rensselaer Polytechnic Institute, Troy, NY, USA. After graduation, he was a Postdoctoral Fellow in the School of Engineering and Applied Sciences at Harvard University, Cambridge, MA, USA. He subsequently moved to Boston University, Boston, MA, USA where he was a Professor of Mechanical Engineering and Biomedical Engineering. He is an IEEE Fellow and his group has received a number of paper awards including the King-Sun Fu Best Paper Award of the IEEE Transactions on Robotics in 2010, the IEEE ICRA Best Medical Robotics Paper Award in 2012 and the IEEE/RSJ IROS Best Paper Award in 2014. He is a Senior Editor for the IEEE Transactions on Robotics and is on the Advisory Board of Science Robotics.