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A Thirty Year Perspective on Medical Robotics: Yesterday, Today, and Tomorrow

Professor Russell H. Taylor

The Johns Hopkins University

Date: Monday, 9 December, 2019, 11:00 -12:00

Venue: 212, 1F, Faculty of Engineering Bldg. 2

Abstract:

This talk will discuss insights gathered over nearly thirty years of research on medical robotics and computer-integrated interventional medicine (CIIM), both at IBM and at Johns Hopkins University. The goal of this research has been the creation of a three-way partnership between physicians, technology, and information to improve treatment processes. CIIM systems combine innovative algorithms, robotic devices, imaging systems, sensors, and human-machine interfaces to work cooperatively with surgeons in the planning and execution of surgery and other interventional procedures. For individual patients, CIIM systems can enable less invasive, safer, and more cost-effective treatments. Since these systems have the ability to act as “flight data recorders” in the operating room, they can enable the use of statistical methods to improve treatment processes for future patients and to promote physician training. We will illustrate these themes with examples from our past and current work and will offer some thoughts about future research opportunities and system evolution.

Biography:

Russell H. Taylor received his Ph.D. in Computer Science from Stanford in 1976. He joined IBM Research in 1976, where he developed the AML robot language and managed the Automation Technology Department and (later) the Computer-Assisted Surgery Group before moving in 1995 to Johns Hopkins, where he is the John C. Malone Professor of Computer Science with joint appointments in Mechanical Engineering, Radiology, and Surgery and is also Director of the (graduated) Engineering Research Center for Computer-Integrated Surgical Systems and Technology (CISST ERC) and of the Laboratory for Computational Sensing and Robotics (LCSR). He is the author of over 450 peer-reviewed publications and 83 patents, a Fellow of the IEEE, of the AIMBE, of the MICCAI Society, of the National Academy of Inventors and of the Engineering School of the University of Tokyo. He is also a recipient of numerous awards, including the Maurice Müller Award for Excellence in Computer-Assisted Orthopaedic Surgery the IEEE Robotics Pioneer Award, the MICCAI Society Enduring Impact Award, the IEEE EMBS Technical Field Award, and the Honda Prize.

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