Development of Stereo Vision and Master-Slave Controller for a Compact Surgical Robot System

In this paper, we have developed a robotic surgical system, which provides a low-cost, compact and modular structure for simulation and evaluation of tele-operation controller design. A 3D stereo vision tracking subsystem for the tele-surgery system has been proposed to render real-time surgery site image to the surgeon, while the tele-surgery subsystem enables the surgeon to perform tele-operations. The designed controller generated smooth trajectories on the compact surgical system, which could be further utilized as a standard tele-surgery training system.