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Clinical trials and evaluation of Cardiac ultrasonography over 4G wireless network using a tele-operated robot

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A wearable tele-echography robot (MELODY) with four degrees-of-freedom that permits a medical expert to examine at a distance a patient by ultrasound was evaluated and tested over 4G mobile network. At the expert side, the medical expert uses a dummy probe to control the real probe which is controlled by the robotic arms at the patient side and positioned on the patient's body by paramedic personnel. The communication between the two sites is facilitated by a videoconferencing link. The telerobotic system has now been clinically tested and commercialized. The experimental setup of a wearable tele-echography robot, the MELODY system over a 4G connectivity link used to measure the system performance is described. The evaluation and investigation of the relevant medical ultrasound video and the relevant issues defined in terms of the average throughput and jitter delay are investigated. A comprehensive video coding standards comparison for cardiac ultrasound applications is performed, including H.264/AVC and HEVC using a data set of nine cardiac ultrasound videos. Both objective and subjective (clinical) video quality assessment were performed.

Biography

Sotiris Avgousti is currently working as an instructor at Cyprus University of Technology. He has done masters in Computer Systems Networking and Telecommunication from Brunel University, London. He has done PhD from the University of Oreland France in Telerobotics.

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