

Title: Interactive Systems for Learning Heart Sound Auscultation and Recording

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Short Description:

Auscultation is a standard medical exam for heart pathology screening, nonetheless it is a difficult skill to master and learn. Nevertheless, each medical student is typically exposed to hours of inadequate training during their whole course. Motivated by the aforementioned problem, the first goal of our presentation is to present a high reliable technology solution already successfully deployed in more than three countries, the is4Learning technology. The is4Learning technology is an affordable virtual patient simulator that enables the teaching and training of the three fundamental skills required for an effective cardiopulmonary auscultation procedure: positioning, gesture, and listening.

In the second part of our presentation, we are going to present another important and interesting solution to store and process heart sound signals, the DigiScope Collector (DSC) technology. The DigiScope Collector, specially developed to Android, allows healthcare professionals to collect and store a complete auscultation exam using a Littmann R 3200 electronic stethoscope. The stored data can be further used for research or transmission of the auscultation in telemedicine applications. This technology was successfully applied in very demanding clinical environments, for example in the Heart Caravan Initiative, a project focused on the screening of children with congenital heart defects, throughout the state of Paraíba, Brazil. Since the geographical constraints lead to a lack of specialized healthcare professionals in some areas, we believe that the collection of heart auscultations by community health agents may be an alternative for the rapid assessment of children far from a central hospital.