The Johns Hopkins University  
Whiting School of Engineering  
Department of Electrical and Computer Engineering

Computerized Analysis for Pediatric Lung Auscultation in Noisy Clinical Settings

PhD Proposal Seminar by  
Dimitra Emmanouilidou  
Graduate Research Assistant (Dr. Mounya Elhilali)  
Electrical and Computer Engineering

Abstract:
Chest auscultation has been utilized as a low-cost, highly portable, non-invasive, and widely used tool for physical examination of pulmonary health since the invention of the stethoscope. Despite the universal adoption of acoustic stethoscope, its use is riddled by a number of issues including subjectivity in interpretation of chest sounds, inter-listener variability and inconsistency, need for medical expertise as well as vulnerability to ambient noise which can mask the presence of sound patterns of interest and limit the diagnostic capability. Digital auscultation comes as a natural aid towards overcoming such imposed limitations.

In this thesis we focus on the challenges above while addressing the demanding real-life scenarios of pediatric lung auscultation in outpatient clinics. Our two-fold objective is: First, improve the clinical value of the recorded sounds by minimizing the effect of environmental distortions while preserving the lung sound information. Second, we seek an appropriate feature space that will adequately capture the peculiarities and characteristics of different lung infections for the ultimate goal of providing the health-care personnel with a valuable aid tool for diagnosing respiratory diseases.

Thursday, October 16, 2014  
3 p.m.  
Barton 117

FOR DISABILITY INFORMATION CONTACT: Janel Johnson (410) 516-7031 janel.johnson@jhu.edu