

Ultrasound stethoscope breathing data analysis

Portable ultrasound probe



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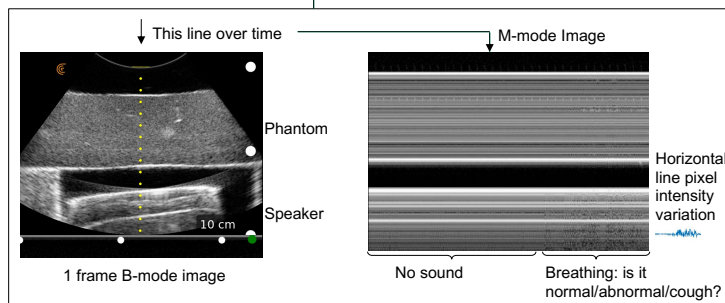
Software

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Digital stethoscope
"for free"?



Cost ~\$300



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Ultrasound stethoscope breathing data analysis

- **Goal:** Using signal processing and possibly machine learning techniques to extract audio information from ultrasound probe-acquired data.
- **What Students Will Do:**
 - Create algorithm/software tools for analyzing ultrasound probe recorded respiratory audio data.
- **Deliverables:**
 - Minimum: A dataset of ultrasound-probe recorded respiratory audio data [1], an algorithm/software to classify sound vs. no-sound cases.
 - Expected: An algorithm to classify multiple types of respiratory audio signals from the ultrasound data.
 - Maximum: An algorithm to reconstruct the original audio signal from the ultrasound data
- **Size group:** 1~2
- **Skills:** Signal processing, machine learning, some experience with ultrasound is desired.
- **Mentors:** Baichuan Jiang (baichuan@jhu.edu), Dr. Emad Boctor (eboctor@jhu.edu), Dr. James West (jimwest@jhu.edu)

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[1] <https://www.kaggle.com/vbookshelf/respiratory-sound-database>
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