

Audio Source Localization using Binaural Setup

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Abstract:

The project will first provide an overview of binaural sound localization. This includes challenges, recent research breakthroughs, and current applications. Building upon this foundation, the various machine learning techniques will be explained and tested in a demonstration. Relevant signal processing notes will be included as well for understanding, including time/frequency domains, amplitude, and path loss considerations. This will be done via the most common structure found in binaural localization structures.

Aims/Objectives:

- Learn modern techniques, implementations, and application of binaural sound localization
- Learn how signal processing is used in data
- Dive into specifics of machine learning techniques utilized
- Build a demo model using binaural microphones

Results/Outcomes:

- IEEE Report
- In-Class Presentation
- Demonstration
- Code used in demo and for paper

Individual Contributions:

I am the only person working on this project so I will be responsible for everything.

References:

- [1] <https://ieeexplore.ieee.org/abstract/document/7045516>
[2] <https://www.sciencedirect.com/science/article/abs/pii/S0921889015301780>
[3] <https://ieeexplore.ieee.org/abstract/document/8294267>
[4] https://www.akutek.info/demo_files/binaural_localization.htm

*Has links to other quality literature

*I am still searching for any similar open source code to use as a starting point