UNIVERSITY OF MINNESOTA
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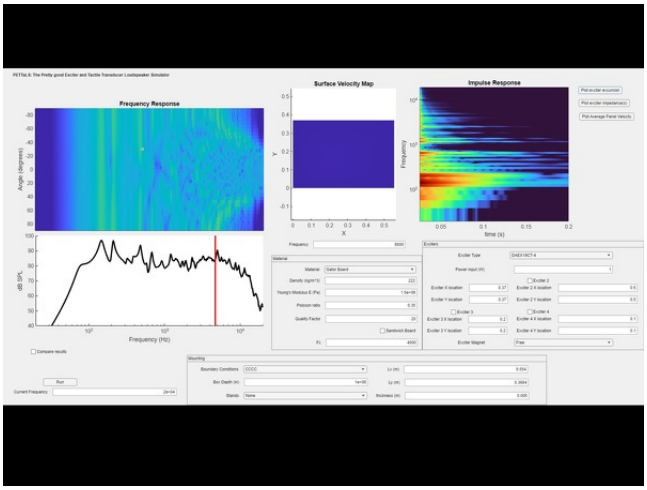
Perfect exciter and tactile transducer loudspeaker simulator (PETTaLS)

An end-user software for the layout and design of loudspeakers and haptic displays using exciters



IP Status: Copyrighted

Applications

- Design and development of speakers
- Design and development of haptic devices

Key Benefits & Differentiators

- **Easier testing of designs:** No similar end-user software is available that allows the user to simulate a broad range of parameters

Technology Overview

A sound exciter is the vibrating component of a loudspeaker that can be attached to a solid surface to create sound reproduction in virtually any location. In particular, multiple exciters can be combined to create loudspeakers or haptic displays. A wide variety of exciter types are available for purchase, but very little design guidance is available from manufacturers or any common source (outside of highly technical research papers and bespoke consultants). End users, then, are left to play a guess-and-check game with parameters such as exciter type, number, location, and size of exciters, material type, etc. when optimizing a speaker or tactile/haptic design.

Prof. David Anderson at the University of Minnesota has developed end-user software to simulate a speaker or haptic display based on a wide range of exciter parameters. This software allows users to experiment with different exciter types, quantities, and distributions as well as

Technology ID

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Category

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Engineering & Physical Sciences/Instrumentation, Sensors & Controls
Software & IT/End User Software
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the material of the surface to be excited among other parameters. There is currently no comparable end-user software available. End-user binary code is made available for personal and consulting use. Source code will be made available for integration and distribution to platform design software packages.

Phase of Development

TRL: 8 for end-user binary application; TRL 7 for distributable source code to embed in a platform application
Working software prototype

Access to Software

This technology is available via a non-commercial use end-user license on GitHub (LINK). Please contact our office if you are interested in a different license.

Desired Partnerships

This technology is now available for:

- License
- Sponsored research
- Co-development

Please contact our office to share your business' needs and learn more.

Researchers

- **David Anderson, PhD** Assistant Professor, Department of Electrical Engineering

References

1. Anderson, David A.; Heilemann, Michael C.; Bocko, Mark F.(2017) , https://secure.aes.org/forum/pubs/journal/?elib=19202, Journal of the Audio Engineering Society, 65, 722-732