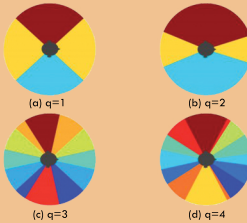


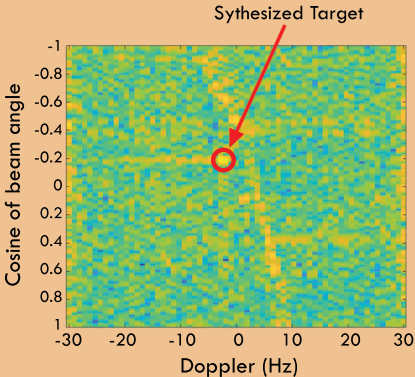
ARiA

Computational Acoustic and Psychoacoustic Modeling

Information-theoretic analysis of spatial
hearing



Synthesized target inserted in real sonar data



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Capabilities:

ARiA maintains broad expertise in formulating models of sound propagation and scattering in diverse environments—ranging from underwater, to outdoors, to interior spaces—and human perception of those sounds including detection and localization. Our computational models, developed in both the time and frequency domains, use in-house software implementations that leverage multi-core CPU and many-core GPU architectures to optimize performance.

Projects:

- Edge-source modeling of midfrequency target scattering for development of signal-processing algorithms and prediction of sonar performance
- Underwater acoustic modeling in uncertain environments for prediction of sonar performance
- Real-time acoustic simulation of underwater propagation for training applications and tactical decision aids
- Simulation of synthetic targets in real data using physical modeling for prediction of information-processing algorithm performance
- Helicopter noise propagation modeling and modeling of human detection and localization in outdoor environments
- Bullet-noise propagation modeling and modeling of human detection and localization in outdoor environments

Customers:

- Department of Justice (DoJ)
- Naval Air Systems Command (NAVAIR)
- Naval Sea Systems Command (NAVSEA)
- Office of Naval Research (ONR)
- Supreme Court of the State of New York