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Bio-inspired MEMS acoustic sensor for robotic autonomous systems applications

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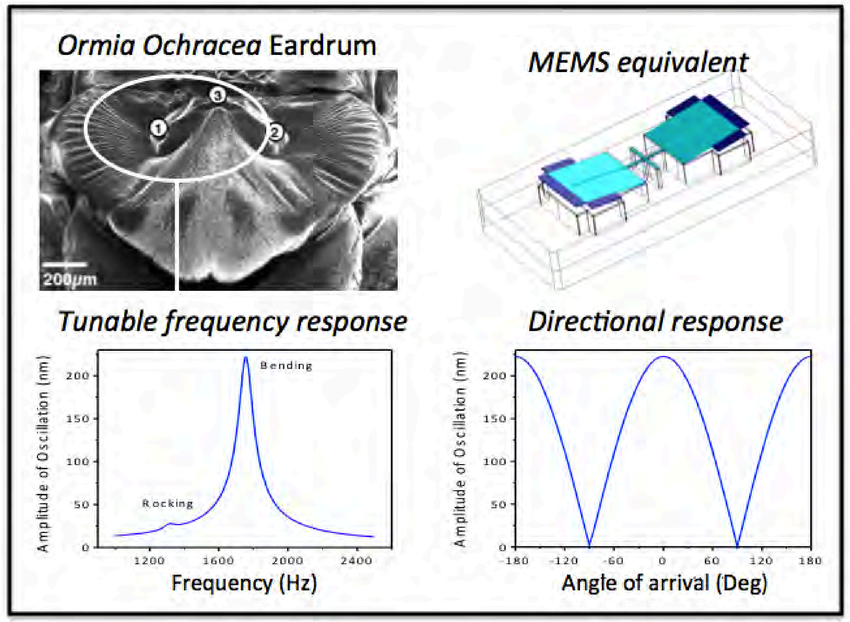

- Using the know-how in MEMS acoustic sensor development by our research group over the years and the available knowledge base within the CRUSER community our approach is:
- (1) Collect and study RAS acoustic signatures of available systems at NPS, using NPS' anechoic chamber and calibrated instrumentation.
- (2) Investigate noise and vibration suppression means for sensors installed in moving platforms, using the data collected in task (1).
- (3) A specific RAS acoustic signature will be selected and a sensor will be designed and fabricated to detect that specific signature. This will be performed using NPS computational resources and microfabrication facilities.

- Miniature MEMS acoustic sensors are very attractive to operate aboard terrestrial or aerial robotic autonomous systems (RAS) or other unmanned platforms (UP) due to their very small size, high performance, low power budget, tunable intrinsic filtering, design flexibility and low cost.
- The objective of proposed research is to develop bio-inspired MEMS directional acoustic sensors to operate in FRIEND RAS or UP, for localization and identification of acoustic signatures of other FRIEND RAS or UP (for cooperative tasks) or FOE RAS or UP (for awareness and countermeasures).

- When compared with the electromagnetic counterparts, acoustic sensors have many advantages that include non-line-of-sight, passive, low cost, low power, light weight and small size, therefore they can be employed in a greater number of platforms.
- The ability to use miniature acoustic sensors installed in RAS or other UP for localization and identification of the battlefield acoustic sources can positively contribute to the much desired warfare asymmetry.

CRUSER
Consortium for Robotics and Unmanned Systems Education and Research

FY17 Call for Proposals

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