

[Mounya Elhilali](#), Charles Renn Faculty Scholar and professor of Electrical and Computer Engineering, is the principal investigator on a 2022 Department of Defense Multidisciplinary University Research Initiative (MURI), “Learning to mine a soundscape.” She will be leading this project along with colleagues from the department of Psychology and Brain Sciences [Cindy Moss](#) and [Janice Chen](#). The team also includes colleagues from the University of Maryland and Carnegie Mellon University, as well as collaborators from Google and the university of Southern Denmark.

As humans, animals, and machines navigate and interact with their environments, they infer a multitude of information from the acoustic signals they receive and integrate it with other modalities to make sense of the changing surroundings and to adapt their behaviors accordingly. Acoustic signals not only convey information about sound events but also provide information about the physical structure of the environment and context. The inference of objects and events from sounds is informed by learned representations that impact actions, behaviors and decision-making. This project aims to identify the nature and role of these representations in guiding perception and behavior in humans, animals, and models.

The project is one of 28 five-year basic research MURIs to 63 U.S. academic institutions announced in early March by the Department of Defense.