DATA MINING AUDITORY DETECTION AND CLASSIFICATION OF ACOUSTIC ENVIRONMENTS

PROJECT DESCRIPTION: Speech and musical research contain canonized methods for recognizing specific sounds, which has led to machine learning methods for automatically categorizing and identifying recordings. The significantly smaller signal corpus size for these research areas compared to general acoustics facilitated this algorithm development. This effort will explore methods for extracting auditory features that represent acoustic information with a variety of metrics, and exploration of the auditory feature set to determine what features are important for modeling human responses to the stimuli presentation with and without additional masking.

ACADEMIC LEVEL: Bachelors, Masters

DISCIPLINE NEEDED:
- Psychology
- Computer Science
- Physics/Mechanical Engineering

RESEARCH LOCATION: Wright-Patterson AFB Dayton, OH

RESEARCH ADVISER: Frank Mobley, PhD
Mechanical Engineering, University of Dayton, 2012

Dr. Mobley has been working with RH for 20 years and has focused on physical acoustics and descriptions of the aircraft sound emissions. Dr. Mobley completed a graduate certificate in Data Mining from The Ohio State University in 2019. With this knowledge, he has explored relationships between physical and psychophysical phenomenon and acoustic information, in an attempt to understand how to build more accurate and robust models of human performance.