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**Application of statistical methods in underwater signal
classification**

Brett Bissinger, Richard Lee Culver, Nirmal Bose and Colin Jemmott
ARL Penn State, PO Box 30, State College, PA 16804, USA

The overall goal of our work is to utilize knowledge of the ocean environment to improve sonar detection and classification performance. Source classification and localization in the underwater environment is a challenging problem in part because propagation through the space- and time-varying medium introduces multipath, variability, and decorrelation to the signal. Traditional underwater signal classification has relied on parametric methods such as the likelihood ratio tests. Recent research has explored non-parametric methods like maximum entropy and maximum likelihood with favorable results. This talk considers other, more contemporary non-parametric methods, e.g. principle component analysis, independent component analysis and support vector machines, and compares their structure and performance with previous results. Work supported by Office of Naval Research Undersea Signal Processing.