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## **ABSTRACT**

The purpose of my research is to increase the general knowledge of gas detection using higher order statistics on noise fluctuations. That purpose is to be achieved in two steps. Overall the project will consist of programming and experimental data collection.

Initially the fundamentals of Matlab as a program and using computer programming for statistical analysis will be developed. The first stage of the research will produce Matlab functions useable for analysis of density functions and power spectra given experimental data.

The second phase of the research will entail expanding the functionality of the analysis functions to encompass higher order statistics. Apparently there is not much research that has been done in the area of higher order statistics with gas noise fluctuations. The project will be successful if useful results are found from the trials that will be performed and analyzed.