Each member of the team will perform feature extraction and classification.

Brett Larsen will be in charge of analyzing the new data using Matching Pursuit Decomposition. As an extension of previous methods, he will also be implementing Matching Pursuit Decomposition with a data dictionary (obtained from pre-classified data sets). This new method will allow greater accuracy and require less processing power. Brett will also be in charge of setting up the sensors as we gather data.

Lydia Letham will be analyzing using the Wigner-Ville Representation. Wigner-Ville has been used in the literature in combination with an LDA classifier. Wigner-Ville will act as our control TFR; enabling us to compare our results with others. In an extension of the project, Lydia will also work on implementing an unsupervised learning algorithm such as a Gaussian mixture model.

Tianran Liu will be in charge of analysis using the Ambiguity Function and the Cross Ambiguity Function. The Ambiguity Function is related to the Wigner-Ville distribution, but should be more accurate. Tianran will conduct analysis using the Spectrogram.

Kaitlyn Beaudet will be conducting analysis using the Reduced Interference Distribution (a modified form of Wigner-Ville). We expect it will produce better results for seismic data than Wigner-Ville. Kaitlyn will also be in charge of organizing the matlab data and code such that it is easy to implement and maintain.