**Kmeans on signals (Welch spectral analysis)**

<https://www.sciencedirect.com/science/article/pii/S095741741000343X>

**Kmeans on signals (DWT)**

<https://www.sciencedirect.com/science/article/pii/S1877050914009004>

**Clustering types**

<https://asd.gsfc.nasa.gov/Rubab.Khan/cluster/ms/node3.html>

**Kmeans on signals (DWT)**

<https://www.sciencedirect.com/science/article/pii/S0957417411006762>

**Kmeans on signals (??)**

<https://www.researchgate.net/publication/310809061_Clustering_of_EEG_occipital_signals_using_k-means>

**Kmeans on signals (Waveform shape)**

<https://www.sciencedirect.com/science/article/pii/S0168900211017529>

**Kmeans on signals (PCA)**

<https://towardsdatascience.com/whos-talking-using-k-means-clustering-to-sort-neural-events-in-python-e7a8a76f316>

**Technical Report:**

**Title Page**

**Introduction** – highlight purpose of the report (1)

**Summary** – overview of the report including results/conclusions (1)

**Technical Details/Method** – in-depth details about the research (~5)

**Evaluation/Results/Discussion** – concerning the implications of the research (~4)

**Conclusion/Future Work** – brief summary of the entire report and other possible work (~1)

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**References** – any resources/materials used in the research

**Bibliography** – any materials/other sources used in the research

**Acknowledgements** – list people who helped in coming up with the research/report

**Appendices** – materials not necessary for the body of the report but worth mentioning

**RNN (Recurrent Neural Network)**

\*Finite Impulse Recurrent Neural Network

\*Infinite Impulse Recurrent Neural Network

Input layer, hidden layer, output layer.

Has a looping mechanism which allows information to flow from one step to the next

Takes in an input, produces an ouput in a sequence

The final output should classify the sequence

Short-term memory issues

Training a neural network

* Forward pass, make prediction
* Compares prediction to “truth” using loss function which outputs an error value
* Uses error value to adjust gradients of the NN
* This can cause some gradients to vanish over time

Long short-term memory (LSTM) and Gated Recurrent Unit (GRU) combat this

PROJECT OUTLINE: