**EEG Data Augmentation for Emotion Recognition Using a Conditional Wasserstein GAN**

They propose CWGAN framework for EEG data augmentation. Also, qualities of the generated data are evaluated by the three indicators such as discriminator loss, maximum mean discrepancy, two-dimensional mapping. They use two public EEG datasets, namely SEED and DEAP. The emotion recognition models achieve 2.97%, 9.15% and 20.13% improvements on SEED dataset and DEAP dataset for arousal and valence classifications, respectively.

**EEG-GAN: Generative adversarial networks for electroencephalograhic (EEG) brain signals**

They propose an improvement to the Wasserstein GAN training showing increased training stability. Also, they compare different evaluation metrics such as Inception score, Frechet Inception Distance, Euclidean Distance, and Sliced Wasserstein distance. The EEG datasets they use for training stem from a simple motor task in which the subjects were instructed to either rest or move the left hand. The result shows the models trained with their methods performed best for every evaluation metrics.

**EEG Signal Reconstruction Using a Generative Adversarial Network With Wasserstein Distance and Temporal-Spatial-Frequency Loss**

They propose a contemporary deep neural network that uses a GAN/WGAN framework with a TSFMSE-based loss function for LSS-EEG signal reconstruction. They use three EEG signal datasets with different sampling rates and sensitivities. Their experimental results suggest that the GAN/WGAN frameworks give a significant improvement on the classification performance of EEG signals reconstruction with the same sensitivity, but the classification performance improvements of EEG signal reconstructions with different sensitivity were not significant.

**On the Generation and Evaluation of Tabular Data using GANs**

They propose adding skip connections to TGAN to increase gradient flow and information retention, and adding WGAN-GP architecture to TGAN. Also, they propose a metric to evaluate similarity score. They use three datasets such as the Census dataset, the Berka Czech Financial dataset, and Creditcard Farud dataset. The census dataset is mostly categorical values, the creditcard dataset is mostly continuous values and the Berka dataset is a nice mix of both. As a result, TGAN-skip and TGAN-WGAN-GP outperform TGAN in the similarity scores in the census and creditcard dataset.