Development of Online Machine Learning Software using the HTML5 J-DSP Programming Environment

Abhinav Dixit, Jie Fan, Sameeksha Katoch, Gowtham Maniraju, Sunil Rao, Uday Shantamallu, Andreas Spanias, Cihan Tepedelenlioglu

SenSIP Center, School of ECEE, Arizona State University

MOTIVATION

- Elevated requirements for online content motivated rebuilding online simulation tools in a secure framework.
- New online tool based on Web 4.0 HTML5 technologies.
- Improved visual and user-friendly environment.
- Interactive software for Filter Design, Linear Predictive Coding, FFT, Adaptive Filtering.

INTERFACE WITH MOBILE DEVICES

- Classification of data acquired to monitor health condition.
- Human Activity Detection.

MACHINE LEARNING ALGORITHMS

K-Means

- Euclidean distance is used as a metric and variance is used as a measure of cluster scatter.
- Feature learning in (semi-)supervised or unsupervised training.

Multilayer Perceptron

- Learning occurs in the perceptron by changing iteratively connection weights using backpropagation.
- MLPs are used in diverse applications including speech and image recognition, and machine translation.

REFERENCES


ACKNOWLEDGEMENTS

This work is funded in part by the NSF DUE award 1525716 and the SenSIP Center.