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.

The interaction between DSP software, sensor boards and remote devices using wireless communications (Internet, Cloud, and Bluetooth)

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.

K-means algorithm implemented on formant data in JDSP-HTML5

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


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