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(71)**Name of Applicant :**
1)QUALCOMM INCORPORATED
Address of Applicant :Attn: International IP Administration 5775 Morehouse Drive San Diego CA 92121 U.S.A.
(72)**Name of Inventor :**
1)APARIN Vladimir

(57) Abstract :
Certain aspects of the present disclosure support a local competitive learning rule applied in a computational network that leads to sparse connectivity among processing units of the network. The present disclosure provides a modification to the Oja learning rule modifying the constraint on the sum of squared weights in the Oja rule. This constraining can be intrinsic and local as opposed to the commonly used multiplicative and subtractive normalizations which are explicit and require the knowledge of all input weights of a processing unit to update each one of them individually. The presented rule provides convergence to a weight vector that is sparser (i.e. has more zero elements) than the weight vector learned by the original Oja rule. Such sparse connectivity can lead to a higher selectivity of processing units to specific features and it may require less memory to store the network configuration and less energy to operate it.

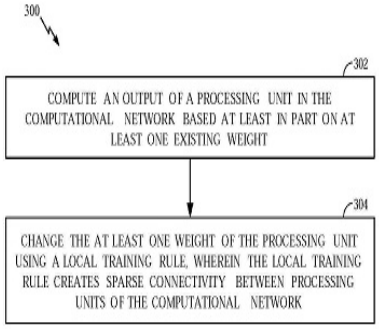

FIG. 3

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