

I.E. Livieris, A. Kanavos, V. Tampakas, P. Pintelas. [A weighted voting ensemble SSL algorithm for the detection of lung abnormalities from X-rays](#). Algorithms, 2019.



Abstract - During last decades intensive efforts have been devoted to the extraction of useful knowledge from large volumes of medical data employing advanced machine learning and data mining techniques. Advances in digital chest radiography, have enabled research and medical centers to accumulate large repositories of classified (labeled) images and mostly of unclassified (unlabeled) images from human experts. Machine learning methods such as semi-supervised learning algorithms have been proposed as a new direction to address the problem of shortage of available labeled data, by exploiting the explicit classification information of labeled data with the information hidden in the unlabeled data. In the present work, we propose a new ensemble semi-supervised learning algorithm for the classification of lung abnormalities from chest X-rays based on a new weighted voting scheme. The proposed algorithm assigns a vector of weights on each component classifier of the ensemble based on its accuracy on each class. Our numerical experiments illustrate the efficiency of the proposed ensemble methodology against other state-of-the-art classification methods.