Thus, on the basis of the obtained results, the following conclusions can be formulated: C-points can be obtained due to the superposition of two orthogonally linearly polarized waves; the sign of the topological indices C-points alternate in the transition from one to the adjacent period of superposition; the sign of topological index of C-point is defined by direction of increasing of intensity changes of one of the waves and the phase difference between interfering beams.

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NON-LINEAR CLASSIFICATION PROBLEM SOLVING

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There are many algorithms for solving linear classification problems, the most well-known of which are the linear discriminant analysis and the Bayesian classifier. The tasks of the nonlinear classification are more difficult to solve, since each specific task requires its approach. For example, using the Support Vector Machine, the quality of classification depends on the correctly selected kernel. We offer our own approach to nonlinear classification problems solving.

Let the training sets of points A, B are given in the Euclidean space R^l. The task is to create a classifier that divides the sets A and B with a predetermined significant level ε. Consider the case when the sets A and B do not intersect, but the convex hull of the set A lies inside the convex hull of the set B.

Let $k - 2$. We conduct a cluster analysis by the k-means algorithm for the sets A and B. Let's separate each of the sets A and B into k clusters. Consider all possible k^2 pairs of subsets A_i, B_j, $i = 1,..., k$, $j = 1,..., k$. For each pair of subsets, we find separating hyperplanes by the method of convex hulls linear separation, which is described by us previously. If the number of errors does not correspond to the given significant level, we increase the number of clusters by 1. If the number of clusters is very large according to the volume of samples, we are talking about the impossibility of classifying sets at a predetermined significant level of errors. If the significant level ε is satisfied, then the solution of the classification problem is a set of optimal separable hyperplanes of all pairs of subsets.

The algorithm complexity of the proposed method is $O(n)$, which is less than the complexity of the nonlinear Support Vector Machine algorithm.

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CALIBRATION OF THERMOELECTRIC RECEPTORS WITH A FLAT RECEIVING PLANE

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Receivers based on anisotropic thermoelements are used in industrial sanitation in energy radiometers, in medical diagnostic instruments by the method of dynamic heat-metering, namely:

- in diagnostics of functional state of the kidneys, for detection of pyelonephritis or glomerular nephritis (Kalugin V.O., Pishak V.P. Dynamic Radiation Thermometry, Opportunities and Perspectives.-Chernivtsi, - Prut-2009.-244);
- in diagnosis of the thyroid gland to determine its functional state (Gozhenko A.I., Berezovskaya M.E., Vetoshnikov B.C., etc. Method and device for temperature monitoring of the functional state of the thyroid gland in radiation damage - Radiation damage and development perspectives of personal protective equipment from ionizing radiation - M., 1992.- S. 101-107);
- in gynecology for detection of inflammatory processes, the function of the placenta, (Gozhenko A.I., Dikusarov V.V., Orenchuk B.C. Relationship between the level of radiation heat loss from the placenta and its function in EHR gestosis - Actual issues in morphogenesis: Mater. Conf.-Chernivtsi, 1996. pp. 87-88), (Gozhenko A.I., Dikusarov V.V., Orenchuk B.C. Usage of the test with the change of position of the body of a pregnant woman in the diagnosis of disorders of the placenta function - Actual problems of morphogenesis: 20 Mater. Sci., Conf. - Chernivtsi, 1996. - P. 88-89). Etc.

Calibration, that is, verification of the instrument parameters by comparing them with the indicators of exemplary devices, are widely used in modern instrument making, and is one of the last operations in the manufacture of devices. This method relates to the calibration of devices for contactless diagnostics on human radiation, and can be used to calibrate radiation receivers with heat-sensitive elements based on anisotropic thermocouples, i.e., heat receivers with a flat receiving plane. The calibration of thermoelectric receivers with a flat receiving plane is as follows. For calibration, a heat measuring cell consisting of a thermostat block is used, inside which, symmetrically with respect to the side walls, a flat metal core (0.2 mm thick plate) with a heater inside, on both sides of which two identical thermoelectric receivers with a flat receiving plane installed closely, are fixed.

The electric heater has the shape and size that coincide with the shape and size of the receiving plane of the thermoelectric receiver; and grading thermoelectric receivers with a flat receiving plane by stepwise change in the power of the heater, measuring the thermoelectric force, plotting the dependence of the signal of thermoelectric receivers with a flat receiving plane on the density of the heat flux for a given thermostatically controlled temperature unit.

The whole procedure for different temperature levels of the thermostated unit is repeated and nomogram of the dependence of the thermo-driving force of thermoelectric receivers with a flat receiving plane for the desired operating temperature interval is obtained.