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Cardiovascular disease prediction system using support vector machine (SVM) and binary particle swarm optimization (BPSO)

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Cardiovascular disease has been known as one of the main reasons for mortality in contemporary societies in recent years. Therefore it is very important to develop clinical decision support systems able to help the physicians diagnose the disease and its related risks. By now, researchers have made concerted endeavors and developed different decision support systems using data mining techniques. In this study a clinical decision support system is introduced for cardiovascular disease prediction using Support Vector Machine and Binary Particle Swarm Optimization. We used SVM as classifier and benefited enormously from optimization capabilities of BPSO for performing feature selection and optimizing the main parameters of SVM such as kernel and regularization parameters. Finally, performance of the proposed method is evaluated by applying it to Isfahan Healthy Heart Program dataset. Evaluation criteria are accuracy, sensitivity, specificity, false positive and false negative that are used commonly in binary classification problems. The proposed model in conjunction with selection of age, sex, family history of cardiovascular disease, hypertension, dyslipidemia, smoking and daily physical activity as relevant features achieved to a reasonable performance.

Biography

Rasoul Sali has completed his education from Sharif University of Technology. Currently she is working as a System Analyst at Information Technology and Services.

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