

# **Classification and Prediction of Heart Disease from Diabetes Patients using Hybrid Particle Swarm Optimization and Library Support Vector Machine Algorithm**

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## **Abstract**

The multi-factorial chronicle, severe disease among human is diabetes. As a result of abnormal level of glucose in body leads to heart attack, kidney disease, renal failure, Hyperglycemia and also cancer in organs like liver and pancreas. Many studies have been proved that several types of heart diseases are possible in diabetic patients having a high blood sugar. Many approaches were proposed to diagnose both Diabetes and heart diseases. Most of the diabetes people can also have heart diseases called as Diabetic Cardiomyopathy. The earliest manifestation of diabetic cardiomyopathy is needed certain processes. The objective of the study is to examine the association of heart disease and diabetes. The relationship between diabetes and cardiovascular diseases are examined by taking into account of age, sex and associated diabetic and cardiovascular risk factors. The data are collected from patients with diabetes. From these data, features are selected by ant colony optimization and those selected features are given to hybrid PSO-LIBSVM to classify abnormal and normal data. This performance is evaluated using performance metrics and proved this classifiers efficiency for detection of Diabetic Cardiomyopathy.

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