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**Project Title**

Early diagnosis of cardiovascular diseases from fundus retinal images

**Project Summary**

There is growing medical evidence regarding an association between changes in retinal vascular size and the risk of cardiovascular diseases. However, the results of previous population-based studies are dependent upon the chosen population sample and on factors such as age, sex, blood pressure level and ethnicity as well as other risk factors that may interact to contribute to variations in retinal vascular size. The most common measures used to identify changes in retinal vessels are the AVR (the ratio between the arteriole and venule diameters) and the tortuosity of vessels. An important current limitation of these studies is that those measures are computed in specific retinal areas while signs of cardiovascular diseases could be present elsewhere in the retina. The main objective of this project is to develop an interpretable machine learning approach for an early diagnosis of cardiovascular diseases from retinal images that can be used in a clinical setting.

**Keywords**

machine learning, deep canonical correlation, retinal images, cardiovascular diseases