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Supervisor Review for the Bachelor Thesis:

“Detection of Diabetic Retinopathy Using Deep Learning and Transfer Learning Techniques with Oversampling to Address Imbalanced Dataset” by Teodora Randelović

Teodora Randelović tackled the problem of detecting Diabetic Retinopathy (DR) from retinal fundus photographs. This is a highly relevant topic as an early diagnosis and treatment of this issue can drastically reduce symptoms and therefore increase a patient's quality of life.

In her work, Teodora investigates several methods from Deep Learning as to their ability to correctly classify not only the existence of DR from images but also its severity. The motivation and importance of her work is well stated, and she gives a good overview of the disease and its causes and symptoms.

Teodora clearly communicates the issues with existing datasets that are the basis for not only her work but also other studies in this field, namely a imbalance of healthy versus diseased examples. She goes on to propose a solution for this problem, which she then evaluates in two experiments. Furthermore, she investigates the effect of pre-training Deep Learning models on a large, publicly available dataset before adapting the model for the problem at hand.

However, the experiments Teodora performed in order to show the effects of her propose solutions are not always well designed and certain choices not well communicated. Therefore, while I can recommend that Teodora for the Bachelor of Science degree, there is clear room for improvement.

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