

**Universiti Teknologi MARA**

**Automated Hypertensive Retinopathy  
Detection using Image Processing**

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for Bachelor of Computer Science (Hons.) Faculty  
of Computer and Mathematical Sciences**

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## **SUPERVISOR APPROVAL**

### **AUTOMATED HYPERTENSIVE RETINOPATHY DETECTION USING IMAGE PROCESSING**

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This thesis was prepared under the supervision of the project supervisor, Nur Nabilah binti Abu Mangshor. It was submitted to the Faculty of Computer and Mathematical Sciences and was accepted in partial fulfilment of the requirements for the degree of Bachelor of Computer Science.

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JANUARY 6, 2020

## **STUDENT DECLARATION**

I certify that this thesis and the project to which it refers is the product of my own work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

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## **ABSTRACT**

In this day and age, hypertensive has been identified as the major factor for death and is ranked third as a cause of life-years adapted for disability. Hypertensive retinopathy can be observed on the retinal sign, including generalized and focal arteriolar narrowing, arteriovenous nicking, flame-shaped and blotted-shaped retinal haemorrhages, cotton-wool spots and swelling of the optic disc. Hypertensive retinopathy also relates to a condition of the disease that damages the retinal vascularization of hypertensive patients, leading to vision loss and death. However, there are no early symptoms to many eye diseases. It may be painless, and there may be no vision change until the disease is quite advanced. Hence, early detection is therefore really important to avoid any significant effect to human eyes. An automated hypertensive retinopathy detection prototype will be developed for medical examination in this project. There are three phases of this system which is pre-processing, processing and post processing. Several image processing technique has been use in development of this project. The accuracy of this system is 90.00% and it is developed using MATLAB software. The findings from this study is believed to be helpful as it may contribute in medical image processing field.

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