

Universiti Teknologi MARA

**Melanoma Skin Cancer Recognition
Using Negative Selection Algorithm**

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**Thesis submitted in fulfilment of the requirements
for Bachelor of Computer Science (Hons.)
Faculty of Computer and Mathematical Sciences**

January 2017

ACKNOWLEDGEMENT

Thousands of praises and thanks to Allah SWT because of His Almighty and His utmost blessings, this research able to finish within the time duration given.

I am using this opportunity to express my undivided gratitude to everyone who supported me during the completion of this research. I am thankful for everyone that provided me with aspiring guidance, invaluable constructive criticism and advice during the research work. Sincerely grateful to them for sharing their truthful views on several issues related to the project.

Tremendous thanks and appreciation to my supervisor, Siti 'Aisyah bt Sa'dan that always guide me, provided full support in image processing area and report structure and help me to solve several critical problems that occurred during development process. A warm thanks to CSP600 and CSP650 lecturer, Dr Hamidah bt Jantan for her full support and guidance.

A special thank dedicated to my family for their sacrifices in order to see their family member successful in degree study. I would like to thanks all my best friends who always help, support and provide good advices in completing my prototype, report writing and encouraged me to strive towards my goal. Last but not least, I would like to acknowledge with much appreciation to all individual and organization that provided a free access database and information regarding skin cancer and negative selection algorithm that aided me to complete the tasks.

ABSTRACT

This project presents a novel intelligence that inspired by immune system or specifically the Artificial Immune System. The Negative Selection Algorithm has been successfully applied in several application areas such as fault detection, virus detection and data integrity protection. This study proposed and focused on the development of a prototype that uses the Negative Selection Algorithm to classify the input image whether it is belongs to melanoma skin cancer or benign mole. The criteria of the skin image that takes into account are Asymmetric Index, Border Irregularity, Color Invariant and Diameter of the lesion. This technique inspired by the ABCD rule where it is adopted as the standard rule to diagnose the skin cancer. This study has shown how the Negative Selection Algorithm can diagnose the skin cancer based on the input image and extracted data that has been provided. This study has been conducted with 30 data which are the skin images is divided into 20 training and 10 testing data for the proposed algorithm. The result of the evaluation analysis conducted in this study shown that accuracy of the result is 60%, the specificity obtained is 75% and sensitivity obtained is 50%. Hence, the proposed algorithm is capable to classify the skin image whether it is melanoma or benign mole based on the given data. For future enhancement of the prototype such as enhance the features extraction technique and hybrid the existing algorithm with another AIS algorithm can be conducted in order to obtain higher accuracy of the result gained.

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