UNIVERSITI TEKNOLOGI MARA

UNIVERSITI TEKNOLOGI MARA APPLICATION SYSTEM USING MODIFIED NEURO-FUZZY APPROACH

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Thesis submitted in fulfilment
of the requirements for the degree of
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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any other degree of qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Many school leavers have difficulties in deciding appropriate university programs based on their *Sijil Pelajaran Malaysia* (SPM) results. One of the factors which leads them to choose inappropriate programs is due to not having an appropriate medium assistance. Presently, Ministry of Higher Education uses IMASCU® which was the upgraded version of *E-Semak Kelayakan UiTM* to help students check their eligibility for programs offered by universities. However, students usually have problems in selecting and ranking the programs they prefer, as sometimes there are so many programs offered and they are qualified to apply to all of them. Hence, a systematic mechanism is needed to cater to these problems and it is the main aim of this study. The first objective that needs to be accomplished in this research is to evaluate the performances of Back Propagation Neural Network (BPNN), Adaptive Neuro-Fuzzy Inference System (ANFIS), and Modified Adaptive Neuro-Fuzzy Inference System (MANFIS) in terms of efficiency and accuracy. It is found that MANFIS outperforms ANFIS and BPNN in terms of accuracy. The second objective that needs to be achieved is to use MANFIS in the development of a system for selecting suitable university programs for SPM leavers. In the system's development, fuzzy numbers are constructed based on the trend of intakes of each considered program as this is used as part of the engine of the system. The engine is then employed in the university program selection system. The system is considered as the enhanced version of IMASCU® and *E-Semak Kelayakan UiTM* systems which provide better system where now it can rank the qualified programs in accordance to the trend of the previous intakes.

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