FUZZY EXPERT SYSTEM FOR DECISION MAKING IN MYOCARDIAL INFARCTION

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ABSTRACT (MALA Y)

Sistem pembuutan pemutusan teluh diperkenulkun dalam pelbagai bidung dun pudu masa kini, dunia pengkomputerun sedung memfokuskan terhudup pembungunun sistem berasaskan pengetuhuun. Sistem berasaskan pengetuhuun adalah salah sutu cabang dulum bidung Kepinturun Buutun (AI) yang memuatkun pengetuhuun manusia ke dalam sesebuah sistem husii duripudu proses perolehan pengetuhuun. Sistem gabungun Kepinturun Buutun yang terdiri duripudu beberupu teknik AI teluh menunjukkan keputusun yang memberungsungkun dulum menjulunkun diagnosis. Numun setukut ini hunyu beberupu sistem sahaja yang menggunukun pendekutun sedemikiun duium diagnosis perubutun. Kajian ini mencudungkun teknik gubungun Kepinturun Buutun untuk digunukun dulum sistem yang dikenali sebugui FEMInS. Sistem ini menggubungkun teknologi logik kubur dun sistem pakar yang boleh membuntu doktor bukun pakar untuk membuut peramalan dun diagnosis serungun penyukit juntung berdusurkun tundu-tundu uwui penyukit berkenaun. Oleh kerunh iogik kabur boieh digunakan untuk menbuut ramalan dun sistem pukur pula duput memberikan penerungun dun penjelusun, kombinasi kedua-dua bidung ini sesuui untuk pembungunun sistem perubutun. Ini disebubkun bidang ini biusunya periu menungani masaluh ketidukpustiun dun memberikun penjelasan tentung kenupu sesuatu keputusun itu dibuut kepudu pesukit. Pembangunan FEMInS teluh menunjukkun bahawa iogik kabur boieh menangani ketidukpustiun dengan lebih buik duripudu sistem pakar biusu. Ini adalah berdasarkan fuktu buhuwa iogik kabur menggunukun beberupu label dun niiui keyukinun untuk mencupui pemutusun yang dibuat.

ABSTRACT (ENGLISH)

Decision support system has been introduced in many domains and currently, the comput ing world is focusing on decision support system with knowledge-bused. Knowledge-based system is one of the branches in artificial intelligence (AI), which incorporates human knowledge into the system us a result of knowledge acquisition process. Hybrid AI system, which is composed of multiple AI methods, has shown quite remarkable results in diagnosis und so fur only a few of such approach has been done in medical diagnosis. This study proposes the hybrid AI techniques to be used in the system known us FEMInS. This system integrates fuzzy logic technology with expert system, which helps the general medical practitioner to predict us well us diagnosing heart attack bused on early symptoms. Since fuzzy logic cun be used for prediction, und expert system cun provide explanation und reasoning, the combination of both fields is suitable for medical domain system, which generally needs to cuter the problems of uncertuinty and provide the explanation of the results to the user. FEMInS development has demonstrated that fuzzy logic cun handle uncertuinty better than expert system. This is due to the fact that fuzzy logic uses multi label and multi confidence value to reach the conclusion.

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CHAPTER 1
INTRODUCTION

This section briefly presents the background, problem statements, goal or objective, project significance and project scope. The main idea of the study is to combine expert system and fuzzy logic to form a hybrid intelligent system that is able to diagnose myocardial infarction cases.

1.1 Background

In most developing countries, insufficient of medical specialist has increased the rate of death of patients suffered from various diseases (McEwin, 1997). Current practice for medical treatment required patients to consult specialist for further diagnosis and treatment. Other medical practitioner may not have enough expertise or experience to deal with certain high-risk diseases. However, the waiting time for treatments normally takes a few days, weeks or even months. By the time the patients see the specialist, the disease may have already spread out to other parts of their body. As most of the high-risk disease could only be cured at the early stage, the patients may have to suffer from the disease for the rest of their life.

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