

Artificial Neural Networks in Diabetes Control

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Abstract—Diabetes Mellitus is now a prevalent disease in both developed and underdeveloped countries, being a major cause of morbidity and mortality. Overweight/obesity and hypertension are potentially modifiable risk factors for diabetes mellitus, and persist during the course of the disease. Despite the evidence from large controlled trials establishing the benefit of intensive diabetes management in reducing microvasculars and macrovasculars complications, high proportions of patients remain poorly controlled. Poor and inadequate glycemic control among patients with Type 2 diabetes constitutes a major public health problem and a risk factor for the development of diabetes complications. In clinical practice, optimal glycemic control is difficult to obtain on a long-term basis, once the reasons for feebly glycemic control are complex. Therefore, this work will focus on the development of a diagnosis support system, in terms of its knowledge representation and reasoning procedures, under a formal framework based on Logic Programming, complemented with an approach to computing centred on Artificial Neural Networks, to evaluate the Diabetes states and the Degree-of-Confidence that one has on such a happening.

Keywords—*Diabetes Mellitus; Logic Programming; Artificial Neural Networks; Quality-of-Information; Degree-of-Confidence*