

Decision making in medical domains

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Methods developed in the field of artificial intelligence and especially in machine learning have seen an increasing popularity among professionals in the medical domain. Medical doctors are often faced with decisions regarding the treatments their patients should undertake and AI has developed specific techniques that can suggest the most fortunate choices based on past experience. During my summer research, we have investigated two possible models for representing data collected during a study on major depressive disorder. The first one, predictive state representations, proved to be less adequate so they will be described only in little detail. The second method, which we call instance-based reinforcement learning, combines radial basis functions with the weighted nearest neighbour algorithm to compute the best decisions for a new patient based on the most similar known examples. We present results from applying this method to a clinical dataset.