The paper focuses on the field of artificial intelligence techniques and their use in biomedical data processing. Selected methods have been evaluated using the annotated MIT-BIH database. Use of the Dynamic Time Warping measure improved Sensitivity about 0.7 % and Specificity about 0.9 % when compared to classical feature extraction. The best-performing method is the agglomerative hierarchical clustering (Se=94.3, Sp=74.1). Acceptable results (complexity vs. error) have been obtained by the Ant-Colony inspired method for Decision tree generation (Se=93.1, Sp=72.8).