

Patient-Specific Modeling Algorithm for Medical Data Based on AUC

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Abstract : Patient-specific models are instance-based learning algorithms that take advantage of the particular features of the patient case at hand to predict an outcome. We introduce two patient-specific algorithms based on decision tree paradigm that use AUC as a metric to select an attribute. We apply the patient specific algorithms to predict outcomes in several datasets, including medical datasets. Compared to the patient-specific decision path (PSDP) entropy-based and CART methods, the AUC-based patient-specific decision path models performed equivalently on area under the ROC curve (AUC). Our results provide support for patient-specific methods being a promising approach for making clinical predictions.

Keywords : approach instance-based, area under the ROC curve, patient-specific decision path, clinical predictions

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