

Decision tree model and application in analyzing the relationship between universities and enterprises

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Abstract: This study explores the application of decision tree models to analyze the relational dynamics between universities and enterprises. Leveraging a dataset comprising institutional collaboration metrics, graduate employment outcomes, and joint research initiatives, the research constructs a predictive framework to identify key factors influencing successful university-industry partnerships. The decision tree algorithm, chosen for its interpretability and capacity to handle non-linear interactions, reveals that shared research output and structured internship programs are the most significant determinants of partnership efficacy. The model achieves a classification accuracy of 87.3%, demonstrating its utility in distinguishing between high-impact and low-impact collaborations. Furthermore, the analysis uncovers critical thresholds, such as a minimum co-authored publication rate, that serve as decision nodes for optimal engagement. These findings provide actionable insights for policymakers and institutional leaders seeking to strengthen academic-industrial linkages. The study concludes that decision tree modeling offers a robust, transparent tool for dissecting complex relational data, thereby facilitating strategic decision-making in higher education management.

Keywords: decision tree, relationship analysis, university, enterprise