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The PVAD algorithm to learn partial-value variable associations

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Existing data analytic techniques are mostly based on building the same one model of variable relations over the full ranges of all variable values, although relations of variables may exist only for certain values of variables or different relations exist for different values of variables. This paper presents the partial-value association discovery (PVAD) algorithm which discovers variable relations/associations that exist in partial ranges of variable values from large amounts of data in a computationally efficient way. The PVAD algorithm allows learning from data to build a structural model of partial- and full-value variable associations in multiple layers which captures individual and interactive effects of multiple variables. The application of the PVAD algorithm to the analysis of engineering student data for engineering retention will also be presented.

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