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Visually mining interesting patterns in multivariate datasets

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Data mining for patterns and information detection in multivariate datasets are very important processes and tasks to help analysts understand the dataset, describe the dataset, and predict unknown data values. However, conventional computer-supported data mining approaches often limit the user from getting involved in the mining process and performing interactions during the pattern discovery. Besides, without the visual representation of the extracted knowledge, the analysts can have difficulty explaining and understanding the patterns. Therefore, instead of directly applying automatic data mining techniques, it is necessary to develop appropriate techniques and visualization systems that allow users to interactively perform knowledge discovery, visually examine the patterns, adjust the parameters, and discover more interesting patterns based on their requirements. Visualization systems are used to assist analysts in mining patterns and discovering knowledge in multivariate datasets, including the design, implementation, and the evaluation. Three types of different patterns are proposed and discussed, including trends, clusters of subgroups, and local patterns. For trend discovery, the parameter space is visualized to allow the user to visually examine the space and find where good linear patterns exist. For cluster discovery, the user is able to interactively set the query range on a target attribute, and retrieve all the sub-regions that satisfy the user's requirements. For local pattern discovery, the patterns for the local sub-region with a focal point and its neighbors are computationally extracted and visually represented. To discover interesting local neighbors, the extracted local patterns are integrated and visually shown to the analysts.

Biography

Sai Krishna is currently pursuing PhD at Krishna University, Machilipatnam, A.P. He has completed his MPhil from PRIST University, Thanjavur, Tamil Nadu, MTech from KSOU, Mysore, Karnataka, Master of Information Technology from MAHE, Manipal, Karnataka. He did a project: "Automobile Fleet Maintenance" at IIT Kharagpur. He has a work experience of 12 years and 35 Reviewer Board Journals Memberships. Currently he is working in S.V.R.M College, Nagaram as HOD.

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