

			QRI results					Expert study results				
Task	Task description for discrete data items from [AES05]	Our adaption to continuous scalar functions	HyperSlice	Topological spines	Contour tree	Gerber et al.	1D slices	HyperSlice	Topological spines	Contour tree	Gerber et al.	1D slices
Retrieve value	"Given a set of specific cases, find attributes of those cases"	Given an x, what is the function value?	Dark Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Medium Purple	Light Purple	Light Purple	Light Purple	Medium Purple
Filter	"Given some concrete conditions attribute values, find data cases satisfying those conditions."	For what parameter values is the function equal or over x?	Medium Purple	Dark Purple	Medium Purple	Medium Purple	Dark Purple	Light Purple	Light Purple	Medium Purple	Light Purple	Medium Purple
Compute derived value	"Given a set of data cases, compute an aggregate numeric representation of those data cases"	Summary statistics: variance, mean, SA	Light Purple	Light Purple	Light Purple	Light Purple	Medium Purple	Medium Purple	Light Purple	Light Purple	Light Purple	Medium Purple
Find extremum	"Find data cases possessing an extreme value of an attribute over its range within the data set"	Find local/global min/max	Light Purple	Dark Purple	Dark Purple	Dark Purple	Dark Purple	Light Purple	Medium Purple	Medium Purple	Medium Purple	Medium Purple
Determine range	"Given a set of data cases and an attribute of interest, find the span of values within the set"	What is the range of possible outputs?	Medium Purple	Light Purple	Dark Purple	Dark Purple	Dark Purple	Medium Purple	Light Purple	Light Purple	Light Purple	Medium Purple
Characterize distribution	"Given a set of data cases and a quantitative attribute of interest, characterize the distribution of that attribute's values over the set"	What types of shapes do the manifolds have	Light Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Medium Purple	Medium Purple	Light Purple	Medium Purple	Medium Purple
Find anomalies	"Identify any anomalies within a given set of data cases with respect to a given relationship or expectation, e.g. statistical outliers"	Do areas of the manifold have shapes unlike any others	Medium Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Medium Purple	Light Purple	Light Purple	Light Purple	Medium Purple
Cluster	"Given a set of data cases, find clusters of similar attribute values"	Areas of the manifold have similar shapes	Light Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple	Medium Purple
Correlate	"Given a set of data cases and two attributes, determine useful relationships between the values of those attributes"	1D vs 2D relationships	Dark Purple	Light Purple	Light Purple	Light Purple	Medium Purple	Medium Purple	Light Purple	Light Purple	Light Purple	Medium Purple