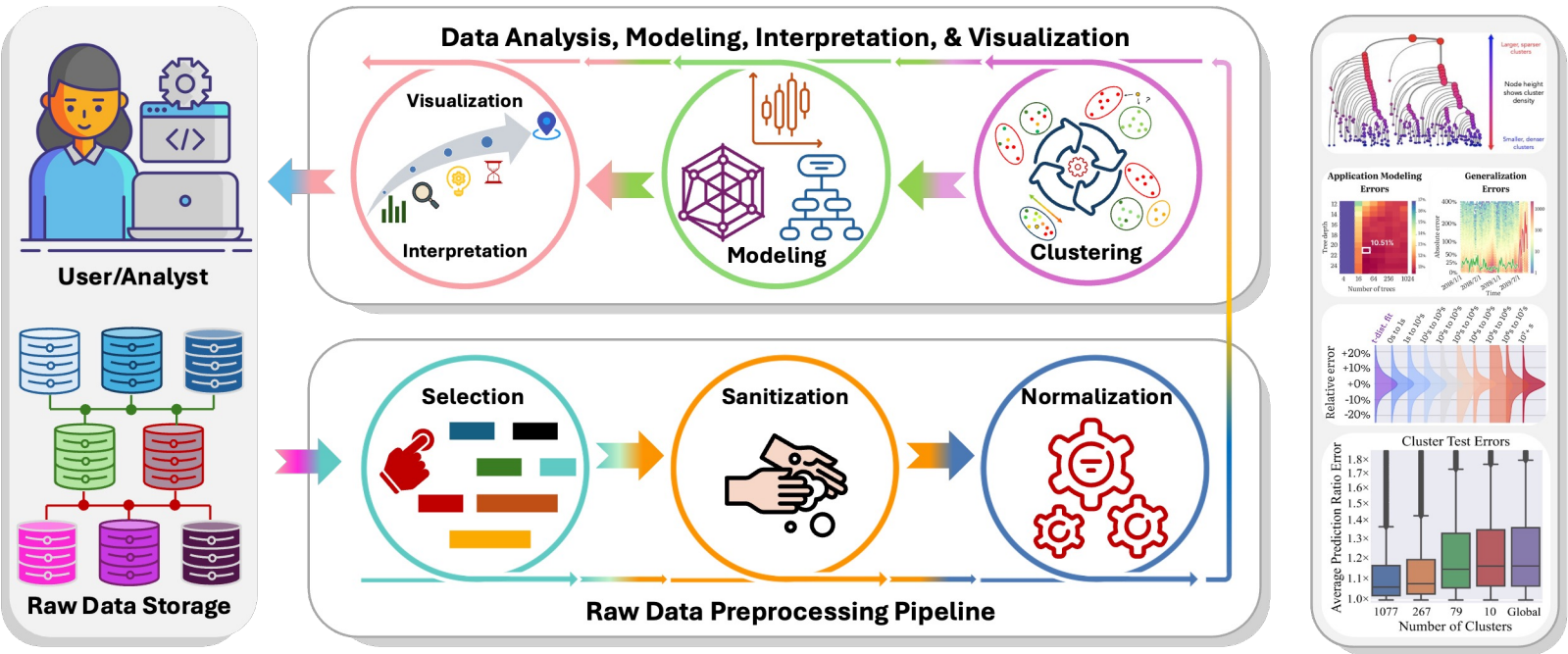


Our team of data scientists developed **Data Explorer™** to aid analysts accelerate the generation of insights and improving their overall situational awareness. We focus on explainability and validation in our modeling approach, avoiding black-box models.



### Data types

- Structured / Unstructured
- Semi-structured
- Labeled / Unlabeled
- Semi-labeled
- Missing value
- Online / Batch
- Training set / Validation set

Form

### Algorithm Types

- Supervised Learning
- Unsupervised Learning
- Semi-supervised Learning
- Transductive Inference
- Reinforcement Learning
- Learning to Learn
- Developmental Learning

Cognitive

### Performance Assessment

- Accuracy
- Precision
- Recall
- True Negative Rate
- False Positive Rate
- False Negative Rate
- Coverage / Margin / Cost

Higher-Order

### Statistical Approaches

#### Feature Extraction

- Discriminant Analysis
- Principal Component Analysis
- Clustering
- K-means
- Factor analysis
- Jarvis-Patrick clustering
- ....

#### Parameter Estimation

- Generalized Meth. of Moments
- Monte Carlo integration
- Variation Bayes
- Katman filtering
- Deterministic annealing
- Newton-Raphson
- Back-propagation
- ....

#### Nonparametric modeling

- Nearest-neighbor classification
- Kernel density estimation
- Locally weighted regression
- ...

#### Model selection

- Cross-validation
- Bayesian model selection
- Structural risk minimization
- ...

#### Statistical models

- Gaussian mixture models
- Linear classifier
- Support Vector Machine
- Finite mixture model
- Markov chain
- Hidden Markov Models
- Linear regression
- Latent Dirichlet
- Auto-regression

- Neural networks
- Feed-forward neural network
- Additive regression
- Projection pursuit regression
- Robust regression
- General dynamical system
- Decision tree
- Stochastic program
- ...

How can data be clustered together?

Given a new datum, what existing Cluster does the datum fall into?

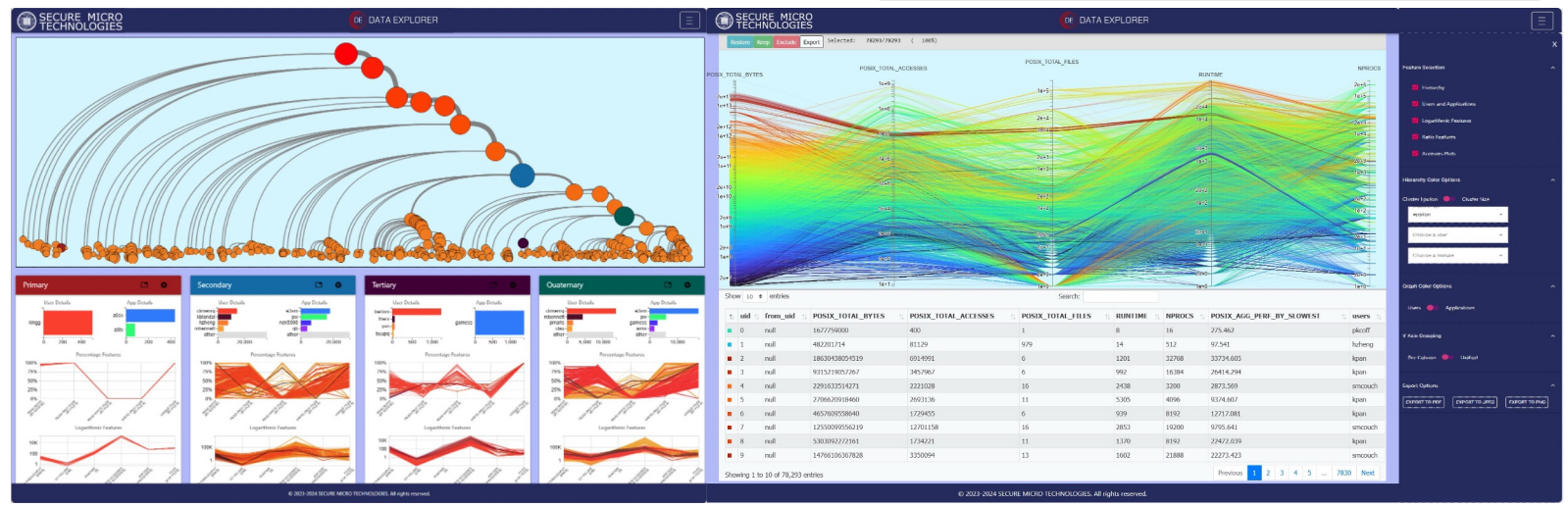
What are the key characteristics of the cluster itself?

How does this datum rank within the rest of the group?

What parameters influence the datum placement within the group?

How does the cluster compare with other clusters?

**Data Explorer™** is a sophisticated data analytics tool that helps users identify complex threats, elusive signals, interpret obscure patterns, detect anomalies, and conduct automated searches and classifications at a large scale with precision from vast or latency-sensitive or high-dimensional data.



Some of the applications include providing operational technology (OT) support for critical infrastructure through monitoring, logging, and analysis, analysis of radio frequency (RF) spectrum and electromagnetic signatures, and providing network security support. We base our designs on established principles and a strong theoretical foundation.