



Supporting Informed Decision Making

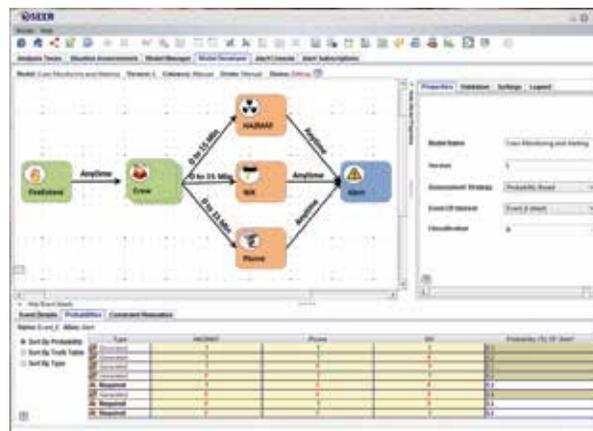
Decision makers are often bombarded with sensors and data, and complicating this is the fact that data is either incomplete, inaccurate, or simply missing. As a result, much of this data is neither seen nor analyzed by those for whom the data was collected. What is needed is a capability to turn this data into actionable information that can be used to make proactive, timely decisions.

To address this critical need, Polaris Alpha has developed Seer, a “fuzzy,” multi-hypothesis, abductive-reasoning system that successfully processes noisy, incomplete, multi-source/multi-INT data in support of near-real-time decision making.

Seer addressed the need to identify and exploit patterns hidden in complex data, whether at rest or streaming. Depending on the application, Seer can operate against historical or near-real-time data as well as in combination. Seer utilizes advanced fuzzy information fusion algorithms to successfully exploit observation data that may only partially satisfy an event description in time, space, or any other relevant dimension, enabling Seer to detect patterns that other systems may overlook.

Through sophisticated context propagation, Bayesian reasoning, and spatiotemporal analysis, Seer is able to provide both predictive awareness of upcoming events as well as likelihood analysis for events that may have occurred but were not evident in the collected data, all while minimizing false detections. Custom business rules and logic can be associated with Seer models and executed against the data matched against a model’s event descriptions. These rules assist in notifying users of important discoveries, creating content-rich popup notifications, and generating intersystem notifications.

- A “fuzzy” abductive reasoner that exploits patterns hidden in complex and noisy data
- Leverages Bayesian reasoning to perform predictive analysis with uncertain and missing data
- Easy customization to communicate with external systems
- Support for truth maintenance and latent data
- A web-based architecture designed to scale from small to large data sets
- Support for historical and real-time analysis
- Extraction of application-specific content from high-volume data streams via Seer Streams



Model Developer

Overview

- Leverages Bayesian reasoning to perform predictive analysis with uncertain and missing data
- Operates against multi-source data, whether at rest or streaming
- Supports truth maintenance and latent data
- Easily customized to communicate with external systems
- Simplifies model lifecycle management, to include model creation, review, approval, revision, and retirement
- Offers a full suite of model development tools designed to help users understand and visualize their data as well as create and validate models
- Provides default alert creation and management, to include email, popups, and text messaging
- Includes a Value of Information calculus designed to support proactive request of context-dependent information

Semantic Seer

Semantic Seer is a thin-client web application that mines graph databases and RDF triple stores for relevant indicators and activity patterns. In addition to supporting a much richer event description language, Semantic Seer acts as a research platform for a variety of projects, to include machine learning, knowledge and pattern discovery, and semantic-based fuzzy query. Semantic Seer supports not only predictive analysis but also causal analysis to assess the root cause of an anomalous event.



A Seer alert with notification and supporting data