

Semantic Computing, Predictive Analytics Need Reliable Metadata



Our Healthcare Partners at Montefiore were interviewed at Health Analytics:

Reliable metadata is the key to leveraging semantic computing and predictive analytics for healthcare applications, such as population health management and crisis care.

As the healthcare industry reaches the saturation point of electronic health record adoption, and slowly moves past the pain of the implementation process, it may seem like the right time to stop thinking so much about hammering home basic data governance principles for staff members and start looking at the next phase of health IT implementation: the big data analytics environment.

After all, most providers are now sitting on an enormous nest egg of patient data, which may be just clean, complete, and standardized enough to start experimenting with population health management, operational analytics, or even a bit of predictive risk stratification. Many healthcare organizations are experimenting with these advanced analytics projects in an effort to prepare themselves for the financial storm that is approaching with the advent of value-based care.

The immense pressure to cut costs, meet quality benchmarks, shoulder financial risk, and improve patient outcomes is causing no small degree of anxiety for providers, who are racing to batten down the hatches before the typhoon overtakes them.

While it may be tempting to jump into quick-win analytics that use “good enough” datasets to solve a specific pressing use case, providers may be at risk of repeating the same mistakes they made with slapdash EHR implementations: creating data siloes, orphaned reports, and poor quality datasets that cannot be used in a reliable, repeatable way for meaningful quality improvements.

Read the full article at [Health Analytics](#)

Montefiore Semantic Data Lake Tackles Predictive Analytics

Montefiore Medical Center is preparing to launch a sophisticated predictive analytics program for crisis patients, which is rooted in its real-time semantic data lake technology.

Semantic computing is becoming a hot topic in the healthcare industry as the first wave of big data analytics leaders looks to move beyond the basics of population health management, predictive analytics, and risk stratification.

This new approach to analytics eschews the rigid, limited capabilities of the traditional relational database and instead focuses on creating a fluid pool of standardized data elements that can be mixed and matched on the fly to answer a large number of unique queries.

Montefiore Medical Center, in partnership with Franz Inc., is among the first healthcare organizations to invest in a robust semantic data lake as the foundation for advanced clinical decision support and predictive analytics capabilities.

Read the full article at [Health IT Analytics](#)

Making Big Data More Meaningful through Data Visualization

We've all heard the saying, "a picture says a thousand words." With today's millisecond attention spans, communicating a complex topic to any audience – business professional, consumer, doctor, investor, policy-maker, voter – has become more challenging than ever. Some industries are now taking this seriously and investing in new data visualization techniques.

Data visualization is a fundamental part of scientific research. In a scientific journal, pictures certainly do seem to be worth a thousand words, with graphs translating large amounts of data into insightful, visual representations.

Read the full article at [insideBIGDATA](#)

Semantic Big Data Lakes Can Support Better Population Health

From HealthIT Analytics –

As healthcare providers navigate the treacherous transitional waters of Stage 2 and try to predict how future regulations will shape their actions, the need to lay the groundwork for advanced population health management and accountable care is only becoming clearer.

No matter what the outcome of debates about the future course of the EHR Incentive Programs, one thing remains abundantly clear for organizations of all shapes and sizes: advancements in healthcare big data analytics will not be driven solely by rules and mandates, but by the pressing financial need to collect, corral, understand, and leverage information in order to refine and expand population health management techniques.

Developing the underlying architecture for value-based reimbursement, namely a strong framework for population health management, data governance, and big data analytics, is becoming a top priority for a growing number of providers looking to get a head start on the new realities of healthcare reform.

These organizations, like Montefiore Medical Center, are looking for cutting edge analytics tools which won't just help them meet the clinical and financial stresses of today's environment, but will also prepare them for the uncertain paths ahead.

[Read the Full Article](#)

Making sense of big data: Data projects spur progress

From Managed Healthcare Executive:

The Montefiore Medical Center in Bronx, New York, has partnered with Franz, Inc., Intel, Cloudera, and Cisco to transform statistical databases, such as spreadsheets, into interactive graph databases that can be used to make better informed and predictive healthcare decisions.

Aasman “If you are in a hospital and have millions of patients, you will need to do analytics in many ways—for more personalized medicine, for predictive modeling, and for better business intelligence,” says Jans Aasman, PhD, CEO of Franz, Inc., which specializes in semantic web technologies. “This system allows you to get all the data together from these different silos for analytics.”

Semantic data lakes (SDLs) enable healthcare providers to use multiple types of data sets congruently to get a more comprehensive picture of population health trends, says Parsa Mirhaji MD, PhD, associate professor of Systems and Computational Biology and director of Clinical Research Informatics at the Albert Einstein College of Medicine and Montefiore Medical Center-Institute for Clinical Translational Research.

[Read the full article.](#)

Enterprise Data Modeling Made Easy

From Analytics Week:

Enterprise data modeling has remained an arduous, time-consuming task for myriad reasons, not the least of which is the different levels of modeling required across an organization's various business domains.

Data modelers have to consider conceptual, logical and physical models, in addition to those for individual databases, applications, and a variety of environments such as production and post-production. Oftentimes, the need to integrate new sources or to adapt to changing business or technology requirements exacerbates this process, causing numerous aspects of it to essentially begin all over again.

Enterprise data modeling is rendered much more simply with the incorporation of semantic technologies—particularly when compared to traditional relational ones. Nearly all of the foregoing modeling layers are simplified into an evolving semantic model that utilizes a standards-based approach to harmonize modeling concerns across an organization, its domains, and data environments.

Moreover, the semantic approach incorporates visual aspects that allows modelers to discern relationships between objects and readily identify them with a degree of precision that would require long periods of time with relational technologies.

"Semantics are designed for sharing data," **Franz** CEO Jans Aasman reflected. "Semantic data flows into how people think."

Read the full article:

Semantic Graph Analytics Can Propel The Advent of ‘Personalized Medicine’

From Health IT Outcomes:

Analyzing massive stores of medical data can be overwhelming. Still, it's an important mission: data analysis could provide new, more tailored treatments. Terms like “personalized medicine,” “precision medicine,” and “individualized medicine” all refer to a data-driven approach toward to goal of customizing medical treatment for every patient's unique genetic and molecular composition. However noble, that goal is somewhat limited.

Personalized medicine, often described as a way to provide “the right patient with the right drug at the right dose at the right time,” in fact goes beyond custom treatment – it encompasses the entire healthcare process, from prevention, to treatment, to disease management, and considers each patient as an individual.

Read the full article:

Enriching Property Graphs

with Relationship

Suppose we are creating a large graph database that contains information about payments between companies. A graph database analyst might start off modeling the payments as shown in Figure 1, which expresses who paid whom. (All graph figures in this article were produced using Gruff, a tool for visualizing graph databases, operating over the AllegroGraph graph database system.)



Figure 1: A Graph of a Payment

This seems straightforward enough. Now suppose that we want to record more information about payments, such as the amount of the payment, the means of payment (direct debit, e-check, wire, etc.), the date and time when the payment occurred, and so forth. A traditional property graph approach places these properties on the edge that connects the payor and payee nodes, as shown in Figure 2.

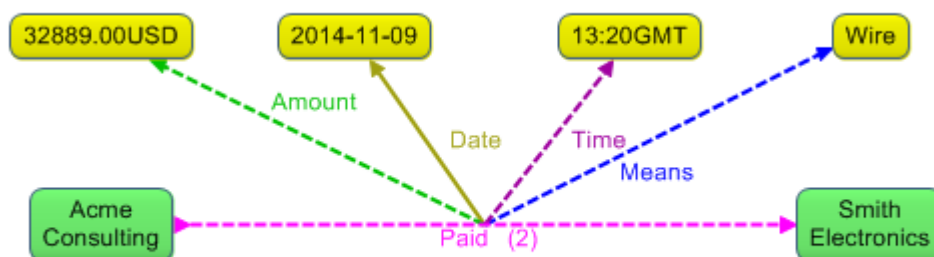


Figure 2: Attaching Properties to an Edge

Read the full blog post at [DB-Engines](#)