

NEW! – Franz’s AllegroGraph 7 Powers First Distributed Semantic Knowledge Graph Solution with Federated-Sharding

FedShard™, Entity-Event Data Modeling and Browser-based Gruff Drives Infinite Data Integration, Holistic Insights and Complex Reasoning

Franz Inc., an early innovator in Artificial Intelligence (AI) and leading supplier of Semantic Graph Database technology for Knowledge Graph Solutions, today announced AllegroGraph 7, a breakthrough solution that allows infinite data integration through a patented approach unifying all data and siloed knowledge into an Entity-Event Knowledge Graph solution that can support massive big data analytics. AllegroGraph 7 utilizes unique federated sharding capabilities that drive 360-degree insights and enable complex reasoning across a distributed Knowledge Graph. Hidden connections in data are revealed to AllegroGraph 7 users through a new browser-based version of Gruff, an advanced visualization and graphical query builder.

“Large enterprises have Knowledge Graphs that are so big that no amount of vertical scaling will work,” said Jans Aasman, CEO of Franz Inc. “When these organizations want to conduct new big data analytics, it requires a new effort by the IT department to gather semi-usable data for the data scientists, which can cost millions of dollars, waste valuable time and still not provide a holistic data architecture for querying across all data. ETL, Data Lakes and Property Graphs only exacerbate the problem by creating new data silos.

AllegroGraph 7 takes a holistic approach to mixed data, unifying all enterprise data with domain knowledge, including taxonomies, ontologies and industry knowledge – making queries across all data possible, while simplifying and accelerating feature extraction for machine learning.”

To support ubiquitous AI, a Knowledge Graph system will have to fuse and integrate data, not just in representation, but in context (ontologies, metadata, domain knowledge, terminology systems), and time (temporal relationships between components of data). The rich functional and contextual integration of multi-modal, predictive modeling and artificial intelligence is what distinguishes AllegroGraph 7 as a modern, scalable, enterprise analytic platform. AllegroGraph 7 is the first big temporal knowledge graph technology that encapsulates a novel entity-event model natively integrated with domain ontologies and metadata, and dynamic ways of setting the analytics lens on all entities in the system (patient, person, devices, transactions, events, and operations) as prime objects that can be the focus of an analytic (AI, ML, DL) process.

AI applications and complex reasoning analytics require information from both databases and knowledge bases that contain domain information, taxonomies and ontologies in order to conduct queries. Some large-scale knowledge bases cannot be sharded because they contain highly interconnected data. AllegroGraph 7 federates any shard with any large-scale knowledge base – providing a novel way to shard knowledge bases without duplicating knowledge bases in every shard. This approach creates a modern analytic system that integrates data in context (ontologies, metadata, domain knowledge, terminology systems) and time (temporal relationships between components of data). The result is a rich functional and contextual integration of data suitable for large scale analytics, predictive modeling, and artificial intelligence.

Financial institutions, healthcare providers, contact centers, manufacturing firms, government agencies and other large

enterprises that use AllegroGraph 7 gain a holistic, future-proofed Knowledge Graph architecture for big data predictive analytics and machine learning across complex knowledge bases.

“AllegroGraph 7’s support of Entity-Event Data Modeling is the most welcome innovation and addition to our arsenal in reimagining healthcare and implementing Precision Medicine,” said Dr. Parsa Mirhaji, Director of Center for Health Data Innovations at the Albert Einstein College of Medicine and Montefiore Health System, NY “Precision Medicine is about moving away from statistical averages and broad-based patterns. It is about connecting many dots, from different contexts and throughout time, to support precision diagnosis and to recommend the precision care that can take into account all the subtle differences and nuisances of individuals and their personal experiences throughout their life. This technology is about saving lives, by leveraging data, context and analytics and is what Franz’s Entity-Event Data Modeling brings to the table.”

Dr. Mirhaji and his team at Montefiore Health System have developed the Patient-centered Analytic Learning Machine (PALM) using these capabilities to provide an enterprise platform for Artificial Intelligence and machine learning in healthcare that can support conversational AI, interpret data from EMR, natural language, and radiological images, all centered around life-time experiences of an individual patient. A single system that unifies all analytics and data from heterogeneous sources to manage appointments and prescriptions, triage patients with potential spinal cancer, respiratory failure, or sepsis, and provide just-in-time recommendations and personalized decision support for clinicians to improve patients’ outcomes.

Key capabilities in AllegroGraph 7 include:

Semantic Entity-Event Data Modeling

Big Data predictive analytics requires a new data model approach that unifies typical enterprise data with knowledge bases such as taxonomies, ontologies, industry terms and other domain knowledge. The Entity-Event Data Model utilized by AllegroGraph 7 puts core 'entities' such as customers, patients, students or people of interest at the center and then collects several layers of knowledge related to the entity as 'events.' The events represent activities that transpire in a temporal context. Using this novel data model approach, organizations gain a holistic view of customers, patients, students or important entities and the ability to discover deep connections, uncover new patterns and attain explainable results.

***FedShard™* Speeds Complex Queries**

Through a patented in-memory federation function, the results from each machine are combined so that the query process appears as if only one database is being accessed, although many different databases and data stores and knowledge bases are actually being accessed and returning results. This unique data federation capability accelerates results for highly complex queries across highly distributed data sets and knowledge bases.

Large-scale Mixed Data Processing

The AllegroGraph 7 big data processing system is able to scale massive amounts of domain knowledge data by efficiently associating domain knowledge with partitioned data through shardable graphs on clusters of machines. AllegroGraph 7 efficiently combines partitioned data with domain knowledge through an innovative process that keeps as much of the data in RAM as possible to speed data access and fully utilize the processors of the query servers.

Browser-based Gruff

Gruff's powerful query and visualization capabilities are now

available via a web browser and directly integrated in AllegroGraph 7. Gruff is the industry's leading Knowledge Graph visualization tool that dynamically displays visual graphs and related links. Gruff's 'Time Machine' provides users with an important capability to explore temporal connections and see how relationships are created over time. Users can build visual graphs that display the relationships in graph databases, display tables of properties, manage queries, connect to SPARQL Endpoints, and build SPARQL or Prolog queries as visual diagrams. Gruff can be downloaded separately or is included with the AllegroGraph v7 distribution.

High Performance Big Data Analytics

AllegroGraph 7 delivers high performance analytics by overcoming data processing issues related to disk versus memory access, uses processor core efficiency and updates domain knowledge databases across partitioned data systems in a highly efficient manner.

Gartner predicts "the application of graph processing and graph DBMSs will grow at 100 percent annually through 2022 to continuously accelerate data preparation and enable more complex and adaptive data science." In addition, Gartner named graph analytics as a "Top 10 Data and Analytics Trend" to solve critical business priorities." (*Source: Gartner, Top 10 Data and Analytics Trends, November 5, 2019*)

AllegroGraph 7 Availability

AllegroGraph 7 is immediately available directly from Franz Inc. Visit the AllegroGraph YouTube channel to see AllegroGraph in action.

Join AllegroGraph 7 Webinar

Franz Inc. will host a webcast entitled "Scalable Knowledge Graphs Using the New Distributed AllegroGraph 7." Register for the Webinar.

Knowledge Graph Conference – May 4 – 7, 2020

Dr. Jans Aasman, CEO, Franz Inc., will be presenting a talk at the Knowledge Graph Conference entitled, “The Knowledge Graph that Listens” on May 7th at 1PM Eastern. Register for the Conference.

The Knowledge Graph Cookbook

Released April 22, 2020, this new book directs readers on why and how to build Knowledge Graphs that help enterprises use data to innovate, create value and increase revenue. The book is full of recipes and knowledge on the subject and features an interview with Dr. Jans Aasman, CEO, Franz Inc. in the Expert Opinion section. Get a copy of the book.

Venture Beat Features Montefiore’s Healthcare project with AllegroGraph

From VentureBeat August 2018

This article discusses Montefiore’s PALM project that uses AllegroGraph:

Montefiore is one of the largest employers in New York State. It’s also one of the busiest health care complexes – hundreds of thousands of patients pass through its sprawling campuses, which include Montefiore Medical Center, the Albert Einstein

College of Medicine, and Montefiore Medical Park.

Those logistical challenges catalyzed the development of Montefiore's Patient-centered Analytical Learning Machine (PALM), a machine learning platform built from the ground up to predict and prevent life-threatening medical conditions and minimize wait times.

PALM juggles lots of datasets – electronic medical records, insurance billing codes, drug databases, and clinical trial results, to name a few. And its analytical models recently expanded to handle voice, images, and sensor inputs from internet of things devices.

Core to the semantic graph model are triplestores, which are a type of database optimized for filing away and retrieving triples. They're an entity composed of subject-predicate-object – “John has tuberculosis,” for example – which PALM builds dynamically, as needed. Along the way, the system uses a frame data language, or FDL, to resolve ambiguities, like when some electronic records refer to medication by its brand instead of by its scientific name (e.g., “Advil” or “Motrin” instead of ibuprofen).

Read the full article over at [Venture Beat](#).

Using AI and Semantic Data Lakes in Healthcare –

FeibusTech Research Report



Artificial intelligence has the potential to make huge improvements in just about every aspect of healthcare. Learn how Montefiore Health Systems is using semantic data lakes, architectures, and triplestores to power AI patient-centered learning. With origins in post-9/11 municipal emergency projects, Montefiore Health Systems platform – called PALM, short for patient-centered Analytical Learning Machine – is beginning to prove itself out in the Intensive Care Unit, helping doctors save lives by flagging patients headed toward respiratory failure.

Intel and Montefiore in collaboration with FeibusTech have released a Research Brief covering Montefiore’s PALM Platform (aka – The Semantic Data Lake) powered by AllegroGraph.

“Just atop all the databases is what’s known as a triplestore, or triple, construct. That’s a key piece of any semantic data architecture. A triple is a three-part data series with a common grammar structure: that is, subject-predicate-object. Like, for example, John Smith has hives. Or Jill Martin takes ibuprofen.”

“Triples are the heart and soul of graph databases, or graphs, a powerful, labor-saving approach that associates John and Jill to records of humans, hives to definitions of maladies and Ibuprofen to catalogues of drugs. And then it builds databases on the fly for the task at hand based on those associations.”

Read the full article on Intel's website to learn more about healthcare solutions based on AllegroGraph.