The Next Step in Machine Learning's Evolution: Graph Neural Networks

Dr. Jans Aasman, CEO, Franz Inc.

Dr. Aasman recently publish this article on Graph Neural Networks at Toward Data Science.

The capacity to consistently attain enterprise value from mission critical machine learning deployments hinges on at least one of the following three applications: classifying entities, predicting events, and understanding why events happened.

No matter which technique is used, whether it includes supervised, unsupervised, or reinforcement learning, or if the scale and compute of deep learning is involved, conventional machine learning has limitations for solving these business problems.

It works well for many types of data, but incurs difficulty and outright failure when applied to high dimensionality networked datasets. These limits demand a new approach for social network research, recommendation engines, biology, chemistry, computer vision, and Natural Language Processing deployments in which context is pivotal.

Graph Neural Networks excel at predicting events, explaining them, and classifying entities at scale to deliver striking accuracy for these and other pragmatic deployments. Pairing their reasoning with semantic inferences creates additional knowledge for predicting events based on the multifaceted, contextualized relationships in high dimensionality data.

Read the full Article.

Franz Inc. Named to KMWorld's AI50

AllegroGraph's FedShard Technology Underpins Flexible AI Knowledge Fabrics

Franz Inc. has been named to KMWorld's AI50 — The Companies Empowering Intelligent Knowledge Management. Underscoring Franz's technology leadership in Graph-based AI, the company's Knowledge Graph Platform, AllegroGraph, was relied upon for market research in leading analyst reports, including Forrester's Now Tech: Multimodel Data Platforms, Q1 2021 and the Gartner Case Study: Entity-Event Knowledge Graph for Powering AI Solutions (Montefiore).

"A spectrum of AI technologies, including machine learning, natural language processing, and workflow automation, is increasingly being deployed by sophisticated organizations," stated KMWorld Group Publisher Tom Hogan, Jr. "Their goal is simple. These organizations seek to excel in an increasingly competitive marketplace by improving decision making, enhancing customer interactions, supporting remote workers, and streamlining their processes. To showcase knowledge management solution providers that are imbuing their offerings with intelligence and automation, KMWorld created the AI 50: The Companies Empowering Intelligent Knowledge Management."

"Franz Inc. has a rich, innovative Artificial Intelligence history and we are honored to receive this acknowledgement for our efforts in delivering scalable AI Knowledge Graph Solutions," said Dr. Jans Aasman, CEO, Franz Inc. "We are

seeing demand for Intelligent Data Fabrics take off across industries along with recognition from top technology analyst firms that Knowledge Graphs provide the critical foundation for Data Fabric solutions. AllegroGraph 7 with FedShard uniquely provides companies with the foundational environment for delivering Graph based AI solutions with the ability to continually enrich and contextualize the understanding of data."

AiThority Interview with Dr. Jans Aasman

Jans Aasman, please tell us about your current role and the team / technology you handle at Franz.

As CEO of Franz Inc., I drive the overall technology vision for our Enterprise Knowledge Graph solutions and ensure our customer projects deliver the ROI results expected with graph based architectures.

Franz Inc. is composed of an expert team with skills in Graph Databases, Semantic technologies, Graph Visualization, AI, NLP and Machine Learning. Our domain knowledge encompasses large enterprises in Healthcare, Pharma, Customer Support, and Intelligence Agencies.

Our main business today revolves around AllegroGraph, a Semantic Graph platform 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's FedShard feature utilizes patented federated sharding capabilities that drive 360-degree insights and enable complex reasoning across a distributed Knowledge Graph. AllegroGraph is utilized by dozens of the top Fortune 500 companies worldwide.

We also offer a popular data visualization and no-code query builder called Gruff — the most advanced Knowledge Graph visualization application on the market, which we recently integrated into Franz AllegroGraph. Gruff enables users to create visual Knowledge Graphs that display data relationships in views that are driven by the user. Ad hoc and exploratory analysis can be performed by simply clicking on different graph nodes to answer questions. Gruff's unique 'Time Machine' feature provides the capability to explore temporal context and connections within data. The visual query builder within Gruff empowers both novice and expert users to create simple to highly complex queries without writing any code.

Read the full interview at AIThority.

The Amazing Applications of Graph Neural Networks

Dr. Jans Aasman, CEO, Franz Inc. was interviewed for this InsideBigData Article:

The predictive prowess of machine learning is widely hailed as

the summit of statistical Artificial Intelligence. Vaunted for its ability to enhance everything from customer service to operations, its numerous neural networks, multiple models, and deep learning deployments are considered an enterprise surety for profiting from data.

But according to Franz CEO Jans Aasman, there's just one tiny problem with this lofty esteem that's otherwise accurate: for the most part, it "only works for what they call Euclidian datasets where you can just look at the situation, extract a number of salient points from that, turn it into a number in a vector, and then you have supervised learning and unsupervised learning and all of that."

Granted, a generous portion of enterprise data is Euclidian and readily vectorized. However, there's a wealth of non-Euclidian, multidimensionality data serving as the catalyst for astounding machine learning use cases, such as:

Network Forecasting: Analysis of all the varying relationships between entities or events in complex social networks of friends and enemies yields staggeringly accurate predictions about how any event (such as a specific customer buying a certain product) will influence network participants. This intelligence can revamp everything from marketing and sales approaches to regulatory mandates (Know Your Customer, Anti-Money Laundering, etc.), healthcare treatment, law

Read the full article at InsideBigData.

Comex AI Conference 2021

(Recording)

COMEX is the largest Technology, Communications, Innovation and Digital Transformation show in the Sultanate of Oman and offers exhibitors and visitors a comprehensive and highly specialized platform for industry leading discussions, knowledge-sharing, B2B meetings.

Dr. Sheng-Chuan Wu presented — Using AI for Practical Business Applications

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NLP: Unlock the Hidden Business Value in Voice Communications

Dr. Jans Aasman, CEO, Franz Inc.

By Dr. Jans Aasman, CEO, Franz Inc.

Today organizations capture an enormous amount of information in spoken conversations, from routine customer service calls to sophisticated claims processing interactions in finance and healthcare. But most of this information remains hidden and unused due to the difficulty of turning these conversations into meaningful data that can be effectively analyzed through Natural Language Processing (NLP).

Simply applying speech recognition software to voice conversations often results in unreliable data. State-of-the-art speech recognition systems still have trouble distinguishing between homophones (words with the same pronunciation, but different meanings), as well as the difference between proper names (i.e. people, products) and separate words. In addition, there is also the challenge of identifying domain-specific words accurately. Thus, in most cases, using speech recognition software alone doesn't produce accurate enough data for reliable NLP.

Domain-specific taxonomies are key to understanding conversations via speech recognition systems. With them, we can feed conversations to knowledge graphs that understand the conversation and make connections in the data. Knowledge graphs provide the ability to extract the correct meaning of text from conversations and connect concepts in order to add business value.

Knowledge graphs fed with NLP provide two prime opportunities for monetization. First, organizations can better understand their customers to improve products and services more to their liking, which in turn boosts marketing, sales and customer retention rates. Secondly, this analysis gives contact center agents real-time support for optimizing customer interactions to produce faster resolutions, better conversion rates, and cross-selling and up-selling opportunities. These approaches enable companies to capitalize on speech recognition knowledge graphs, accelerate their ROI, and expand their bottom lines.

Taxonomy Driven Speech Recognition

The story of taxonomy-driven speech recognition closely relates to knowledge graphs. The first wave of knowledge graphs was built from taking structured data and turning it into semantic graphs that support the linked open data movement. The next wave is all about unstructured data. People

started doing Natural Language Processing on documents and textual conversations like emails and chats. Doing so accurately for a given domain requires a taxonomy to understand the words and concepts. Otherwise, downstream processes like entity extraction and event detection won't work.

Read the full article at DZone.

The Future of AI: Machine Learning and Knowledge Graphs

Bringing knowledge graph and machine learning technology together can improve the accuracy of the outcomes and augment the potential of machine learning approaches. With knowledge graphs, AI language models are able to represent the relationships and accurate meaning of data instead of simply generating words based on patterns.

Read this special report to dive into key uses cases, best practices for getting started, and technology solutions every organization should know about.

The Future of AI: Machine Learning and Knowledge Graphs

Data-Centric Architecture

Forum — DCAF 2021

Data and the subsequent knowledge derived from information are the most valuable strategic asset an organization possesses. Despite the abundance of sophisticated technology developments, most organizations don't have disciplines or a plan to enable data-centric principles.

DCAF 2021 will help provide clarity.

Our overarching theme for this conference is to **make it REAL**. Real in the sense that others are becoming data-centric, it is achievable, and you are not alone in your efforts.

Join us in understanding how data as an open, centralized resource outlives any application. Once globally integrated by sharing a common meaning, internal and external data can be readily integrated, unlike the traditional "application-centric" mindset predominantly used in systems development.

The compounding problem is these application systems each have their own completely idiosyncratic data models. The net result is that after a few decades, hundreds or thousands of applications implemented have given origin to a segregated family of disparate data silos. Integration debt rises and unsustainable architectural complexity abounds with every application bought, developed, or rented (SaaS).

Becoming data-centric will improve data characteristics of findability, accessibility, interoperability, and re-usability (FAIR principles), thereby allowing data to be exported into any needed format with virtually free integration.\

Dr. Jans Aasman, CEO, Franz Inc.

Dr. Jans Aasman to present — Franz's approach to Entity Event Data Modeling for Enterprise Knowledge Fabrics

AllegroGraph 7 Named a Trend Setting Product for 2021

AllegroGraph receives numerous industry awards and recognition for 2020

Franz Inc., an early innovator in Artificial Intelligence (AI) and leading supplier of Graph Database technology for Knowledge Graph Solutions, today announced that AllegroGraph has been named a Trend Setting Product in Data and Information Management by Database Trends and Applications (DBTA). In 2020, AllegroGraph has received numerous industry awards and independent analyst firms have positioned AllegroGraph 7 as a Champion and Strong Performer.

"Data management and integration demands continue to increase as organizations are faced with more data flowing in from a greater variety sources than ever before," said Tom Hogan, Group Publisher at DBTA. "To help make the process of identifying useful products and services easier, each year Database Trends and Applications magazine presents a list of Trend-Setting Products. These products, platforms, and

services range from widely accepted offerings that continue to evolve to meet the needs of their loyal constituents to breakthrough technologies that are in the early stages of adoption. However, the common denominator for all is that they represent a commitment to innovation and seek to provide organizations with tools to address changing market requirements."

"We are honored to be recognized again by DBTA as a trend setter in data management," said Dr. Jans Aasman, CEO of Franz Inc. "Organizations across a range of industries are realizing the critical role that Knowledge Graphs play in creating rich, yet flexible enterprise data fabrics and AI-driven applications. In just the past couple of years, we have helped our customers create large-scale, multi-model and innovative knowledge graph solutions for diverse use cases, such as healthcare real-time AI decision support, NLP 360 customer intelligence with real-time agent support, and social network data privacy compliance."

During 2020, AllegroGraph and Franz were recognized by the following industry analysts and technology media.

* AllegroGraph named a DBTA 2021 Trend Setting Product.

* Franz was positioned as a Strong Performer in the first Forrester Wave™: Graph Database Platforms 2020, Q4.

* Bloor Research positioned AllegroGraph as a Champion in the 2020 Bloor Research Graph Database report, which recognized AllegroGraph as a multi-model RDF database.

* KMWorld named Franz an AI 50: The Companies Empowering Intelligent Knowledge Management.

* Database Trends and Applications (DBTA) named Franz a Big Data 50—Company Driving Innovation in 2020.

* AllegroGraph was a KMWorld 2020 Trend Setting Product, as

a noteworthy solution transforming information into insight.

* Franz CEO Dr. Jans Aasman was featured as an expert in The Knowledge Graph Cookbook, which was released April 22, 2020 and explains why and how to build Knowledge Graphs that help enterprises use data to innovate, create value and increase revenue.

* Franz was recognized as one of the 100 Companies That Matter Most in Data by Database Trends and Applications (DBTA).

* KMWorld's 100 Companies that matter in Knowledge Management named Franz Inc. to this exclusive list.

AllegroGraph 7 is 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.

"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."

AllegroGraph 7 provides users with an integrated version of Gruff, a unique browser-based graph visualization software tool for exploring and discovering connections within enterprise Knowledge Graphs. Gruff enables users to visually build queries and visualize connections between data without writing code, which speeds discoveries and enhances the ability to uncover hidden connections within data.

"Few tools exist that can quickly turn arbitrary RDF graph pattern matches into clear visualizable results," said Michael Pool, Global Head of Semantic Modeling and Engineering, Senior Director at BNY Mellon Bank. "Gruff is invaluable in turning our knowledge graph data into useful and actionable analytic insights."

Louis Rumanes at UnitedHealth Group Research and Development recognizes the value of using Gruff as a browser-based app and commented, "Nice job on Gruff in a browser and I think this will be a gamechanger."

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*)

Data Fabrics and Knowledge

Graphs — A Symbiotic Relationship

Dr. Jans Aasman's recent article in Dzone.

The data fabric notion is gaining credence throughout the analyst community, in much the same way knowledge graphs have done so for years. Both technologies link all relevant data for a specific business purpose, which is why the most successful companies in the world employ them.

Dr. Jans Aasman, CEO, Franz Inc.

Amazon's knowledge graph retains metadata about its vast product array; Google's captures data about an exhaustive list of web entities of interest. Lesser-known organizations regularly deploy these mechanisms for everything from comprehensive customer views to manufacturing processes.

Data fabrics have a unique, symbiotic relationship with the knowledge graph movement because they substantially streamline the processes to extract data from the myriad sources that populate these platforms. In turn, knowledge graphs provide some of the fundamental capabilities enabling data fabrics to accomplish this objective.

Read the Full Article at Dzone.