

What is the Answer to AI Model Risk Management?

Algorithm-XLab – March 2019

Franz CEO Dr. Jans Aasman Explains how to manage AI Modelling Risks.

AI model risk management has moved to the forefront of contemporary concerns for statistical Artificial Intelligence, perhaps even displacing the notion of ethics in this regard because of the immediate, undesirable repercussions of tenuous machine learning and deep learning models.

AI model risk management requires taking steps to ensure that the models used in artificial applications produce results that are unbiased, equitable, and repeatable.



The objective is to ensure that given the same inputs, they produce the same outputs.

If organizations cannot prove how they got the results of AI risk models, or have results that are discriminatory, they are subject to regulatory scrutiny and penalties.

Strict regulations throughout the financial services industry in the United States and Europe require governing, validating, re-validating, and demonstrating the transparency of models for financial products.

There's a growing cry for these standards in other heavily regulated industries such as healthcare, while the

burgeoning Fair, Accountable, Transparent movement typifies the horizontal demand to account for machine learning models' results.

AI model risk management is particularly critical in finance.

Financial organizations must be able to demonstrate how they derived the offering of any financial product or service for specific customers.

When deploying AI risk models for these purposes, they must ensure they can explain (to customers and regulators) the results that determined those offers.

Read the full article at [Algorithm-XLab](#).

Unraveling the Quandary of Access Layer versus Storage Layer Security

InfoSecurity – February 2019

Dr. Jans Aasman was quoted in this article about how AllegroGraph's Triple Attributes provide Storage Layer Security.

With horizontal standards such as the General Data Protection Regulation (GDPR) and vertical mandates like the Fair Credit Reporting Act increasing in scope and number, information security is impacted by regulatory compliance more than ever.

Organizations frequently decide between concentrating protection at the access layer via role-based security

filtering, or at the storage layer with methods like encryption, masking, and tokenization.

The argument is that the former underpins data governance policy and regulatory compliance by restricting data access according to department or organizational role. However, the latter's perceived as providing more granular security implemented at the data layer.

*A hybrid of access based security and security at the data layer—implemented by triple attributes—can counteract the weakness of each approach with the other's strength, resulting in information security that **Franz CEO Jans Aasman** characterized as “fine-grained and flexible enough” for any regulatory requirements or security model.*

*The security provided by this semantic technology is considerably enhanced by the addition of **key-value pairs** as JSON objects, which can be arbitrarily assigned to triples within databases. These key-value pairs provide a second security mechanism “embedded in the storage, so you cannot cheat,” Aasman remarked.*

When implementing HIPPA standards with triple attributes, “even if you're a doctor, you can only see a patient record if all your other attributes are okay,” Aasman mentioned.

“We're talking about a very flexible mechanism where we can add any combination of key-value pairs to any triples, and have a very flexible language to specify how to use that to create flexible security models,” Aasman said.

Read the full article at InfoSecurity.

ГРАФОВЫЕ БАЗЫ: ПРИНЦИП РАБОТЫ И ПРИМЕНЕНИЕ — GRAPH BASES: PRINCIPLE OF OPERATION AND APPLICATION

Всеволод Дёмкин удаленно работает во Franz Inc. над графовой базой AllegroGraph. Преподает в Projector курс «Natural Language Processing». В свободное время делает open-cors для обработки природных текстов на Lisp'e.

Мы рассмотрим создание программы для агрегации текстов из разных источников, таких как twitter, блоги, reddit и т.д., — их автоматической, а затем ручной обработки для формирования дайджеста новостей по определенной теме. На этом примере мы проанализируем, какие преимущества дает использование графовых баз данных, обсудим их возможности и ограничения.

В качестве конкретной БД будет использована система Franz AllegroGraph и мы ознакомимся с ее экосистемой, включающей возможности построение API и веб-приложений, а также со средой Allegro Common Lisp, на которой она построена. Особое внимание будет уделено использованию машинного обучения и NLP при решении задач работы с текстом, в частности, внутри AllegroGraph.

Обсудим:

— В чем особенности, как работают, преимущества/недостатки

графовых БД;

- Как решать базовые задачи обработки текстов с использованием инструментария ML/NLP;
- Как построить полноценное приложение с ядром обработки текста на основе графовой БД и ML/NLP технологий;
- Как устроена экосистема Common Lisp и как можно задействовать ее для создания серверных приложений.

Лекция будет полезна: разработчикам, которые интересуются темой графовых баз данных и/или ML/NLP.

2019 Trends In The Internet Of Things: The Makings Of An Intelligent IoT

AI Business – December 2018

2019 will be a crucial year for the Internet of Things for two reasons. Firstly, many of the initial predictions for this application of big data prognosticated a future whereby at the start of the next decade there would be billions of connected devices all simultaneously producing sensor data. The IoT is just a year away from making good on those claims.

Dr. Jans Aasman, Franz's CEO was quoted by the author:

The IIoT is the evolution of the IoT that will give it meaning and help it actualize the number of connected devices forecast for the start of the next decade. The IIoT will encompass smart cities, edge devices, wearables, deep learning and

classic machine learning alongside lesser acknowledged elements of AI in a basic paradigm in which, according to Franz CEO Jans Aasman, “you can look at the past and learn from certain situations what’s likely going to happen. You feed it in your [IoT] system and it does better... then you look at what actually happened and it goes back in your machine learning system. That will be your feedback loop.”

Although deep learning relies on many of the same concepts as traditional machine learning, with “deep learning it’s just that you do it with more computers and more intermediate layers,” Aasman said, which results in higher accuracy levels.

The feedback mechanism described by Aasman has such a tremendous capacity to reform data-driven businesses because of the speed of the iterations provided by low latency IIoT data.

One of the critical learning facets the latter produces involves optimization, such as determining the best way to optimize route deliveries encompassing a host of factors based on dedicated rules about them. “There’s no way in [Hades] that a machine learning system would be able to do the complex scheduling of 6,000 people,” Aasman declared. “That’s a really complicated thing where you have to think of every factor for every person.”

However, constraint systems utilizing multi-step reasoning can regularly complete such tasks and the optimization activities for smart cities. Aasman commented that for smart cities, semantic inferencing systems can incorporate data from traffic patterns and stop lights, weather predictions, the time of year, and data about specific businesses and their customers to devise rules for optimal event scheduling. Once the events actually take place, their results—as determined by KPIs—can be analyzed with machine learning to issue future predictions about how to better those results in what Aasman called “a beautiful feedback loop between a machine learning system and

a rules-based system.”

In almost all of the examples discussed above, the IIoT incorporates cognitive computing “so humans can take action for better business results,” Aasman acknowledged. The means by which these advantages are created are practically limitless.

Read the Full Article at AI Business.

Solving Knowledge Graph Data Prep with Standards

Dataversity – December 2018

There’s a general consensus throughout the data ecosystem that Data Preparation is the most substantial barrier to capitalizing on data-driven processes. Whether organizations are embarking on Data Science initiatives or simply feeding any assortment of enterprise applications, the cleansing, classifying, mapping, modeling, transforming, and integrating of data is the most time honored (and time consuming) aspect of this process.

Approximately 80 percent of the work of data scientists is mired in Data Preparation, leaving roughly 20 percent of their jobs to actually exploiting data. Moreover, the contemporary focus on external sources, Big Data, social and mobile technologies has exploded the presence of semi-structured and unstructured data, which accounts for nearly 80 percent of today’s data and further slows the preparation processes.

Read the full article at [Dataversity](#).

AllegroGraph named to 2019 Trend-Setting Products

Database Trends and Applications – December 2018

You can call it the new oil, or even the new electricity, but however it is described, it's clear that data is now recognized as an essential fuel flowing through organizations and enabling never before seen opportunities. However, data cannot simply be collected; it must be handled with care in order to fulfill the promise of faster, smarter decision making.

More than ever, it is critical to have the right tools for the job. Leading IT vendors are coming forward to help customers address the data-driven possibilities by improving self-service access, real-time insights, governance and security, collaboration, high availability, and more.

To help showcase these innovative products and services each year, Database Trends and Applications magazine looks for offerings that promise to help organizations derive greater benefit from their data, make decisions faster, and work smarter and more securely.

This year our list includes newer approaches leveraging artificial intelligence, machine learning, and automation as well as products in more established categories such as

relational and NoSQL database management, MultiValue, performance management, analytics, and data governance.

Read the AllegroGraph Spotlight

What is the most interesting use of a graph database you ever seen? PWC responds.

From a Quora post by Alan Morrison – Sr. Research Fellow at PricewaterhouseCoopers – November 2018

The most interesting use is the most powerful: standard RDF graphs for large-scale knowledge graph integration.

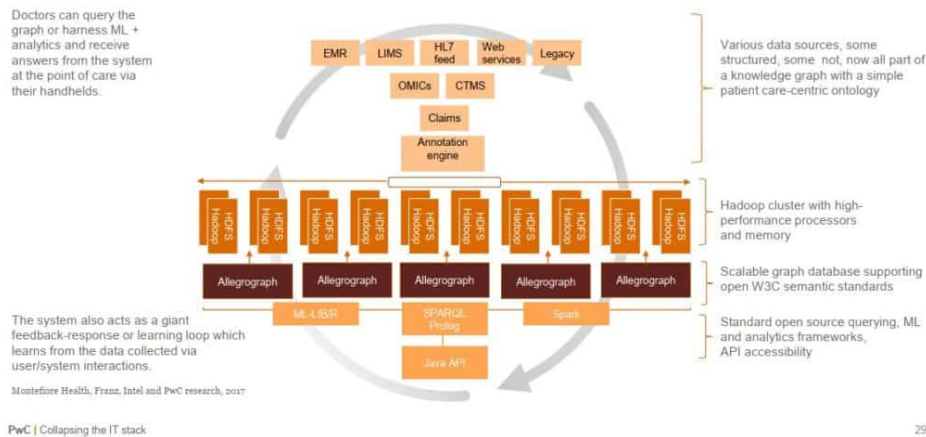
*From my notes on a talk Parsa Mirhaji of Montefiore Health System gave in 2017. **Montefiore uses Franz AllegroGraph, a distributed RDF graph database.** He modeled a core patient-centric hospital knowledge need using a simple standard ontology with a 1,000 or so concepts total.*

That model integrated data from lots of different kinds of heterogeneous sources so that doctors could query the knowledge graph from tablets or phones at a patient's bedside and get contextualized, patient-specific answers to questions for diagnostic purposes.

Fast forward to 2018, and nine out of ten of the most value-creating companies in the world are using standard knowledge graphs in a comparable fashion, either as a base for multi-domain intelligent assistants a la Siri or Alibot or Alexa,

or to integrate and contextualize business domains cross-enterprise, or both. The method is preparatory to what John Launchbury of DARPA described as the Third Wave of AI.....

Montefiore's semantic data lake



Read the full article over at Quora

AI Requires More Than Machine Learning

From Forbes Technology Council – October 2018

This article discusses the facets of machine learning and AI:

Lauded primarily for its automation and decision support, machine learning is undoubtedly a vital component of artificial intelligence. However, a small but growing number of thought leaders throughout the industry are acknowledging that the breadth of AI's upper cognitive capabilities

involves more than just machine learning.

Machine learning is all about sophisticated pattern recognition. It's virtually unsurpassable at determining relevant, predictive outputs from a series of data-driven inputs. Nevertheless, there is a plethora of everyday, practical business problems that cannot be solved with input/output reasoning alone. The problems also require the multistep, symbolic reasoning of rules-based systems.

Whereas machine learning is rooted in a statistical approach, symbolic reasoning is predicated on the symbolic representation of a problem usually rooted in a knowledge base. Most rules-based systems involve multistep reasoning, including those powered by coding languages such as Prolog.

Read the full article over at Forbes

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Allegro Knowledge Graph News

Franz periodically distributes newsletters to its Semantic Technologies, and Common Lisp based Enterprise Development Tools mailing lists, providing information on related upcoming events and new software product developments.

Read our latest AllegroGraph newsletter.

Previous issues are listed in the Newsletter Archive.

Franz and Semantic Web Co. Partner to Create a Noam Chomsky Knowledge Graph

Press Release – September 10, 2018

First Semantic Knowledge Graph for a Public Figure will Semantically Link Books, Interviews, Movies, TV Programs and Writings from the Most Cited U.S. Scholar

OAKLAND, Calif. and VIENNA, Austria – Franz Inc., an early innovator in Artificial Intelligence (AI) and leading supplier of Semantic Graph Database technology, AllegroGraph, for Knowledge Graphs, and Semantic Web Company, developers of the PoolParty Semantic Suite and leading provider of Semantic AI solutions, today announced a partnership to develop the Noam Chomsky Knowledge Graph. This project is the first aimed at connecting all the works from a public figure and turning the linked information into a searchable and retrievable resource for the public.

The Noam Chomsky Knowledge Graph project will organize and semantically link the vast knowledge domain surrounding Noam Chomsky, the founder of modern linguistics, a founder of cognitive science, and a major figure in analytic philosophy as well as an American linguist, philosopher, historian and social critic. Chomsky is currently an Institute Professor Emeritus at the Massachusetts Institute of Technology (MIT) and laureate professor at the University of Arizona. He has received many awards including Distinguished Scientific Contribution Award of the American Psychological Association, the Kyoto Prize in Basic Sciences, the Helmholtz Medal, the

Dorothy Eldridge Peacemaker Award, and the Ben Franklin Medal in Computer and Cognitive Science.

“Noam Chomsky is one of the most brilliant minds of our generation,” said Fred Davis, Executive Director of the Chomsky Knowledge Graph project, “His body of work is tremendously valuable to people across many disciplines. Our goal is to make Chomsky’s work searchable in the context of topics and concepts, readable in excerpts, and easily available to journalists, scientists, technologists, students, philosophers, and historians as well as the general public.”

The Noam Chomsky Knowledge Graph will link to over 1,000 articles and over 100 books that Chomsky has authored about linguistics, mass media, politics and war. Hundreds of Chomsky’s media interviews, which aired on television, print and online will be part of the Knowledge Graph as well as more than a dozen Chomsky movies including: Is the Man who is Tall Happy?, Manufacturing Consent, Programming the Nation? Hijacking Catastrophe: 911 Fear and the Selling of American Empire. The content will be made available by searching the Knowledge Graph for specific titles, related topics and concepts.

Since the project is based on the latest and most advanced technologies, the data will be also available as machine-readable data (Linked Data) in order to be fed into smart applications, intelligent chatbots, and question/ answering machines – as well as other AI and data systems.

The Internet Archive, the world’s largest digital lending library, will host Noam Chomsky’s books, movies, and other content – enabling public access to his works and marking the first integration between the Internet Archive and a public Knowledge Graph.

“We are thrilled to be working on this momentous project,” said Dr. Jans Aasman, CEO of Franz Inc. “Noam Chomsky is the

ideal person to fulfill the vision of a Public Figure Knowledge Graph. We are looking forward to collaborating with the Semantic Web Company and Fred Davis on this exciting project.”

“Knowledge Graphs are becoming increasingly important for addressing various data management challenges in industries such as financial services, life sciences, healthcare or energy,” said Andreas Blumauer, CEO and founder of Semantic Web Company. “The application of Knowledge Graphs to public figures, such as Noam Chomsky, will offer a unique opportunity to link concepts and ideas to form new ideas and possible solutions.”

About Knowledge Graphs

A Knowledge Graph represents a knowledge domain and connects things of different types in a systematic way. Knowledge Graphs encode knowledge arranged in a network of nodes and links rather than tables of rows and columns. People and machines can benefit from Knowledge Graphs by dynamically growing a semantic network of facts about things and use it for data integration, knowledge discovery, and in-depth analyses.

Gartner recently identified Knowledge Graphs as a key new technology in both their Hype Cycle for Artificial Intelligence and Hype Cycle for Emerging Technologies. Gartner’s Hype Cycle for Artificial Intelligence, 2018 states, “The rising role of content and context for delivering insights with AI technologies, as well as recent knowledge graph offerings for AI applications have pulled knowledge graphs to the surface.”

Knowledge Graphs are the Foundation for Artificial Intelligence

The foundation for AI lies in the facets Knowledge Graphs and semantic technology provided by Franz and Semantic Web

Company. The Franz AllegroGraph Semantic Graph database provides the core technology environment to enrich and contextualized the understanding of data. The ability to rapidly integrate new knowledge is the crux of the Knowledge Graph and depends entirely on semantic technologies.

About Franz Inc.

Franz Inc. is an early innovator in Artificial Intelligence (AI) and leading supplier of Semantic Graph Database technology with expert knowledge in developing and deploying Knowledge Graph solutions. The foundation for Knowledge Graphs and AI lies in the facets of semantic technology provided by AllegroGraph and Allegro CL. The ability to rapidly integrate new knowledge is the crux of the Knowledge Graph and Franz Inc. provides the key technologies and services to address your complex challenges. Franz Inc. is your Knowledge Graph technology partner. For more information, visit www.franz.com.

About Semantic Web Company

Semantic Web Company is the leading provider of graph-based metadata, search and analytic solutions. The company is the vendor of PoolParty Semantic Suite, one of the most renowned semantic software platforms on the global market. Among many other customers, The World Bank, AT&T, Deutsche Telekom, and Pearson benefit from linking structured and unstructured data. In 2018, the Semantic Web Company has been named to KMWorld's "100 companies that matter in Knowledge Management." For more information about PoolParty Semantic Suite, please visit <https://www.poolparty.biz>

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