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The KIT

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Notes from the Knowledge Graph Forum

The Knowledge Graph Forum was held online on Oct. 26-27 and demonstrated the growing interest and investment in this technology. There is a little bit of hype, as always with new trends: the speaker who claimed that knowledge graphs (KGs) "make information a first-class citizen" was probably not born when the same thing was said about relational databases in 1970.

Much of the work on KGs is aimed at very large graphs used in data science, therefore federation, virtualization and replication are key concerns. There were multiple mentions of Ontotext, a KG product supplier (GraphDB) who were a sponsor of the conference, gave several of the talks, and have partnerships with several other companies.

Several interesting applications were mentioned:

- Carlos Castano (Fujitsu) presented a use

Enterprise Social Media Adoption

Reminder: Issue 300 (November 16) will be the last one. The company will continue to provide consulting services to existing and selected new clients, and the KIT archive will remain online for the foreseeable future.

case of fraud detection for a Spanish bank. The KG is built from data contained in about 300 tables in an RDBMS. It was quite clear that *entity resolution* (identifying and merging data objects that are the same except for typos and inconsistent encodings) is a critical and time-consuming step before the KG can really be exploited.

- Alexander Washler (Olim) gave an example of a chatbot that understands questions better and gives more useful answers because it is based on a KG.
- Pete Rivett (agnos.ai) talked about the creation of an open semantic repository of about two million corporate legal entities, based on data from the Global Legal Entity Identifier Foundation (GLEIF).
- Joseph Hilger (Enterprise Knowledge) talked about building an expertise database from the resumes held in a company's personnel files.

AI for Better Batteries

At the Stanford University Reunion/Homecoming event on Oct. 22-23, Prof. William Chueh gave one of the "classes without quizzes" lectures that are a hallmark of the event. His was titled "Building Better Batteries Faster." A grand challenge of designing batteries for the exploding electric vehicles market is controlling the chemical processes across large scale of dimension (from nanometers to centimeters) and time (from microseconds to a decade). There are over 30 parameters to select for a design, so the design space is huge. Chueh's research uses active learning technology to select which design options are worth selecting to build prototypes, and can then predict the failure curve of a battery after 100 charge/discharge cycles, which is one-thirtieth of the battery's expected life. "Combining battery physics and data analytics is accelerating battery innovation," the speaker concluded.

Cybersecurity for Industrial Control Systems -- Open for Comments

NIST's National Cybersecurity Center of Excellence (NCCoE) has released for comments its draft Special Publication 1800-10, Protecting Information and System Integrity in Industrial Control System Environments, and is accepting public comments *through November 7* (end of this week). Instructions on how to respond are given at the same link.

The document provides guidance to manufacturers to protect their Industrial Control Systems (ICS) from data integrity attacks. ICS help manufacturers boost productivity, but they have made them more vulnerable to cyber threats such as malware, malicious insider activity, even human error. Manufacturers will be able to use this guide to improve their security, reduce the likelihood of data integrity breaches, and better protect their operating systems.

The Great Resignation

Publications outside of the U.S. have just started mentioning it as a particular phenomenon specific to that country, but it's been discussed here for months already. The pandemic, and in particular the "work from home" (WFH) trend, is combining with Americans' cherished individualism to cause a wave of resignations, where workers who can afford it and work in a suitable job decide to become independent contractors, consultants, or "gig workers" and escape the constraints of salaried employment.

A chief economist and the chief personnel officer of Euler Hermes (a credit insurance company) will discuss some implications of this trend in a brief (half-hour) conference call on November 5 at noon EDT (16:00 UTC). Register here.

Given the company's focus and the short duration of the event, we don't expect a full coverage of the issues raised by this trend. We think that these are the key questions to consider:
- Humans are social animals. We shouldn't expect to be fully effective in a job that requires collaboration with others if we don't interact with them face to face at least some of the time.
- WFH requires technology and a suitable work area. Not everyone has those at their disposal. As a result, the "digital divide" will be widened rather than reduced.
- Personal knowledge management will become more important. While few companies are very good at *enterprise* knowledge management, individual workers are typically even worse at it.
- Will people who forgo corporate employment plan for their retirement correctly?

Call for Topics for the Last Issue

The last issue of The KIT (No. 300) will be published on November 16. One idea is to make it a bit of a professional testament, or (less morbidly) something like "ten best practices for professional effectiveness and self-respect." So here's your chance to influence the content: reply with one or more questions you'd like to see addressed in that final issue, and we will compose it to include all our answers. Thank you.

Seen Recently...

"In the classic 1970s SciFi TV show 'Space: 1999', 'Meta' was a rogue planet that caused chaos and ultimately the devastating explosion that blew the Moon out of Earth's orbit. Just saying."

-- Richard Paige, (@richpaige), commenting on last week's

announcement of the renaming of a certain company

"Sorry it took me two weeks to respond to your email. Supply chain issues."

-- Isaac Fitzgerald (@IsaacFitzgerald)