

Wednesday, March 22, 2017

10:20 AM, LL 21 A

Eclipse OMR: a modern, open-source toolkit for building language runtimes

Daryl Maier, Compiler Development Performance, IBM Cloud, [@Oxdaryl](#)

Java runtime technology has benefited from hundreds of person years of development investment over the last 20 years, resulting in a highly capable, high performance and scalable dynamic language with a vibrant developer ecosystem. The recently created OMR incubator project at Eclipse (<https://github.com/eclipse/omr>) aims to expand access to high quality runtime technology for other dynamic languages through an ongoing effort to restructure the core components of the J9 Java Virtual Machine. Rather than building new languages on top of Java, however, this project aims to unlock the inner workings of the JVM without imposing Java semantics to create a platform for building highly capable language runtimes. This talk will introduce developers to the Eclipse OMR project: what it is, the runtime technology that has been contributed so far, promising projects that leverage this technology, active areas of development, and how developers can get involved.



11:20 AM, Grand Ballroom 220 C

Bits, Bytes and Brains - Where Watson Is and Where its going?

Sandhya Kapoor, Sr. Software Engineer, IBM, [@sandhyakapoor9](#)

We have entered a new period of computing history — a cognitive era. Deep learning has revolutionized fields such as image recognition, natural language processing and, more broadly machine learning and AI. In this interactive session, we'll discuss how Watson, IBM's AI platform, applies Deep Learning to enable Enterprise Java developers, gain cognitive insights on massive amounts of data with production ready APIs, available on the Cloud. We will walk through code to develop cognitive applications with exciting examples such as TERMINUTER, a cognitive meeting minute maker that uses Natural Language Processing to answer insightful questions on the minutes taken by Watson, using Speech to Text APIs. We will also look at where Watson Technology is going. Come join us to understand the exciting possibilities, with using AI in Industry specific domains!

12:20 PM, Grand Ballroom 220 B

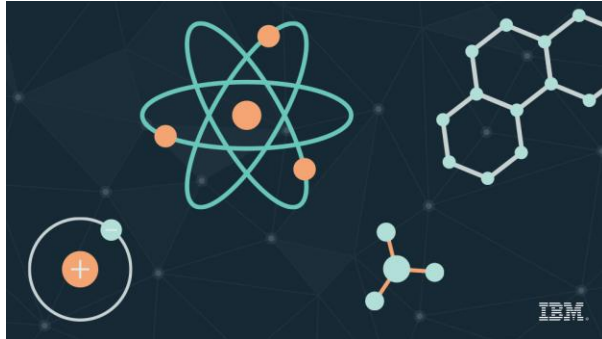
Using GPUs to Achieve Massive Parallelism in Java 8

Adam Roberts, IBM Spark Team Lead – Runtimes, IBM Cloud

Graphic processing units (GPUs) are not limited to traditional scene rendering tasks. They can play a huge role in accelerating applications that have a large number of parallelizable tasks.

Learn how Java can exploit the power of GPUs to optimize high-performance enterprise and technical computing applications such as big data and analytics workloads, through both explicit GPU programming and letting the Java JIT compiler transparently off-load work to the GPU.

This presentation covers the principles and considerations for GPU programming from Java and looks at the software stack and developer tools available. After this talk you will be ready to extract the full power of GPUs from your own application. We will present a demo showing GPU acceleration and discuss what is coming in the future.



4:30 PM, LL 20 D

New Computer Architectures : Explore Quantum Computers & SyNAPSE neuromorphic chips

Peter Waggett, Director, Emerging Technology, IBM [@Waggo](#)

As we move towards a smarter planet where everything is instrumented, interconnected and driven by intelligence the requirements on processing power are increasing. To meet these

demands the industry is researching new computer architectures to deliver increasing power in smaller footprints and using less power. This talk will illustrate some of the new advances underway.

An example of an emerging compute fabric is the SyNAPSE neuromorphic chip. This brain-inspired chip enables sensory perception in mobile and IoT applications by implementing a low power scalable architecture. The most recent version of this is the IBM TrueNorth chip which contains 1M neurons and 256 synapses implemented using 5.4B transistors and consuming only 73mW. TrueNorth achieves this by challenging several requirements that constrain traditional compute fabrics including exactness of data representation, synchronicity of events, error tolerance, and energy/frequency optimization. As part of a cognitive hardware and software ecosystem, this technology creates new possibilities of transformative applications and devices with sensory perception.

9:00 PM, LL 20 B

The rise of the machine – is Skynet closer than ever?

Steve Poole, Developer Advocate, Runtime Technologies, IBM [@spoole167](#)

Skynet – really? How close are we to self aware, self replicating machines? In this fun session learn what computers can do and what they can't. You think you know. You may be surprised. The emerging focus on Cognitive computing, general AI, Computer Vision, Internet of Things etc signpost the way to new opportunities and new challenges for computers and humans alike.

Get the answers to important questions like: Can we build a Java Skynet yet? Can my computer be my best friend? Will I really be able to program without a keyboard? Can a computer read my mind? Will drones be able to deliver beer at the right temperature?

9:00 PM, LL 20 D

Eclipse MicroProfile: Accelerating the adoption of Java Microservices

Emily Jiang, WebSphere Application Server, CDI Development Lead, IBM Cloud [@emilyfhjiang](#)

While there are likely a dozen or more Java-based microservice / cloud native initiatives in the industry, Eclipse MicroProfile provides a platform for Java developers to collaborate and innovate on areas of common interest. This BOF will give a short overview of MicroProfile and how it plans to optimize

microservices for Enterprise Java, followed by a short Q&A to answer any clarifying questions, and the remainder of the time spent on collaborating to prioritize features for the next release.

While MicroProfile's first release is founded in Java EE (CDI + JSON-P + JAX-RS), it is not intended to remain a subset of Java EE 7 (or 8). The intent is to collaborate and innovate as a community in the context of a microservices architecture across the 5 (and growing) MicroProfile implementations today. The end goal of MicroProfile is to feed the Java Community Process (JCP) with JSR submissions backed by well-thought-out concepts and even implementations that developers and enterprises can rely on. Come collaborate with your fellow MicroProfilers to move Enterprise Java microservices forward.