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**Keynote 1 (Tuesday November 4th)**

**Title:** Organizing the Digital World to Empower Every Person and Organization on the Planet to Do More and Achieve More

**Qi Lu** (Executive Vice President, Applications and Services)

**Abstract:** The web is rapidly evolving into the web of the world where people, places, things and their relationships are all digitally represented. This evolution opens up unparalleled opportunities to organize this vast digital universe for even greater human purpose. In this talk, Dr. Lu will share an outline of Microsoft’s quest and aspiration to organize the digital universe with a pervasive computational fabric of digital information, digital services, and digital experiences that empower every human being on the planet to accomplish more and enrich their life. Dr. Lu will discuss high level computational structures and present specific examples across Bing, Windows and other products and services to illustrate Microsoft’s approach to delivering end user value and accelerating the pace of innovation for the industry as a whole.

**Bio:** As executive vice president of Microsoft’s Applications and Services Group, Dr. Qi Lu leads Microsoft’s business across productivity, communications, search and other information services. He sets the vision, strategy, and overall direction of the Applications and Services group, and is responsible for all of the research and development teams across Microsoft Office, Office 365, SharePoint, Exchange, OneDrive, Yammer, Lync, Skype, Bing, Bing Apps, MSN and the Advertising platforms. The Apps and Services group will empower people and organizations around the world to ‘Get More Done’ with compelling and delightful experiences.

Until recently, Dr. Lu was the president of the Online Services Division, where he led the company’s search, portal and online advertising efforts. Prior to joining Microsoft, Dr. Lu spent 10 years as a Yahoo! senior executive. His roles included serving as the executive vice president of engineering for the company’s Search and Advertising Technology Group where he oversaw the development of Yahoo’s Web search and monetization platforms, and vice president of engineering responsible for the technology development of Yahoo’s search, e-commerce and local listings of businesses and products. Before joining Yahoo!, Dr. Lu worked as a research staff member at IBM’s Almaden Research Center and Carnegie Mellon University, and was a faculty member at Fudan University in China. He earned his bachelor’s and master’s degrees in computer science from Fudan University and his Ph.D. in computer science from Carnegie Mellon University. Dr. Lu holds 20 U.S. patents.

**Keynote 2 (Wednesday November 5th)**

**Big Text: from Names and Phrases to Entities and Relations**

**Gerhard Weikum** (Scientific Director at the Max-Planck Institute for Informatics, Saarbruecken, Germany)

**Abstract:** News, social media, web sites, and enterprise sources produce huge amounts of valuable contents in the form of text and speech. To tap this wealth of unstructured Big Data and obtain insights, a decisive step is to identify the entities that are referred to and relationships between entities. This allows linking unstructured contents with structured data. However, this step faces the fundamental problem that names and phrases are often highly ambiguous; mapping them to entities and relations is a challenging task. The talk will discuss the state of the art, applications, and open problems on disambiguating named entities in text and heterogeneous tables. It will also put this line of research in perspective to the bigger picture of Big Data analytics.
Bio: Gerhard Weikum is a Scientific Director at the Max Planck Institute for Informatics in Saarbruecken, Germany, and also an Adjunct Professor at Saarland University. He graduated from the University of Darmstadt, Germany. Weikum’s research spans transactional and distributed systems, self-tuning database systems, DB&IR integration, and the automatic construction of knowledge bases from Web and text sources. He co-authored a comprehensive textbook on transactional systems, received the VLDB 10-Year Award for his work on automatic DB tuning, and is one of the creators of the YAGO knowledge base. Gerhard Weikum is an ACM Fellow, a member of several academies in Germany, and currently serves on the German Council of Science and Humanities. He has served on various editorial boards, including Communications of the ACM and ACM TWEB, and as program committee chair of conferences like ACM SIGMOD, Data Engineering, and CIDR. From 2003 through 2009 he was president of the VLDB Endowment. He received a Google Focused Research Award in 2010, the ACM SIGMOD Contributions Award in 2011, and an ERC Synergy Grant in 2013.

Keynote 3 (Thursday November 6th)

Deep Learning

Jeff Dean (Google Senior Fellow)

Abstract: Three years ago we started a small effort to see if we could build training systems for large-scale neural networks and use these to make significant progress on various perceptual tasks. Since then, the project has been used by dozens of different groups at Google to train state-of-the-art models for speech recognition, image recognition, various visual detection tasks, language modeling, ads click prediction, and various other tasks. In this talk, I’ll highlight some of the distributed systems that we use in order to train large models quickly. I’ll then discuss ways in which we have applied this work to a variety of problems in Google’s products, usually in close collaboration with other teams.

This talk describes joint work with many people at Google.

Bio: Jeff joined Google in 1999 and is currently a Google Senior Fellow in Google’s Knowledge Group. He has co-designed/implemented five generations of Google’s crawling, indexing, and query serving systems, and co-designed/implemented major pieces of Google’s initial advertising and AdSense for Content systems. He is also a co-designer and co-implmentor of Google’s distributed computing infrastructure, including the MapReduce, BigTable and Spanner systems, protocol buffers, LevelDB, systems infrastructure for statistical machine translation, and a variety of internal and external libraries and developer tools. He is currently working on large-scale distributed systems for machine learning. Prior to joining Google he worked for Digital Equipment Corporation’s Western Research Lab, and for the World Health Organization’s Global Programme on AIDS. He is a Fellow of the ACM, a Fellow of the AAAS, a member of the U.S. National Academy of Engineering, and a recipient of the Mark Weiser Award and the ACM-Infosys Foundation Award in the Computing Sciences. He received a B.S. in computer science & economics, summa cum laude, from the University of Minnesota, and a M.S. and Ph.D. in computer science from the University of Washington.