CAFOE '15: Big Data Session
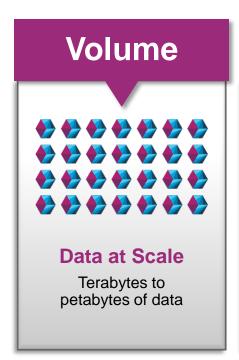
Co-Chairs:

Tamas Sarlos (Google)
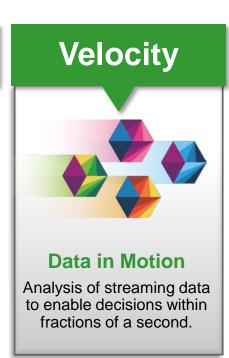
Haiyong Xie (China Academy of Electronics
and Information Technology)*
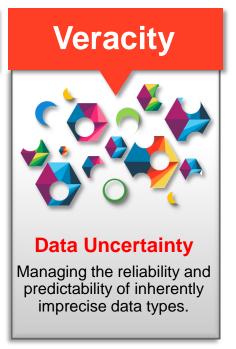
*Substituting for Manqing Wu (China Electronics Technology Group Corp.)

Big Data Characteristics

Volume
Data at Scale
Terabytes to petabytes of data

Variety
Data in Many Forms
Structured, unstructured, text, multimedia

Velocity
Data in Motion
Analysis of streaming data to enable decisions within fractions of a second.

Veracity
Data Uncertainty
Managing the reliability and predictability of inherently imprecise data types.

Courtesy: IBM

Big Data Applications

- Human Behaviors (*e.g.*, societal properties)
- Key Infrastructure (*e.g.*, Transportation, Health Care)
- Advanced Manufacturing (*e.g.*, Industry 4.0)
- Artificial Intelligence

Energy

Smart Metering

VPP (Virtual Power Plant)

Mobility

Fleet Management
eMobility Solutions

Manufacturing

Service Portal

Smart Home

Intelligent Solutions

Internet of Things (IoT) / Cyber Physical Systems (CPS)

Session Themes

- Themes
  - Realistic Impacts
    - How big data can positively impact our life
  - Technologies
    - Tools and techniques required to develop big data systems

- Methodologies
  - Select typical/important application scenarios
    - Societal behaviors, transportation, Internet of Things, and machine learning
  - Provide big data solutions generating positive impacts

Case Study #1: Societal Behaviors

- Speaker
  - Dr. Lakshminarayanan Subramanian, New York University

- Topic
  - How to tackle big societal questions using big data solutions
    - recognizing counterfeit goods
    - disease surveillance
    - detecting events from news

Case Study #2: Transportation

- Speaker
  - Dr. Yanhua Li, China Academy of Electronics and Information Technology

- Topic
  - How to manage charging stations in transportation systems using big data solutions

Now Let's Get Started!

Case Study #3: Search in Cyberspace

- Speaker
  - Dr. Xi Zhang, Beijing University of Post and Telecommunications (BUPT)
    - Substituting for Dr. Bin Zhou

- Topic
  - How to tackle Cyberspace search using cross-domain metaphor and big data solutions
    - Construct knowledge warehouses
    - Understand users' search intent
    - Ensure search security

Case Study #4: Deep Learning

- Speaker
  - Dr. Quoc Le, Google

- Topic
  - How to apply deep learning and artificial intelligence in big data systems
    - Principles of large-scale deep learning
    - Advances in object/speech recognition and understanding natural language
    - Google Brain system