

TUESDAY | JUNE 9, 2015

Workshop on Industry 4.0 & Next Generation Manufacturing

In today's competitive business environment, companies are facing challenges in dealing with big data issues for rapid decision making for improved productivity. Many manufacturing systems are not ready to manage big data due to the lack of smart analytics tools. Germany is leading the next wave of manufacturing and service innovation: 4th Generation Industrial Revolution (Industry 4.0) based on Cyber-physical Systems (CPS). In the U.S., transformative technologies in industrial internet, predictive analytics, and CPS are accelerating the new industry transformation. Major manufacturing initiatives are underway in Japan and China. All companies need to be better positioned to integrate these new technologies into their manufacturing and business practices in order to remain competitive in the global economy.

This Workshop will address the trends of industrial transformation in big data environment as well as the readiness of smart predictive informatics tools to manage big data to achieve transparency and productivity. First, industry transformation including Internet-of-things (IoT), Industry 4.0 and Cyber-physical Systems will be introduced. Second, enabling technologies for smart manufacturing--with case studies--will be addressed. In addition, research advances in future manufacturing will be discussed. Key government leaders, industry executives, and academics scholars will present new initiatives, test bed, applications, and research advances, as well as to demonstrate the ready-to-deploy technologies as well as to discuss the collaborative opportunities in future manufacturing and maintenance.

7:30 AM Registration & Breakfast

8:00 AM Welcome & Introduction to the Workshop - Gary Conley, President, TechSolve

8:15 AM Welcome Remarks - Cincinnati Vice Mayor David Mann

8:30 AM Keynote: Future of Analog Big Data for Industry 4.0 - Dr. James Truchard, CEO & Co-founder, National Instruments

9:00 AM Keynote: Mike Molnar, Chief Manufacturing Officer, NIST, USA

9:30 AM Strategies in Industry 4.0 & Cyber Physical Systems (CPS) for Future Manufacturing (US & German Perspectives)

- » Jay Lee - Director, IMS Center at the University of Cincinnati, USA
- » Brigit Vogel-Heuser - Professor, Technical University of Munich, Germany

10:00 AM Break

10:15 AM Panel #1: Enabling Technologies for Internet-of-Things (IoT) & Industry 4.0

- » Rick Tyo - Industrial IoT Solutions Architect, Intel, USA
- » Preston Johnson - Global Program Manager, National Instruments, USA
- » Scott Hibbard - VP of Technology, Bosch Rexroth, Germany
- » Ryuji Yamasaki - Project Director, Robotics Project, Business Development Center OMRON, Japan
- » Albert Huang - Advantech, Taiwan



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29TH NSF IMS Center Industry Advisory Board Meeting + Industry 4.0 & Next Generation Manufacturing Workshop



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11:30 AM Panel #2: Industry 4.0 Government Initiatives

- » Brian Weiss - Associate Program Manager, NIST, USA
- » Bruce Kramer - Senior Advisor, National Science Foundation, USA
- » Hiroyuki Sawada - Senior Planning Manager, AIST, Japan

12:30 PM Lunch & TechSolve Technology Center Open House

1:30 PM Keynote: Klaus Herrmann - Head of Research and Special Projects, Deputy Head of Festo Learning Center, St. Ingbert Germany

2:00 PM Panel #3: Needs in Big Data Analytics for Smart Machines & Smart Factory

- » Eric Berg - Technical Section Head, P&G, USA
- » Brian Naszradi - Vice President of Customer Support and Services, IBM
- » Rumi Ghosh - Research Engineer, Bosch, Germany
- » Kenichi Funaki - General Manager, Hitachi PIC, Japan
- » Sören Kerner - Head of Automation & Embedded Systems, Fraunhofer Institute for Material Flow & Logistics, Germany

3:00 PM Break

3:15 PM Panel #4: Emerging Technologies for Smart Manufacturing

- » Detlef Zuehlke - Director, DFKI Group, Germany
- » Carlos Pereira - Professor, UFRGS, Brazil
- » Bernd Hellingrath - Professor, University of Muenster, Germany
- » Benoit lung - Professor, Lorraine University, France
- » Lim Ser Yong - Executive Director, SIMTech, Singapore
- » Yeau-Ren Jeng - Professor, National Chung Cheng University of Taiwan

4:30 PM Panel #5: Strategies for Implementing IoT, Industry 4.0 & Big Data Analytics

- » Edzel Lapira - President, Predictrics Corporation, USA
- » Atsushi Yoshimoto - Executive Director, ISID, Japan
- » Franz Gruber - Founder & Chairman, FORCAM, Germany
- » Peter Martin - VP Business Value Consulting, Schneider Electric, Invensys, USA

5:30 PM Closing Remarks

Bus Departs TechSolve at 5:45 PM

6:30 PM IMS Center IAB & Industry 4.0 Dinner

BB Riverboats

101 Riverboat Row, Newport, KY 41071

Boat Departs at 7:00 PM

Boat Returns at 9:30 PM

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7:30 AM Registration & Breakfast

8:00 AM IMS Center Welcome, IAB Chairman's Address & Attendee Introduction

8:30 AM IMS Directors - Jay Lee, Jun Ni, Jag Sarangapani & Dragan Djurdjanovic

8:50 AM Technical Presentations // University of Cincinnati

- » Adaptive Clustering for IMS Self-aware Machines - Shanhu Yang
- » Industry 4.0 Enabled Factory-to-factory Dynamic Fleet-level Prognostics and Operation Management for Geographically Distributed Assets - Jin Chao

9:30 AM Break

9:40 AM Technical Presentations // University of Michigan

- » Modeling, evaluation and design optimization of manufacturing systems resilience - Huanyi Shui
- » An extended Stream-of-Variation (SoV) model for product defects diagnosis in a semi-continuous manufacturing process - Yangbing Lou

10:20 AM Technical Presentations // Missouri University of Science & Technology

- » Resilience Scheme Against Cyber Threats and Faults for Cyber-Physical Systems - Haifeng Niu
- » A MTS Based Bigdata Approach for Prognostics - Krishnan Raghavan

11:00 AM Technical Presentations // University of Texas at Austin

- » Prediction of Product Defectivity Using Densely Sampled Sensor Signals - Asad Ul Haq and Keren Wang
- » Virtual Metrology and Hidden Markov Model Based Monitoring Using Densely Sampled Sensor Signals - Asad Ul Haq and Derek Zhang

11:40 AM Special Invited Presentation - Amy Wang

11:55 AM Lunch

1:00 PM Poster Session & Demonstrations

2:30 PM LIFE Form Feedback Session

4:00 PM Closed Door Session (members only)

- » Approve IAB 28 Minutes
- » Review of IAB 29
- » Choose IAB 30 Date
- » Financial Report
- » IP Discussion - Geoffrey Pinski (UC)
- » New Business

5:00 PM Adjourn



LIFE FORMS

Please be sure to submit your completed LIFE Forms as your feedback is essential for insuring that the work conducted by the Center is of the highest quality and in the best interest of the Center and its members.



POSTER SESSION

During the poster session attendees can interact directly with the IMS Center's researchers and view demonstrations that show IMS Center methodologies and technologies in action