

World Congress on Industrial Automation

July 20-22, 2015 San Francisco, USA

Cloud manufacturing and automation

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Cloud Computing and emerging concepts such as G.E.'s Industrial Internet, Germany's Industry 4.0, and the Internet of Things have the potential to remove current computation and memory limitations of automation systems and vastly increase availability of data. Cloud Computing can also provide rapid access to computing power, crowd sourcing, and open-source software. New research is needed to design the associated algorithms and system architectures. I'll present examples of recent research.

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Artificial intelligence in nearly every in-animate object around us

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There is a massive technology revolution underway right now - one that may perhaps eclipse all others in terms of its long term impact: That is the infusion of artificial intelligence in nearly every in-animate object around us. From robotics, to manufacturing and process automation, to UAVs, home appliances, automobiles, guidance systems, threat prediction, medical devices and soon - making all digital content smarter. And whether the host is web-based, PC-based, on a mobile device or microcontroller based system, the use of artificial intelligence will be ubiquitous. As the market develops, Customer-driven innovation will be the primary driver of efficiency and productivity. Much of the research and engineering in the space right now is in determining what decisions can be automated, what technologies to use, how to deploy and how to ensure dependability and safety. Understanding how companies, governments, and individuals are using intelligent systems (or desire to use), will help customers and market participants invest in and productively explore benefits of the growing technology and services foundation of artificial intelligence. This discussion will present a useful framework of thought for key stakeholders in organizations as they explore the possible use and integration of AI in their projects and products.

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Screen-printable energy storage device utilizing graphene inks

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Printable energy storage devices are of great interest for industrial applications in terms of commercially viable energy storage products. Typically, one of the most important and powerful industrial printing techniques for the electronic fabrication is screen-printing, which is inexpensive, rapid, and capable of mass production. Furthermore, screen printing provides capability of printing films in controlled geometries and at specific locations on various substrates. Screen printable method has been one of the key technologies in the fields of organic transistors, light-emitting devices, solar cells, and sensors.

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