Written by Gary Mintchell
Monday, 16 July 2012 11:51

The Center for Intelligent Maintenance Systems, a U.S. National Science Foundation consortium including the University of Cincinnati, the University of Michigan and the Missouri University of Science and Technology, held its latest meeting at the Chrysler Education Center in suburban Detroit May 16-18, 2012.

Manufacturing companies join the Center and contract with engineering Ph.D. and post-doctoral researchers to conduct research into various maintenance and engineering problems. This year at the Industry Forum, Spirit AeroSystems, a Boeing spin-off, presented its experience in moving maintenance from reactive to condition-based.

Jay Lee, Director of the Center and a Professor of Engineering at the University of Cincinnati, challenged audience members to expand their thinking by considering cloud-based predictive analytics. The idea would be to perform the analytics in the cloud—*not to store data in it*. There potentially are many people who would be interested in the analytics, but most would prefer to store data locally.

I've summarized a few research papers that will provide a taste of what you could gain from working with the Center:

Shanhu Yang from the University of Cincinnati developed a coupled model platform for prognostics and health management (PHM) development. The study linked real-time performance with a simulation of the process. Potential benefits include performance tracking, accumulation of expert knowledge and fast PHM service validation and development. The research proved that the model could be done and that it could provide more transparency of machine health information.

Hossein Davari, also of the University of Cincinnati, performed research developing data quality

metrics to improve prognostics. The work can reduce unnecessary investment in redundant prognostics analysis. Xi Gu, of the University of Michigan, presented work on estimating maintenance opportunity windows in manufacturing systems. This research developed an analytical maintenance- operations window for general manufacturing systems, implemented the MOW algorithm to real productions lines and validated its effectiveness.

The next meeting is the end of November, but I'll be at the SPS show in Nuremberg. Perhaps I can catch up with Prof. Lee afterwards and get a report. **MT**

Gary Mintchell, gmintchell@automationworld.com , is Co-Founder and Editor in Chief of Automation World
magazine and blogs at
www.garymintchellsfeedforward.com.