LEADING INFORMATION AND COMMUNICATION TECHNOLOGIES FOR SMART MANUFACTURING: FACING THE NEW CHALLENGES AND OPPORTUNITIES OF THE 4TH INDUSTRIAL REVOLUTION
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INVITED PAPER This article proposes an approach to endowing robots with the capability of autoprogramming of assembly tasks with minimal human assistance that is based on "learning from observation" and "robotic embodiment."

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The cover illustration of a smart factory that utilizes robots to perform tasks with little or no human interaction aptly captures the theme of this month's issue.
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441 Wireless Control for Smart Manufacturing: Recent Approaches and Open Challenges
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By B. Vogel-Heuser, E. Trunzer, D. Hajo, and M. Sollfrank
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556 A Methodology for Digital Twin Modeling and Deployment for Industry 4.0
By G. N. Schroeder, C. Steinmetz, R. N. Rodrigues, R. V. B. Henriques, A. Retberg, and C. E. Pereira
INVITED PAPER | This article focuses on the digital twin (DT), one of the key concepts of Industry 4.0, and proposes a methodology for DT design using model-driven engineering (MDE) that strives toward being both flexible and generic.

568 A Connective Framework to Support the Lifecycle of Cyber–Physical Production Systems
By R. Harrison, D. A. Vera, and B. Ahmad
INVITED PAPER | This article envisions a connective framework to support the engineering of cyber–physical production systems (CPPSs) in smart manufacturing through the use of a set of digital twins consistent with the real system throughout its lifecycle.

582 A Platform Programming Paradigm for Heterogeneous Systems Integration
By K.-B. Gemlau, L. Köhler, and R. Ernst
INVITED PAPER | This article revisits the programming paradigm that is currently used for lock-free multicore programming and explains its extension to the system level, exploring its application to two important developments in industrial design.