Smart Manufacturing and Machine Learning: Process Control in 3D
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As advanced semiconductor technologies have become more complex, smart manufacturing techniques have emerged as an important element in optimizing semiconductor production operations, controlling variation and determining yield. The challenges of advanced logic and memory processes have driven many control mechanisms to the edge of measurement capabilities, requiring model-based measurement and real-time process control. Novel sensor technology combined with advanced equipment controls enable a new generation of process equipment that behave as intelligent nodes on the semiconductor manufacturing network. In this work, we will examine several elements of Lam's Equipment Intelligence™ solution as a case study in smart semiconductor manufacturing, with a specific focus on virtual processing, sensors and process control.