



# Industrial AI and Its Applications

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**Abstract:** Artificial intelligence (AI) techniques have been successfully applied in various social and consumer applications, such as voice and image recognitions, social media, advertisement, etc. However, AI techniques have seen limited adoption in industry, primarily due to the difficulty in obtaining adequate sets of training data that are required by various machine learning or neural networks. Furthermore, industrial applications often require guaranteed performance (e.g., speed, accuracy, and certainty). This presentation will discuss the challenges of adopting AI techniques to industrial applications, and propose a concept of industrial AI (augmented intelligence). Often, in industrial applications, there are limited training sets that are available for machine learning or artificial neural network training. However, there frequently exist engineering models derived based on the fundamental understanding of the engineering design and analysis. Furthermore, experienced operators or engineers accumulated significant knowledge or experience over their professional career. The value behind historical maintenance records should also not be overlooked. Additionally, when sensory data and algorithms are combined with the engineering models, human experience or expert knowledge, and historical records, a new paradigm of industrial AI (iAI) becomes a powerful solution to many industrial problems. Selected applications will be presented to demonstrate the value of this new iAI.