Industrial Machine Learning

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ABSTRACT

The ongoing digitization of the industrial-scale machines that power and enable human activity is itself a major global transformation. But the real revolution—in efficiencies, in improved and saved lives—will happen as machine learning automation and insights are properly coupled to the complex systems of industrial data. Leveraging a systems view of real-world use cases from aviation to transportation, I contrast the needs and approaches of consumer versus industrial machine learning. Particularly, I focus on three key areas: combining physics-based models to data-driven models, differential privacy and secure ML (including edge-to-cloud strategies), and interpretability of model predictions.

Author Keywords

Industrial machine learning; physics-based models; data-driven models; differential privacy; secure machine learning; interpretability; data mining.

BIOGRAPHY

Dr. Joshua Bloom is VP of Data & Analytics at GE Digital where he serves as the technology and research lead bringing machine learning applications to market within the GE ecosystem. He was co-founder and CTO of Wise.io, which was acquired by GE Digital in 2016 and has been an astronomy professor at the University of California, Berkeley since 2005. Josh has been awarded the Moore Foundation Data-Driven Investigator Prize and the Pierce Prize from the American Astronomical Society; he is also a former Sloan Fellow, Junior Fellow at the Harvard Society, and Hertz Foundation Fellow; he holds a PhD from Caltech and degrees from Harvard and Cambridge University.

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