

Digital Twins: Challenges and Opportunities in Various Industries

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[Zoom](#)



Abstract

Various industries, such as manufacturing, energy and utilities, automotive, aerospace and defense, logistics and transportation, and building management, have proposed the use of digital twins to aid the design, analysis, build, manufacturing and operations phases of asset-intensive industries. Digital twins have a physical asset, a virtual asset (a simulation model of the asset), and a two-way information flow between the physical and virtual worlds using an IOT platform. While most companies use data-based analytics and machine learning to build digital twins, they require a lot of training data, and the accuracy is limited to the observed data. Some industries have started using physics-based simulation to build digital twins, and while these approaches are accurate, they require long computation times to deploy. Most recently, companies are using hybrid approaches, combining data-based analytics and physics-based approaches, to build these digital twins that are very accurate and require less training data and drive high operational efficiency of assets and process industries and manufacturing plants. In this talk, we will discuss the challenges and opportunities of digital twins in various industries and the latest research approaches.

Bio

Prith Banerjee (prith.banerjee@ansys.com) is Chief Technology Officer at ANSYS, a leader in engineering simulation. Prior to that, he was CTO of Schneider Electric, CTO of ABB, Managing Director of R&D at Accenture, and Director of HP Labs. Previously he spent 20 years in academia as Professor, Chairman and Dean at the University of Illinois and Northwestern University. Banerjee currently serves on the Board of Directors of Turntide. In the past, he has served on the Board of Cray, CUBIC, and Anita Borg Institute. He is a Fellow of the AAAS, ACM and IEEE. He received a B.Tech. in electronics engineering from the Indian Institute of Technology, Kharagpur, and an M.S. and Ph.D. in electrical engineering from the University of Illinois, Urbana.

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