Department of Systems Engineering
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New Digital and Intelligent R&D Paradigm of Model-Based Digital Systems Engineering: Exploration, Thinking and Practice

With the growing complexity and uncertainty of modern product systems, traditional document-centric systems engineering can no longer meet industrial needs. Model-Based Systems Engineering (MBSE), a new R&D paradigm using digital models instead of documents across the full product lifecycle, is the core foundation of Digital Engineering. This lecture explains how to build end-to-end MBSE engineering capabilities based on Qian Xuesen's systems thinking, mindset transformation and modeling strategies. It demonstrates the construction of a full MBSE system covering processes, methodologies and toolchains through industry practices in aerospace and automotive fields, and shares digital engineering strategies and implementation recommendations. We have developed an independent and controllable Model-Based Digital Systems Engineering (MBDSE) platform based on in-depth insights into European and American high-tech manufacturing, which helps new energy vehicle enterprises meet European safety traceability requirements, and greatly improves R&D efficiency and systems engineering capabilities.

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10:30 am - 11:30 am

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Speaker

Professor John Zhang

Director of the MBSE Engineering Innovation Center of University of Electronic Science and Technology of China

Dr. Zhang is currently the National Distinguished Expert in the general areas of Model-Based Systems Engineering (MBSE), Digital Twins, and Digital Engineering. He had worked/consulted in Fortune 500 international companies including but not limited to the General Electric (GE), John Deere, SEoS, and COMAC, etc. He taught the famous Edison Engineering Development Program (EEDP) as a core coach in GE.

He is also a certified Black Belt for Design for Six Sigma (DFSS), and a senior member of IEEE and SAE. Dr. Zhang has been reviewers for Journal of Vibration and Acoustics, IEEE Transactions on Mechatronics, Asian Journal of Control, and IEEE Transactions on Control Systems Technology, as well as reviewers for conferences like American Control Conference (ACC), IEEE Conference on Decision and Control (CDC), IEEE International Conference on Robotics and Automation (ICRA), etc.

All are welcome

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