



Contribution ID: 3

Type: **Speaker**

The Digital Twin in Industry: Enhanced safety and performance in aerospace, mining and industry

Tuesday, 3 September 2019 13:50 (10 minutes)

One of the hallmarks of the Fourth Industrial Revolution is the “ubuntu” of data: instead of focussing on individual sources of data, we rather understand each data source in the context of a broader, coherent picture. The whole becomes more valuable than the sum of its parts. This is a key concept underlying digital replicas of real-world systems, called “digital twins”. The digital twin concept is explored through three examples: an aeroplane, a nuclear reactor and a mine. Instead of interacting directly with the real-world system through individual sensor readings, the paradigm shifts to interacting with the digital twin itself. The benefits of this approach include greatly increased information richness and accuracy, fault tolerance, scenario planning and ability to optimise.

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Session Classification: Session III

Track Classification: Plenary