Dear Reader:

We are excited to bring you this edition of the Journal of Innovation on *Digital Twin*—a topic identified by Gartner as one of the Top 10 Strategic Technology Trends for 2019.[1] Digital twin is quickly becoming a core component of Industrial IoT, yet there is still much confusion surrounding it.

The goal of this edition is to decipher digital twin. As such, this edition contains a robust number of articles covering many aspects of this topic—from its applications to implementation challenges:

- We start with "A Short Introduction to Digital Twin" by Pieter van Schalkwyk, Shi-Wan Lin and Dr. Somayeh Malakuti which defines what digital twin is, its purpose, how it relates to the physical twin as well as its lifecycle.
- In "Digital Twin + Industrial Internet for Smart Manufacturing: A Case Study in the Steel Industry," Shi-Wan Lin, Maxine Fu and Kebin Li show how digital twin is applied to Smart Manufacturing.
- Myo Kyaw Sett, Humza Akhtar, Bao Huy Huynh and Wang Wei bring the concept further by explaining how digital twin is used for planning and sequencing tasks in manufacturing settings in "Digital Twin Development for Serial Manipulators: Data Driven Optimized Planning and Sequencing of Tasks."
- In "Creating Cities of the Future with Digital Twin Technology," Elena Vasconi shows the role of digital twin in the context of Smart City.
- Michael Thomas, Brad Klenz and Prairie Rose Goodwin explain how Artificial Intelligence can be augmented with human intelligence by visualizing digital twins in "Artificial and Human Intelligence with Digital Twins."
- We then switch gears toward the implementation of digital twin, starting with "Digital Twin Architecture and Standards" by K. Eric Harper, Dr. Christopher Ganz and Dr. Somayeh Malakuti.
- In "Shades of Digital Twinning," Dr. James Hunt dives into the details of connecting a digital twin with its physical counterpart through device proxy and shell.
- Kilian Bächle and Stefan Gregorzik describe the data model behind a digital twin in "Digital Twins in Industrial Applications – Requirements to a Comprehensive Data Model."
- Mark Hearn and Simon Rix focus on a key component of trustworthiness: security in "Cybersecurity Considerations for Digital Twin Implementations.""

We conclude this edition with an article on the IIC Smart Factory Machine Learning for Predictive Maintenance Testbed based on an interview by Howard Kradjel with Dr. Javier Díaz, followed by important updates on IIC activities in "What's New at the IIC" by Cheryl Rocheleau.

We welcome your feedback on this edition and what you would like to see covered in future editions. The theme of our next edition is Innovations on Intelligent Transportation Systems. Stay tuned!

Best Regards,

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[1] Gartner. Top 10 Strategic Technology Trends for 2019: Digital Twins. 13 March 2019.
https://www.gartner.com/en/documents/3904569/top-10-strategic-technology-trends-for-2019-digital-twin