CALL FOR PAPERS
IEEE TRANSACTIONS ON
AUTOMATION SCIENCE AND ENGINEERING

Special Issue on Learning from Imperfect Data for Industrial Automation

With the rapid development of advanced sensing, communication and the Industrial Internet of Things (IIoT) in the last two decades, it has become much easier to obtain, transmit and store a massive amount of real-world data nowadays. However, imperfect data is inevitable in real-world systems, such as outliers, contaminated, incomplete and inaccurate information in the data, or missed information in the data. Due to the loss of information or misleading information, data imperfection usually makes traditional data-driven methods either unfeasible or ending at undesired inaccuracies. This has been a well-known challenge to data-driven methods when applied to real-world systems and industries, such as process industry, manufacturing, energy network, and transportation systems.

This special issue aims to bring together the recent research developments of learning from data in academic and industrial communities of automation science, data science, industrial intelligence, and control engineering. It is to provide an overview of the state-of-art in learning from imperfect data for industrial automation and share the recent progress achieved and lessons learned, new theories and methods to deal with industrial imperfect data, in the hope to foster theoretical research of industrial intelligence and it applications. Both regular papers and technical notes with scientific results and/or application in industries are welcome. Topics that are included but not limited to:

- Foundation and theory of learning of imperfect data
- Statistic analytics and learning of imperfect data
- Modeling and identification of physical system with imperfect data
- Data-driven monitoring, control and optimization with imperfect data
- Control performance assessment with imperfect data
- Imperfect-data tolerance control of dynamic systems
- Robust clustering, regression and classification for modelling and condition monitoring
- Robustness of learning-based modeling, monitoring and optimization
- Distributed learning over distributed systems subject to imperfect data
- Optimization for machine learning subject to imperfect data
- Combining model-based and learning-driven control system
- Applications of learning from imperfect data in manufacturing, energy networks, transportation systems, etc.

Important Dates:
- Paper submission deadline: October 1, 2022
- Completion of the first round review: February 1, 2023
- Completion of the second round review: June 1, 2023
- Final submission due: August 1, 2023
- Tentative publication date: December 2023

Guest Editors:

Dr. Ping Zhou
Northeastern University, China
zhouping@mail.neu.edu.cn

Dr. Xuewu Dai
Northumbria University, U.K.
xuewu.dai@northumbria.ac.uk

Dr. Puya Afshar
Yokogawa UK Ltd, U.K.
Puya.Afshar@uk.yokogawa.com

Dr. Kyriakos G. Vamvoudakis
Georgia Institute of Technology, USA
kyriakos@gatech.edu

Dr. Jan Faigl
Czech Technical University, CZ
faiglj@fel.cvut.cz

Dr. Hong Wang
Oak Ridge National Laboratory, USA
mikewanguk@yahoo.co.uk

Paper Submission

All papers are to be submitted through the IEEE's Manuscript Central for Transactions on Automation Science and Engineering http://mc.manuscriptcentral.com/t-ase. Please select the Manuscript Category "**Learning from Imperfect Data for Industrial Automation**-Based Special Issue" under "Type" in Step 1 and this specific Special Issue in Step 6 of your article's submission process. **All manuscripts must be prepared according to the IEEE Transactions on Automation Science and Engineering publication guidelines** (http://www.ieee-ras.org/publications/t-ase)**.** Please address inquiries to [mikewanguk@yahoo.co.uk].