

Editorial

Information Processing in Engineering System Reliability Assessment and Management

WITH the emergence of new technologies, such as cyber-physical systems and industrial Internet of Things, many engineering systems are integrated with networked sensors and software, bringing a massive amount of failure and lifetime data, condition monitoring data, and inspection data. It, therefore, strongly necessitates novel methods and tools to facilitate reliability engineers adequately treat these reliability-related data for system reliability assessment and management. On the other hand, the new technologies have brought out a plethora of new commissioned systems in which no observed failure data or few data exist. In this case, the quantity and completeness of data may be insufficient using statistical models and tools. Reliability modeling and assessment for such systems should resort to new methodologies with the help of historical data from similar systems or even subjective knowledge with uncertainties. Even though reliability assessment and health management with massive/limited data have been proposed from many perspectives, it is still of great significance to deeply explore them in industry and academia.

This Special Section on Information Processing in Engineering System Reliability Assessment and Management is to explore scientific paradigms, models, methods, and technologies with solid theoretical development and practical applications to reshape the information processing in reliability assessment and management for engineered systems. This Special Section was handled by four distinguished guest editors: Professor Yu Liu, Professor Shunming Li, Dr. Jeffrey M. Voas, and Professor Zhaojun (Steven) Li. Their efforts and contributions are greatly appreciated.

At the same time, we would like to take this opportunity to promote a series of special sections on trustworthy computing. It is one of the important topics in the scope of

the IEEE TRANSACTIONS ON RELIABILITY (TReI). Trustworthy computing is intended to ensure security, availability, and reliability in cyberspace. All these special sections are intended to cover a wide range of emerging technologies on this topic. TReI strives for diversity of areas and papers. Besides traditional research papers, empirical and survey papers are all encouraged. All special sections welcome empirical and analysis papers that facilitate in-depth studies and comparisons of existing techniques. On the other hand, high-quality survey articles for emerging technologies are also welcome. These special sections with rolling acceptance allow the authors to submit their papers any time. No need to wait until the deadline. Once an article is accepted, its accepted version will be published Early Access on IEEE Xplore. Submissions in the emerging fields are solicited to the following ongoing special sections:

- 1) *TReI-TAAD*: Special Section on Trustworthy AI for Autonomous Driving
- 2) *TReI-SR6G*: Special Section on Security and Reliability of 5G/6G Mobile Networks
- 3) *TReI-CPS*: Special Section on AI and ML for Resilience Assessment and Enhancement of Cyber-Physical Systems
- 4) *TReI-ECTIS*: Special Section on Enterprise Cybersecurity and Threat Intelligence at Scale
- 5) *TReI-HS*: Special Section on Hardware Security.

Call for Papers can be found at <https://rs.ieee.org/publications/transactions-on-reliability.html>. Please feel free to contact the special section editors for further details.

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