

CALL FOR PAPERS

6th International Workshop on

Theory of Reliability and Markov Modeling for Information Technologies

(WS TheRMIT 2020, in frameworks of the 16th International Conference ICTERI2020)

<http://icteri.org/icteri-2020/workshops-calls-for-papers/thermit-2020/>

Background

Implementation of information and communication technologies (IT) into critical domains (nuclear plants and energy grids, ship, railway, aviation and automotive transport, chemistry, oil and gas industry, health systems, etc.) has caused unprecedented dependence of their security and safety on software, hardware, HMI components reliability. There is a gap between researchers of mathematical methods for reliability, safety, security and dependability as a whole, on the one side, and engineers who develop critical systems, auditors who assess and assure dependability during life cycle stages, on the other side. Academic researchers do not take into account the requirements and restrictions of engineering practice as it's needed. Engineers are concerned with assurance of reliability for developed systems according to specifications and standards. There are not approved assessment techniques for SW reliability, dependability of cloud and edge computing, IoT applications, SDN and data centers, Big Data and predictive analytics, AR/VR applications and so on.

Cooperation between the mathematicians and the IT-engineers in area reliability/safety/security is very important. We invite researchers, engineers and experts to discuss problems of application of modern theory of reliability and safety, cybersecurity and resilience, Markov's models and other mathematic methods for more accurate assessment and creation of dependable IT systems.

Key topics

The 6th WS TheRMIT focus on:

- modern information technologies, systems and IT-infrastructures as objects of reliability (dependability, safety, security and resilience) regulation, modeling, assessment and assurance;
- application of software tools for IT reliability analysis and assessment, decision supporting/making on development of dependable (safe, secure, high available, resilient) IT systems;
- methods for cyber security and safety assurance of industrial systems in context Industry 4.0.

Key domains are safety, security, mission and business critical IT and systems. The main topics for discussion on the WS agenda include, but are not limited to the following:

- Standards, regulation and taxonomy of reliability, dependability and resilience, safety and cyber safety, security and cybersecurity: Which are new challenges and requirements to the IT-components, systems and infrastructures attributes assessment?
- Methodological aspects of reliability and safety theory, dependable computing, Markov's models and other mathematical methods for development, operation and reengineering of IT systems: What are new approaches, industry and business related issues?
- Artificial intelligence, digital twins, predictive analytics and maintenance for assurance of cybersecurity of industrial systems in conditions of implementing Industry 4.0. Analysis of industrial cases. Which methods, techniques and tools can be applied?

- Balancing of performance, reliability, power consumption and security for embedded and distributed systems: How to choose the technique for providing sustainable development of IT and IT-systems, green computing and communication?

- Software quality, reliability, security and dependability of software and software-based systems: How probabilistic or deterministic, BD and AI based methods can be applied? How software and system reliability models and assessment techniques can be embedded into business processes and industry tools?

- Availability and resilience of large-scale distributed and edge computing and communication. Web-, cloud-, IoT-based systems: How the problems of evolvability, complexity and uncertainty can be taken into account?

- Markovian chain-based techniques and tools (T&T) for assessing of high availability IT-systems: How to choose techniques and tools to assure accuracy, stability and effectiveness of assessment for complex and high available systems?

The topics of WS panel discussion: Challenges, models and techniques for safety and security assessment and assurance of IoT and cyber physical systems in context Industry 4.0.

The WS will continue interesting discussions and presented outcomes of the previous WSs TheRMIT (<http://www.icteri.org/workshop-TheRMIT2015>, <http://icteri.org/workshop-TheRMIT2016>, <http://www.icteri.org/workshop-TheRMIT2017>, <http://icteri.org/workshop-TheRMIT2018> and <http://icteri.org/workshop-TheRMIT2019>), held in frameworks of ICTERI2015-ICTERI2019.

Submission Types and Requirements

The language of the WS is English as main ICTERI Conference. The following submission types are preferable (similar main track <http://icteri.org/icteri-2020/submission-types/>):

- regular and short research papers;
- short research papers;
- discussion, surveys or problems analysis papers;
- industry experience reports and case studies.

Accepted papers will be published in the Proceedings: CEUR-WS, indexed by Scopus. Evaluation criteria are equivalent to the ones of the main ICTERI Conference. Please refer to <http://icteri.org/icteri-2020/evaluation-criteria/> and see instructions for paper submission <http://icteri.org/icteri-2020/how-to-submit-your-paper/> for more details.

The best WS papers, among the accepted and presented at the conference, may be selected by the ICTERI steering committee and invited to be revised and extended for the ICTERI post-proceedings volume. The post-proceedings of ICTERI are traditionally published by Springer Communications in Computer and Information Science (CCIS) series. Post-proceedings is indexed by Scopus, DBLP, EI-Compindex, Mathematical Reviews, SCImago.

All accepted papers are presented at the WS by one of their authors. The author who presents the paper must register and physically attend the conference. The Program Chairs of ICTERI 2020 reserve the right to withdraw the papers which have not been presented at the WS from the proceedings of ICTERI 2020.

Workshop Organizers

WS Chair:

Vyacheslav Kharchenko, National Aerospace University "KhAI", Centre for Safety Infrastructure-Oriented Research and Analysis, Ukraine

WS Co-chairs:

- Prof Elena Zaitseva, Žilina University, Slovakia;
- Dr Dr Nikos Bardis, Hellenic Army Academy, Greece;
- Prof Bogdan Volochiy, Lviv Polytechnic National University, Ukraine;

Workshop Program Committee (TBC)

- Dr De-Jiu Chen, KTH University, Stockholm, Sweden;
- Dr Nikolaus Doukas, Hellenic Army Academy, Greece
- Prof Anatoliy Gorbenko, Leeds Beckett University, United Kingdom
- Dr Mario Fusani, Institute of Information Science and Technologies, CNR, Italy
- Dr Anton Kamenskih, Perm Research Technical University, Russia
- Prof Yuriy Kondratenko, Black Sea State University named after Petro Mohyla, Ukraine
- Dr Ah-lian Kor, Leeds Beckett University, United Kingdom
- Prof Vitaly Levashenko, Žilina University, Slovakia
- Prof Dmitriy Maevskiy, Odessa National Polytechnic University, Ukraine
- Dr Olexandr Gordieiev, University of Banking, National Bank of Ukraine
- Dr Oleg Odarushchenko, Research and Production Company Radiy, Ukraine
- Dr Yuriy Ponochovnyj, Poltava National Technical National University, Ukraine
- Prof Andrzej Rusincki, New Hampshire University, USA
- Prof Vladimir Sklyar, Research and Production Company Radiy, Ukraine
- Prof Larisa Titarenko, University of Zelena Gura, Poland
- Prof Jüri Vain, Tallinn University of Technology, Estonia
- Dr Sergiy Vilkomir, East Carolina University, USA
- Prof Irina Yatskiv, DrS, Professor, Transport and Telecommunication Institute, Latvia
- Prof Vladimir Zaslavskiy, Taras Shevchenko National University of Kyiv, Ukraine

Important dates

- Monday, 30.03.2020 – submission of Workshop Papers
- Monday, 20.04.2020 - acceptance notification for Workshop Papers
- Monday, 11.05.2020 – submission of camera ready papers
- Monday, 11.05.2020 – registration deadline for workshop authors
- Tuesday, 16.06.2020 – the WS day

No Fees

The WS does not charge any conference fee. Participation is free, expenses are covered by ICTERI 2020 sponsors.