



CALL FOR PAPERS

5th International Workshop on

Theory of Reliability and Markov Modeling for Information Technologies

(WS TheRMIT 2019, in frameworks of the 15th International Conference ICTERI2019)

<http://icteri.org/icteri-2019/workshops-calls-for-papers/thermit-2019/>

Background

Implementation of information and communication technologies (IT) into critical systems (NPPs and energy grids, aerospace complexes, railway and automotive systems, health systems, etc.) cause unprecedented dependence of system security and safety on reliability of software, hardware and human-machine interaction components. There is a gap between researchers of mathematical methods for reliability (safety), on the one side, and auditors and engineers who develop critical systems, assess and assure dependability during all life cycle stages, on the other side. Mathematicians and academic researchers do not take into account the particularities/restrictions/requirements of engineering practice. Engineers are concerned with assurance of reliability for developed systems according to specifications and standard requirements. For modern IT there are not approved assessment techniques (SW reliability, dependability of cloud, fog and dew computing, edge computing and industrial IoT applications, software defined networks/data centers, big data based systems, AR/VR applications and so on).

Hence, development of practice-oriented cooperation between the mathematicians and the IT-engineers in area reliability/safety/security is very important. We would like to invite researchers, engineers and experts to discuss problems of development and application of modern theory of reliability and safety, Markov's models for assessment and creation of dependable and resilient IT applications.

Key topics

The 5th 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 reliable (dependable, safe, high available and resilient) IT-based systems.

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:

- 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 modern challenges, new approaches, industry and business related issues?
- Standards, regulation and taxonomy of reliability, dependability and resilience, safety and cyber safety, security and cybersecurity: Which are requirements to attributes, interconnection and borders of the theories for IT-components, systems and infrastructures?
- Balancing of performance, reliability, power consumption and security for embedded and distributed systems: How to develop scalable and cost efficient dependable solutions? How to choice the

technique for providing sustainable development of IT and IT-systems, green computing and communication;

- Software reliability, security and dependability of software and software-based systems: How balance and conditions of application for probabilistic or deterministic methods, theoretical and technology oriented techniques can be reached? How software reliability models and assessment techniques can be embedded into business processes and industry tools? How Big Data based methods can be applied for prediction of software reliability and security?

- 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?

- A diversity principle for multi-version SW- and FPGA-based system reliability, safety and security: How risks of common cause failures/accidents can be assessed and decreased considering absence of representative statistical data?

- 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 topic of WS panel discussion: Challenges, models and techniques for cyber safety and security assessment and assurance of IIoT-based systems: industry 4.0 context.

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> and <http://icteri.org/workshop-TheRMIT2018>), held in frameworks of ICTERI2015-ICTERI2018

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-2019/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-2019/evaluation-criteria/> and see instructions for paper submission <http://icteri.org/icteri-2019/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-Compendex, 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 2019 reserve the right to withdraw the papers which have not been presented at the WS from the proceedings of ICTERI 2019.

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 De-Jiu Chen, KTH University, Stockholm, Sweden;
- Prof Bogdan Volochiy, Lviv Polytechnic National University, Ukraine

Workshop Program Committee (TBC)

- Dr Nikos Bardis, University of Athens, Greece
- 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 Dmitry Maevsky, 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 Ponochohnyj, 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 Vladimir Zaslavskiy, Taras Shevchenko National University of Kyiv, Ukraine

Important dates

- Monday, 25.03.2019 – submission of Workshop Papers
- Monday, 22.04.2019 - acceptance notification for Workshop Papers
- Monday, 06.05.2019 – submission of camera ready papers
- Monday, 06.05.2019 – registration deadline for workshop authors
- Wednesday, 12.06.2019 – the WS day

No Fees

The WS does not charge any conference fee. Participation is free, expenses are covered by ICTERI 2019 sponsors.