



11-14 September, 2018

Lviv, Ukraine

<http://csit.lp.edu.ua/>

csit.conference@gmail.com

# COMPUTER SCIENCE AND INFORMATION TECHNOLOGIES

XIII<sup>th</sup> International Scientific and Technical Conference

## CONFERENCE PROGRAMME



IEEE Ukraine Section

IEEE West Ukraine

AP/ED/MTT/CPMT/SSC Societies

Joint Chapter



Ministry of

Education and

Science of Ukraine



National Academy of Sciences of  
Ukraine



Lviv Polytechnic

National University



Institute of Computer Science and Information  
Technologies



Politechnika Łódzka



Kharkiv National University of  
Radio Electronics

11-14 September, 2018

Lviv, Ukraine

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11-14 September, 2018, Lviv, Ukraine

## General CSIT 2018 Timetable

	September 11
09.00–10.00	Registration
10.00–10.30	Conference opening (The Assembly Hall, main building)
10.30–17.40	Plenary session CSIT + IWIM+ IWPM+IWIMDK (The Assembly Hall, main building)
18.00 –20.00	Excursion
	September 12
10.00–16.15	International workshop on Inductive modeling (Room 204, Main Building,)
10.00–17.15	Session 1 (Room 807, Building #5)
10.00–17.15	Session 2 (Room 809, Building # 5)
10.00–12.00	Session 3 (Room 324, Building #4)
10.00–15.30	Session 4 (Room 117, Building #4)
10.00–14.30	Session 5 (Room 908, Building #5)
10.00–17.00	Session 6 (Room 104, Building #5)
10.00–16.15	International Workshop on Information modeling. Data and knowledge engineering (SoftServe)
14.30–17.00	International workshop on Project management (Room 207, Building #6a)
18.00–20.00	Excursion to city center
	September 13
10.00–12.00	Session 7 (Room 807, Building #5)
10.00–12.30	Session 8 (Room 809, Building #5)
10.00–12.30	Session 9 (Room 908, Building #5)
14.00–15.00	Final session (The Assembly Hall, main building)
15.00–17.30	Celebrating 40th Anniversary of the School “Information modeling. Data and knowledge engineering” (The Assembly Hall, main building)
18.00–20.30	Excursion to city center
	September 14
09.00–16.00	Excursion
12.00–13.00	Close ceremony

## TIME FOR PRESENTATIONS

Paper presentation at the plenary session – 35 min.

Paper presentation at the regular session – 15 min.

Discussion, questions – 3 min.

**CSIT 2018**

**XIIIth International Scientific and Technical Conference**

**COMPUTER SCIENCE AND  
INFORMATION TECHNOLOGIES**

**Organized by:**

IEEE Ukraine Section

IEEE West Ukraine AP/ED/MTT/CPMT/SSC Societies Joint Chapter

Lviv Polytechnic National University

National Academy of Sciences of Ukraine

Institute of Computer Science and Information Technologies

Technical University of Lodz, Lodz, Poland

Kharkiv National University of Radio Electronics, Kharkiv, Ukraine

International research and training center for information technologies  
and systems

**Patronage:** Ministry of Education and Science of Ukraine

**Lviv, UKRAINE**

**11–14 September 2018**

## INTERNATIONAL PROGRAM COMMITTEE

- Bobalo Yu.** Conference Honorary Chairman, Lviv Polytechnic National University, Ukraine
- Medykovskyy M.** Conference Executive Chairman, Lviv Polytechnic National University, Ukraine
- Stepashko V.** Chairman of International workshop on Inductive Modelling, International Research and Training Centre for Information Technologies and Systems of the NAS and MES of Ukraine
- Bushuyev S.** Chairman of International workshop on Project Management, PhD, Dr. Sc., Professor at Kiev National University of Construction and Architecture, President of Ukrainian Association of Project Management, Ukraine
- Andriychuk M.** IEEE MTT/ED/AP/CPMT/SSC, West Ukraine Chapter, Ukraine
- Antonov P.** Technical University of Varna, Computer Communications, Bulgaria
- Arkhangelska A.** Palacky University in Olomouc, Czech Republic
- Bazylevych R.** Lviv Polytechnic National University, Ukraine
- Bidyuk P.** National Technical University of Ukraine "Kyiv Polytechnic Institute"
- Bisikalo O.** Vinnytsia National Technical University, Ukraine
- Camacho A.** Universidad Complutense de Madrid, Spain
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- Czachorski T.** Institute of Theoretical and Applied Informatics Polish Academy of Sciences, Poland
- Cardiff J.** Institute of Technology Tallaght (ITT), Ireland
- Cañizares P.** Universidad Complutense de Madrid, Spain
- Čekerevac Z.** "Union - Nikola Tesla" University in Belgrade, Serbia
- Danel R.** Technical University of Ostrava, Ostrava, Czech Republic
- Danilova V.** Russian Presidential Academy of national economy and public administration
- Dupas R.** University of Bordeaux, France
- Filatov V.** Kharkiv National University of Radioelectronics, Ukraine
- Fedasyuk D.** Lviv Polytechnic National University, Ukraine
- Gelenbe E.** Electrical and Electronic Engineering at Imperial College, London, United Kingdom
- Gozhyj O.** Petro Mohyla Black Sea State University, Ukraine
- Gospodarczyk J.** University of Economy, Bydgoszcz, Poland
- Haxhimusa Y.** Vienna University of Technology, Austria
- Krasowski E.** Polish Academy of Sciences Branch in Lublin, Poland
- Levchenko O.** Lviv Polytechnic National University, Ukraine
- Lipiński P.** Technical University of Lodz, Poland
- Lobur M.** Lviv Polytechnic National University, Ukraine
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- Marcus J.** Miami University, Oxford, Ohio
- Novak L.** University of Zilina, Slovakia
- Pasichnyk V.** Lviv Polytechnic National University, Ukraine
- Pawlak A.** Silesian University of Technology, Gliwice, Poland
- Puchala D.** Lodz University of Technology, Poland
- Prasad B.** Florida A&M University, Tallahassee, USA
- Rogowski Y.** Technical University of Lodz, Poland
- Rosso P.** Polytechnic University of Valencia (UPV), Spain
- Scheller-Boltz D.** Universitat Innsbruck, Austria
- Seifert C.** Passau University (PU), Germany
- Shakhovska N.** Lviv Polytechnic National University, Ukraine
- Shyrokov V.** Ukrainian Language-Informational Centre, NASU, Ukraine
- Sikora L.** Lviv Polytechnic National University, Ukraine
- Spalek J.** University of Zilina, Slovakia
- Szymanski Z.** Spoleczna Akademia Nauk, Poland

<b>Telenyk S.</b>	National Technical University of Ukraine "Kyiv Polytechnic Institute"
<b>Tsmots I.</b>	Lviv Polytechnic National University, Ukraine
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<b>Yatsymirskyy M.</b>	Lodz University of Technology, Poland
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<b>Yarovyi A.</b>	Vinnytsia National Technical University, Ukraine
<b>Yerokhin A.</b>	Kharkiv National University of Radioelectronics, Ukraine
<b>Korablyov M.</b>	Kharkiv National University of Radioelectronics, Ukraine
<b>Kunanets N.</b>	Lviv Polytechnic National University, Ukraine
<b>Yurish S.</b>	Technical University of Catalonia, Barcelona, Spain
<b>Zakharov V.</b>	Saint Petersburg State University (SPbSU), Russia
<b>Zakrzewska D.</b>	Technical University of Lodz, Poland
<b>Zizka J.</b>	Mendel University in Brno (MendelU), Czech Republic

## CONFERENCE ORGANIZING COMMITTEE

**Prof. Mykola Medykovskyy, Chairman**, Director of Institute of Computer Sciences and Information Technologies of Lviv Polytechnic National University, Ukraine

**Natalia Shakhovska, Publication Chair**, AI Department, Lviv Polytechnic National University, Ukraine

**Olena Vovk, Treasurer**, AI Department, Lviv Polytechnic National University, Ukraine

**Tetiana Shestakevych, Secretary**, ISN Department, Lviv Polytechnic National University

**Members: Olexa Skorohoda, Rostyslav Kryvyy, Max Seniv, Mykhaylo Melnyk, Iryna Yurchak, Zoriana Rybchak, Oleh Basystiuk, Iryna Zavuschak, Vasyl Dubuk**

**PLENARY SESSION**, The Assembly Hall of Lviv Polytechnic National University, main building

10.00-10.30 Conference opening

**Chairman: Prof. Yu. Bobalo, Prof. M. Medykovskyy Secretary: Tetiana**

**Shestakevych**

10:30 – 11:00	<b>Sergio Montenegro</b> How to make safety relevant software: Make it simple!
11:00 – 11:30	<b>Roman Danel</b> Education and Research in Informatics and Automation at Faculty of Mining and Geology
11:30 – 12:00	<b>Leonid Lyubchik</b> Decentralized Load Balancing Consensus Control in Distributed Computing Systems
12:00 – 12:30	Coffee break
12:30 – 13:00	<b>Tadeusz Czahorsky</b> Queueing models of traffic control and performance evaluation in large Internet topologies
13:00 – 13:30	<b>Jamshid Dehmeshki</b>
13:30 – 14:30	Dinner
14:30 – 15:00	<b>Geir Myhre</b> How AI is transforming traditional businesses – some practical examples
15:00 – 15:30	<b>Tetiana Shestakevych, Volodymyr Pasichnyk, Nataliia Kunanets, Mykola Medykovskyy, Natalya Antonyuk</b> The content web-accessibility of information and technology support in a complex system of educational and social inclusion
15:30 – 16:00	<b>Volodymyr Stepashko</b> From Inductive to Intelligent Modeling
16:00 – 16.15	Coffee break
16:15 – 16:45	<b>Frank Lemke</b> Self-organizing Inductive Modeling for Probabilistic Electricity Price Forecasting
16:45 – 17:10	<b>Yuriy Zaychenko</b> Fuzzy Inductive Modeling Method and its Application in Forecasting Problems
17:10 – 17:40	<b>Liliya Akhtyamova, Mikhail Alexandrov, John Cardiff, Olexiy Koshulko</b> Building Classifiers with GMDH for Health Social Networks (DB AskaPatient)
18:00 – 22:00	Excursion

	September 12
10.00–17.30	International workshop on Inductive modeling (Room 204, Main Building)

## International workshop on Inductive modeling

**Chairman: Prof. Volodymyr Stepashko**

10:00 – 10:20	<b>Serhiy Yefimenko</b> Construction of Intelligent Information Technology for Inductive Modeling of Complex Processes on the Basis of Recurrent-and-Parallel Computations
10:20 – 10:40	<b>Yevgeniya Savchenko, Volodymyr Stepashko</b> Metamodeling as a Way to Universalization of Inductive Modeling Tools
10:40 – 11:00	<b>Gregory Ivakhnenko</b> Inductive GMDH-Based Approach to Hierarchical Forecasting
11:00 – 11:20	<b>Volodymyr Osypenko, Viktor Kaplun</b> On Modeling-Based Elements of an Intelligent System for Cost-Effective Dispatching of Energy Islands with Photovoltaic Sources
11:20 – 11:40	<b>Coffee break</b>
11:40 – 12:00	<b>Yevgeniya Savchenko, Volodymyr Stepashko, Olena Tokova</b> A New Method of Comparing Cooling Curves to Recognize the Casting Quality
12:00 – 12:20	<b>Angels Catena, Mikhail Alexandrov, Dmitry Stefanovskiy</b> Simple Models for Assessment of Phrase Tonality
12:20 – 12:40	<b>Viacheslav Zosimov, Oleksandra Bulgakova</b> Usage of Inductive Algorithms for Building a Search Results Ranking Model Based on Visitor Rating Evaluations
12:40 – 13:00	<b>Mykola Dyvak, Natalia Porplytsya, Volodymyr Tymets, Yurii Maslyiak</b> Method of Structural Identification of a Model for Recurrent Laryngeal Nerve Localization
13.00 – 13.20	<b>Dinner</b>
13:20 – 14:30	<b>S.V. Tyulyupo, A.A. Andrakhanov, B.A. Dashieva, A.V. Tyryshkin</b> Adolescents Psychological Well-Being Estimation Based on a Data Mining Algorithm
14:30 – 14:50	<b>Olha Moroz, Volodymyr Stepashko</b> Data reconstruction of seasonal changes of amylolytic microorganisms amount in copper polluted soils
14:50 – 15:10	<b>Coffee break</b>
15:10 – 15:30	<b>Iryna Lurie, Volodymyr Lytvynenko, Volodymyr Osypenko, Maria Voronenko</b> The Use of Inductive Methods for Determination of the Binding Affinity of Interacting Biological Molecules
15:30 – 16:00	<b>General discussion</b>
16:00 – 16:15	<b>IWIM-2017 Closing ceremony</b>
18.00 – 20.00	<b>Excursion</b>

## SESSION 1, Building #5, Room 807

September 12

10<sup>00</sup>-17<sup>15</sup>

### Intelligence-management technologies

**Chairman: Prof. Ivan Tsmots**

10:00 – 10:15	<b>Petro Kravets</b> Game Method for Coalitions Formation in Multi-Agent Systems
10:15 – 10:30	<b>Mariia Mazorchuk, Viktoriia Dobriak, Dmytro Chumachenko</b> Web-application Development for Tasks of Prediction in Medical Domain
10:30 – 10:45	<b>Sergiy Yemelyanenko, Yuriy Rudyk, Andriy Ivanusa</b> Geoinformational system for risk assessment visualization
10:45 – 11:00	<b>Bohdan Rusyn, Victoria Vysotska, Liubomyr Pohreliuk</b> Model and Architecture for Virtual Library Information System
11:00 – 11:15	<b>Oksana Yehorova</b> Fuzzy Model of Environmental Risk Determination of water objects pollution
11:15 – 11:30	<b>Olha Yehorova</b> Evolutionary Technique of completing specialists teams for IT company projects
11:30 – 12:00	<b>Coffee break</b>
12:00 – 12:15	<b>Victor Peredery, Evgeny Borchik, Jan Krejci, Mariia Voronenko</b> Information technology of operative formation and evaluation of relevant alternatives of decision-making in ergatic systems of critical application
12:15 – 12:30	<b>Nataliia Dotsenko, Dmytro Chumachenko, Igor Chumachenko</b> Modeling of the processes of stakeholder involvement in command management in a multi-project environment
12:30 – 12:45	<b>Artem Kazarian, Vasyl Teslyuk, Ivan Tsmots</b> Development of face recognition module for a "smart home" system using a remote server
12:45 – 13:00	<b>Andrii Biloshchytskyi, Alexander Kuchansky, Yurii Andrashko, Olena Bielova</b> Learning space conceptual model for computing games developers
13:00 – 13:15	<b>Myroslava Bublyk, Olga Rybytska, Anastasiya Karpiak, Yurii Matseliukh</b> Structuring the fuzzy knowledge base of the IT industry impact factors
13:15 – 13:30	<b>Eduard Zharikov, Oleksandr Rolik, Sergii Telenyk</b> A decomposition approach to hierarchical management of cloud data center services
13.30 – 14:30	<b>Dinner</b>
14:30 – 14:45	<b>Daniel Skrybaylo-Leskiv, Volodymyr Riznyk</b> Algebraic Modeling of Error-Correcting Codes for Info-Communication Systems
14:45 – 15:00	<b>Pavel Važan, Zuzana Červeňanská</b> Comparison of the Scalarization Approaches in Many-Objective Simulation-Based Optimization in Production System Control
15:00 – 15:15	<b>Pavel Važan, Jaroslav Znamenák, Martin Juhás</b> Proactive Simulation in Production Line Control
15:15 – 15:30	<b>Artur Zaporozhets, Volodymyr Eremenko, Roman Serhiienko, Sergiy Ivanov</b> Development of an intelligent system for diagnosing the technical condition of the heat power equipment
15:30 – 16:00	<b>Coffee break</b>
16:00 – 16:15	<b>Volodymyr Gorokhovatskyi, Svitlana Gadetska</b> Classification of Images of Visual Objects Based on Statistical Relevance Measures of Their Structural Descriptions
16:15 – 16:30	<b>Anzhelika Stakhova, Volodymyr Kvasnikov</b> Structure Construction of Acoustic Emission System for Diagnostic of Friction Clusters
16:30 – 16:45	<b>Ivanna Dronyuk, Iryna Moyseyenko, Jerzy Kuck</b> Information Technologies for Providing Project-Process Management in Law Enforcement Structures
16:45 – 17:00	<b>Andrii Safonyk, Ivan Targoniy, Yuriy Martyniuk, Andrii Bomba</b> Research and automation of the process of wastewater treatment electrocoagulation
17:00 – 17:15	<b>Oleg Riznyk, Yurii Kynash, Oleksandr Povshuk, Yurii Noga</b> The Method of Encoding Information in the Images Using Numerical Line Bundles
18.00 – 20.00	<b>Excursion</b>



## SESSION 2

### (Room 809, Building #5)

<b>September 12</b>	<b>10<sup>00</sup>-17<sup>15</sup></b>
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### Software engineering

**Chairman: Prof. Vitalij Yakovyna**

10:00 – 10:15	<b>Petro Topylko, Igor Penyak, Bogdan Lybinsky</b> An approach for the spatial analysis of solar energy potential: a case study for Lviv region.
10:15 – 10:30	<b>Oleg Mastykash, Andriy Peleshchyshyn, Solomiia Fedushko, Olha Trach, Yuriy Syerov</b> Internet Social Environmental Platforms Data Representation
10:30 – 10:45	<b>Tetiana Hovorushchenko, Olga Pavlova</b> Evaluating the Software Requirements Specifications Using Ontology-Based Intelligent Agent
10:45 – 11:00	<b>Sefa Aras, Eyup Gedikli, Ozcan Ozyurt</b> Development of Programming Learning Environment With Compiler Techniques"
11:00 – 11:15	<b>Elena Balalayeva, Volodymyr Kukhar</b> Software Development and Modeling of the Work of Extrusion Rams with Elastic Compensators
11:15 – 11:30	<b>Sofi Pobereyko, Yaroslav Sokolovskyy, Andriy Holovatyy, Bohdan Pobereyko</b> Mathematical Model and Software for Determination of Short-Term Strength of Anisotropic Composite Materials
11:30 – 12:00	<b>Coffee break</b>
12:00 – 12:15	<b>Valeriya Savchuk, Olga Lozynska, Volodymyr Pasichnyk</b> Modeling of informational and technological support of the tourist profile formation process
12:15 – 12:30	<b>Vira Liubchenko</b> Queueing Modeling in the Course in Software Architecture Design
12:30 – 12:45	<b>V. Savchuk, V. Pasichnyk</b> Modelling decision-making processes in the field of individual tourism
12:45 – 13:00	<b>Volodymyr Hnatushenko, Kateryna Sierikova, Ivan Sierikov</b> Development of a Cloud-Based Web Geospatial Information System for Agricultural Monitoring Using Sentinel-2 Data
13:00 – 13:15	<b>V. F. Emets, Jan Rogowski</b> Comparative Analysis of Event Propagation Methods on Android Platform
13:15 – 13:30	<b>Martin Juhás, Bohuslava Juhásová, Igor Halenár</b> Augmented Reality in Education 4.0
13:30 – 14:30	<b>Dinner</b>
14:30 – 14:45	<b>Olha Tokar, Serhii Havryliuk, Mykola Korol, Olena Vovk, Lubov Kolyasa</b> Using the Random Forest Classification for land cover interpretation of Landsat images in the Prykarpattya region of Ukraine
14:45 – 15:00	<b>Ihor Prots'ko, Roman Rikmas, Vasyl Teslyuk</b> The efficient computation of integer DCT based on cyclic convolutions
15:00 – 15:15	<b>Sergei Yelmanov, Yuriy Romanyshyn</b> A New Technique for Image Enhancement based on the Use of Mean Values for Subranges of Brightness
15:15 – 15:30	<b>Irina Pelekh</b> Principles of Mashup System Semistructured Data Processing
15:30 – 16:00	<b>Coffee break</b>
16:00 – 16:15	<b>Sergei Yelmanov, Yuriy Romanyshyn</b> Assessment of Perceived Contrast for Complex Images
16:15 – 16:30	<b>Taisa Borovska, Andriy Kushnir, Irina Kolesnyk, Inna Vernigora</b> Control of multi-channel multiphase queueing system based on optimal aggregation methodology
16:30 – 16:45	<b>Volodymyr Akhmetov, Artem Dmytrenko, Sergii Khlamov</b> Fast coordinate cross-match tool for large astronomical catalogue
16:45 – 17:00	<b>Pavlo Zhezhnych, Dmytro Tarasov</b> Methods of data processing restriction in ERP systems
17:00 – 17:15	<b>Volodymyr Voityshyn, Anatoliy Batyuk</b> Streaming Process Discovery for Lambda Architecture-based Process Monitoring Platform
18.00 – 20.00	<b>Excursion</b>

## SESSION 3, Building #4, Room 324

**September 12**

**10<sup>00</sup>-12<sup>00</sup>**

### Cyber-physical systems

**Chairman: Prof. Mykhailo Lobur**

10:00 – 10:15	<b>Andriy Holovatyy, Sofi Pobereyko, Vasyl Teslyuk, Yaroslav Sokolovskyy, Mykhaylo Lobur</b> Development of Arduino-Based Embedded System for Detection of Toxic Gases in Air
10:15 – 10:30	<b>Andriy Holovatyy, Sofi Pobereyko, Vasyl Teslyuk, Yaroslav Sokolovskyy, Mykhaylo Lobur</b> Development of Background Radiation Monitoring System based on Arduino Platform
10:30 – 10:45	<b>Mykhaylo Lobur, Serhiy Shcherbovskykh, Krzysztof Kozlowski, Dariusz Pazderski</b> Experimental Analysis of Rotary Speed Observers for Electric Drive with Cascaded Control System
10:45 – 11:00	<b>Svitlana Popereshnyak, Olha Suprun, Oleh Suprun, Tadeusz Wieckowski</b> Personal Documents Identification System Development Using Neural Network
11:00 – 11:15	<b>Oleksandr Lemeshko, Oleksandra Yeremenko, Maryna Yevdokymenko</b> Tensor Model of Fault-Tolerant QoS Routing with Support of Bandwidth
11:15 – 12:00	<b>Coffee break</b>
18.00 – 22.00	<b>Excursion</b>

## SESSION 4

Building #4, Room 117

September 12

10<sup>00</sup>-16<sup>15</sup>

## Computation linguistics

Chairman: Prof. Olena Levchenko

10:00 – 10:15	<b>Ivan Kozak , Nataliia Kunanets ,Volodymyr Pasichnyk</b> The “Individual workbench for a corpus linguist” information system
10:15 – 10:30	<b>Oleksandr Tymchenko, Svitlana Vasiut, Orest Khamula</b> Optimization of the Mathematical Model of Factors of Composite design of Infographic
10:30 – 10:45	<b>Iryna Khomytska, Vasyl Teslyuk</b> Authorship Attribution by Differentiation of Phonostatistical Structures of Styles
10:45 – 11:00	<b>Iryna Karamysheva, Roksolana Nazarchuk, Maryna Fedoruk</b> Synonymic Connections of Cognitive Verbs in English and Ukrainian Languages: Applied Aspect
11:00 – 11:15	<b>Nataliia Romanyshyn</b> Application of computer technologies in conceptual analysis Concept UKRAINE in modern English and Ukrainian political discourse
11:15 – 11:30	<b>Ihor Kulchytskij, LarysaTsiokh, Mariia Malaniuk</b> Quantitative Equivalence Level In Poetry Translation
11:30 – 11:45	<b>Coffee break</b>
11.45 – 12.00	<b>Olena Levchenko, Marianna Dilai</b> Discourses Surrounding Feminism in Ukraine: a Sentiment Analysis of Twitter Data
12:00 – 12:15	<b>Volodymyr Ovsyak, Oleksandr Ovsyak, Julia Petruszka</b> A Model of Description of Grammar by Modified Algebra of Algorithms
12:15 – 12:30	<b>Andriy Peleshchyshyn, Volodymyr Vus, Oleksandr Markovets, Solomiia Albota</b> Identifying specific roles of users of social networks and their influence methods
12:30 – 12:45	<b>Victoria Vysotska, Olga Kanishcheva, Yulia Hlavcheva</b> Authorship Identification of the Scientific Text in Ukrainian with Using the Lingvometry Methods
12:45 – 13.00	<b>Kunanets Nataliia, Matsiuk Halyna</b> Application of Saaty Method while Choosing Thesaurus View Model of the “Smart city” Subject Domain for the Improvement of Information Retrieval Efficiency
13:00 – 13:15	<b>Andrij Peleschyshyn, Zoriana Holub, Ivanna Holub</b> The preliminary stage of the algorithm for detecting information and psychological manipulation in online communities
13:15 – 13:30	<b>Roksolana Perchach, Yulia Shyjka</b> The methodology of frequency dictionaries to the instructions to medical products (based on trilingual corpus)
13.30 – 14:30	<b>Dinner</b>
14:30 – 14:45	<b>Oleg Bisikalo, Yuriy Ivanov, Nataliia Karevina</b> Encoding of natural language information on the basis of the power set
14:45 – 15:00	<b>Victoria Vysotska, Vasyl Lytvyn, Mariya Hrendus, Oksana Brodyak, Solomiya Kubinska</b> Method of Textual Information Authorship Analysis Based on Stylometry
15:00 – 15:30	<b>Coffee break</b>
18.00 – 22.00	<b>Excursion</b>

## SESSION 5

Building #5, Room 908

September 12

10<sup>00</sup>-14<sup>30</sup>

## Mathematical modeling

Chairman: Prof. Lyubov Zhuravchak

10:00 – 10:15	<b>Oleg Trotsko, Sergii Shlyk</b> Development of the Mathematical Model for Sheet Blanks Forming Calculation Using Simulation in ANSYS Software
10:15 – 10:30	<b>Alexander Trunov, Alexander Malcheniuk</b> The Mesh Technology for Improving of End Nodes Updating for Lorawan Network
10:30 – 10:45	<b>Oksana Mulesa, Fedir Geche, Anatoliy Batyuk, Ivan Myronyuk</b> Using A Systematic Approach In The Process Of The Assessment Problem Analysis Of The Staff Capacity Within The Health Care Institution
10:45 – 11:00	<b>Dmitriy Kritskiy, Karatanov Alexander, Pashchuk Juliia, Sergei Koba</b> Modeling the characteristics of complex projects using parallel computing
11:00 – 11:15	<b>Yaroslav Sokolovskyy, Bogdana Gayvas, Iryna Boretska, Igor Kroshnyy</b> Mathematical modeling of the heat-mass-exchange in anisotropic environments taking into account the boundary of phase transition
11:15 – 11:45	<b>Coffee break</b>
11:45 – 12:00	<b>Roman Melnyk, Yurii Kalychak</b> Detection of Defects in Printed Circuit Boards by flood-fill Algorithm and Distributed Cumulative Histogram
12:00 – 12:15	<b>Sergiy Korotunov, Galyna Tabunshchyk, Carsten Wolff</b> Cyber-Physical Systems Architectures and Modeling Methods Analysis for Smart Grids
12:15 – 12:30	<b>Mykhailo Berdnyk</b> The mathematic model of and method for solving a generalized mixed boundary problem of heat exchange for the empty isotropic rotary body
12:30 – 12:45	<b>Volodymyr Shymanskyi, Yuriy Protsyk</b> Simulation of the Heat Conduction Process in the Claydite-Block Construction with Taking Into Account the Fractal Structure of the Material
12:45 – 13:00	<b>Vasyl Havrysh, Lubov Kolyasa, Vasyl Loik</b> Non-linear mathematical 3D model of determination of temperature field in thermosensitive layer with inclusion
13:00 – 13:15	<b>Pavlo Kurapov, Roman Yuzefovych, Ihor Javorskyj</b> Periodically non-stationary analytic signals and it's properties
13:15 – 13:30	<b>Petro Pukach, Volodymyr Il'kiv, Zinovii Nytrebych, Myroslava Vovk, Pavlo Pukach, Natalya Shakhovska</b> Galerkin Method and Qualitative Approach for the Investigation and Numerical Analysis of Some Dissipative Nonlinear Physical Systems
13.30 – 14:30	<b>Dinner</b>
18.00 – 22.00	<b>Excursion</b>

## SESSION 6, Building #5, Room 104

September 12

10<sup>00</sup>-17<sup>00</sup>

## Artificial Intelligence

Chairman: Prof. Roman Tkachenko, Prof. Nataliya Shakhovska

10:00 – 10:15	<b>Sergey Subbotin</b> Quasi-Relief Method of Informative Features Selection for Classification
10:15 – 10:30	<b>Hasan KOYUNCU, Rahime CEYLAN</b> Multithresholding of Benchmark Images by A Novel Optimization Approach
10:30 – 10:45	<b>Nataliya Shakhovska, Oleh Kosar</b> The methods for evaluating the quality of images with different types of noise
10:45 – 11:00	<b>Vasyl Lytvyn, Ivan Peleshchak, Roman Peleshchak, Victoria Vysotska</b> Recognition of the Satellite Spectral Information Based on the Synthesis of Modified Dynamic Neural Networks and Holographic Data Processing Techniques
11:00 – 11:15	<b>Vasyl Lytvyn, Victoria Vysotska, Yevhen Burov, Andriy Demchuk</b> Architectural ontology designed for intellectual analysis of e-tourism resources
11:15 – 11:30	<b>Dariusz Puchala, Kamil Stokfiszewski</b> GPU Accelerated Image Binarization Based on First and Second Order Integral Images
11:30 – 11:45	<b>Coffee break</b>
11:45 – 12:00	<b>Volodymyr Sherstjuk, Maryna Zharikova</b> Intelligent disaster diagnostic system
12:00 – 12:15	<b>Aleksandr Gozhyj, Iryna Kalinina, Victoria Vysotska, Victor Gozhyj</b> The Method of Web-resources management under conditions of uncertainty based on fuzzy logic
12:15 – 12:30	<b>Andrii Oliinyk, Sergey Subbotin, Valerii Lovkin, Serhii Leoshchenko, Tetiana Zaiko</b> Feature selection based on parallel stochastic computing
12:30 – 12:45	<b>Yaroslav Dorogyy, Vadym Kolisnichenko, Kseniia Levchenko</b> Violent Crime Detection System
12:45 – 13:00	<b>Mehmet Koc, Nihan Kazak Cercevik</b> Improving the Performance of Spiral Local Binary Pattern using Edge Information
13:00 – 13:15	<b>Grygorii Chetverikov, Oleksii Puzik, Olena Tyshchenko</b> Analysys of the problem of homonyms in the hyperchains construction for lexical units of natural language
13:15 – 13:30	<b>Serhii Lupenko, Oleksandra Orobchuk, Nataliya Stadnik, Andrii Zozulya</b> Modeling and signals processing using cyclic random functions
13:30 – 14:30	<b>Dinner</b>
14:30 – 14:45	<b>Vladislav Khramtsov, Vladimir Akhmetov</b> Machine-learning identification of extragalactic objects in the optical-infrared all-sky surveys
14:45 – 15:00	<b>Sergey Subbotin, Olga Gladkova, Anzhelika Parkhomenko</b> Knowledge-based Recommendation System for Embedded Systems Platform-oriented Design
15:00 – 15:15	<b>Sergiy Yakovlev, Oleksii Kartashov, Olga Yarovaya</b> On the Class of Genetic Algorithms in Optimization Problems on Combinatorial Configurations
15:15 – 15:30	<b>Mykola Korablyov, Natalia Axak, Dmytro Soloviov</b> Hybrid evolutionary decision-making model based on neural network and immune approaches
15:30 – 16:00	<b>Coffee break</b>
16:00 – 16:15	<b>Serhii Lupenko, Volodymyr Pasichnyk, Nataliia Kunanets</b> Axiomatic-deductive strategy of the organization of the content of academic discipline in the field of information technologies using the ontological approach
16:15 – 16:30	<b>V. Lytvyn, Volodymyr Kuchkovskiy, V. Vysotska, O. Markiv, Viktor Pabyrivskyy</b> Architecture of System for Content Integration and Formation Based on Cryptographic Consumer Needs
16:30 – 16:45	<b>Anastasiya Doroshenko, Roman Tkachenko</b> Classification of Imbalanced Classes using the Committee of Neural Networks
16:45 – 17:00	<b>Viktor Mashkov, Jiří Fišer, Volodymyr Lytvynenko, Maria Voronenko</b> Credibility of system self-checking when tests are performed randomly
18.00 – 22.00	<b>Excursion</b>

## International Workshop on Information modeling. Data and knowledge engineering SoftServe

September 12

10<sup>00</sup>-16<sup>15</sup>

### Information modeling, Data and knowledge engineering

**Chairman: Prof. Volodymyr Pasichnyk**

10:00 – 10:15	<b>Oleksij Duda, Oleksandr Matsiuk, Mykola Karpinski, Nataliia Veretennikova Nataliia Kunanets, Volodymyr Pasichnyk</b> Information Technologies of Internet Devices and BigData in the "Smart Cities" Projects
10:15 – 10:30	<b>Yaroslav Sokolovskyy, Maryana Levkovych, Olha Mokrytska, Yaroslav Kaplunskyy</b> Numerical Simulation and Analysis of Systems with Memory Based on Integro-differentiation of Fractional Order
10:30 – 10:45	<b>Sergiy Yakovlev, Oleksii Kartashov, Kyryl Korobchynskiy</b> The Informational Analytical Technologies of Synthesis of Optimal Spatial Configuration
10:45 – 11:00	<b>Nataliia Kunanets, Olena Levchenko, Anna Hadzalo</b> The application of AntConc concordancer in linguistic researches
11:00 – 11:15	<b>Mojeeb Al-Rhman AL-Khiaty</b> Ant Colony Optimization for Matching Class Diagrams
11:15 – 11:30	<b>Victor Krisilov, Katherine Gorodnichaya, Ngoc Huy Vu</b> Method of adapting content by the volume of transmitted information on the Internet
11:30 – 11:45	<b>Coffee break</b>
11:45 – 12:00	<b>Mykola Fisun, Hlib Horban, Mykhailo Dvoretzkyi</b> Methods of searching for association dependencies in multidimensional databases
12:00 – 12:15	<b>Oleksii Kovalenko</b> Information Taxonomy and Ontology for Situational Management
12:15 – 12:30	<b>Grzegorz Szymanski, Piotr Lipinski</b> Model of the effectiveness of Google Adwords advertising activities
12:30 – 12:45	<b>Andriy Bomba, Nataliya Kunanets, Yuriy Turbal, Volodymyr Pasichnyk</b> Mathematical model of people cooperation in social groups in the context of election technologies
12:45 – 13:00	<b>Liliya Chyrun, Iaroslav Kis, Victoria Vysotska, Lyubomyr Chyrun</b> Content Monitoring Method for Cut Formation of Person Psychological State in Social Scoring
13:00 – 13:15	<b>Jun Su, Vasyl Lytvyn, Victoria Vysotska, Anatoliy Sachenko, Dmytro Dosyn</b> Model of Touristic Information Resources Integration According to User Needs
13:15 – 13:30	<b>Artem Potebnia</b> Structural Anomaly Matrix as a New Instrument for Evaluating the Topology of Complex Networks in the Context of the Big Data Analytics
13.30 – 14.30	<b>Dinner</b>
14:30 – 14:45	<b>Taras Lendyuk, Oksana Bodnar, Sergey Rippa, Anatoliy Sachenko</b> Ontology Application in Context of Mastering the Knowledge for Students
14:45 – 15:00	<b>Roman Kaminskyi, Nataliia Kunanets, Antonii Rzheuskyi, Andrii Khudyi</b> Methods of Statistical Research for Information Managers
15:00 – 15:15	<b>Volodymyr Verhun, Anatoliy Batyuk, Volodymyr Voityshyn</b> Learning Analysis as a Tool for Predicting Student Performance
15:15 – 15:30	<b>Nataliya Boyko, Nataliya Shakhovska</b> Prospects for Using Cloud Data Warehouses in Information Systems
15:30 - 15:45	<b>Volodymyr Pasichnyk, Vasyl Lytvyn, Nataliya Kunanets, Roman Vovnyanka, Yaroslav Bolyubash, Antonii Rzheuskyi</b> Ontological Approach In The Formation Of Effective Pipeline Operation Procedures
15:45 – 16:15	<b>Coffe break</b>
18.00 – 20.00	<b>Excursion</b>



## International workshop on Project management

### Building #6a, Room 207

September 12	10 <sup>00</sup> -17 <sup>00</sup>
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**Chairman: Prof. Nataliia Kunanets, Prof. Serhij Bushuev**

10:00 – 10:15	<b>Pavlo Teslenko, Dmytro Bedrii, Svitlana Antoshchuk, Hanna Lytvynchenko</b> 3-Level Approach to the Projects Planning
10:15 – 10:30	<b>Igbal Babayev, Jahid Babayev</b> Management priority of ICT projects in programme of development organization in complex dynamically varying environment
10:30 – 10:45	<b>Sergey Kiyko, Evgeniy Druzhinin, Oleksandr Prokhorov</b> Managing the energy-saving projects portfolio at the metallurgical enterprises
10:45 – 11:00	<b>Dmitriy Kritskiy, Evgeniy Druzhinin, Olga Pogudina, Olga Kritskaya</b> Decision making by the analysis of project risks based on the FMEA method
11:00 -11:15	<b>Vladimir Obradovic, Marija Todorovic, Sergey Bushuyev</b> Sustainability and agility in project management: contradictory or complementary?
11:15 – 11:45	<b>Coffee break</b>
11.45 – 12.00	<b>Sergei Titov, Sergei Chernov, Lyudmila Chernova</b> Reduction in discrete optimization problems
12:00 – 12:15	<b>Sergey Bushuyev, Nadiia Rusan</b> Emotional intelligence in project management in the transition to a behavioral economy
12:15 – 12:30	<b>C. Mgbere, V.A.Knyshenko, A.B. Bakirova</b> Building information modeling. A management tool for Smart City
12:30 – 12:45	<b>Alexander Timinsky, Oleksandr Voitenko</b> Approach to the creation of a comprehensively competent project-oriented organization
12:45 – 13:00	<b>Olena Verenych, Sergey Bushuyev</b> The Blended Mental Space: Mobility and Plastic as characteristics of the project or program success
13:00 – 13:15	<b>Nataliia Veretennikova, Roman Vaskiv</b> Application of the Lean startup methodology in project management at launching new innovative products
13:15 – 13:30	<b>Antonii Rzhеuskyi, Nataliia Kunanets, Nataliia Veretennikova, Roman Vaskiv</b> Selective Dissemination of Information as a Communication Tool for E-Science Users
13.30 – 14.30	<b>Dinner</b>
14:30 – 14:45	<b>Volodymyr Pasichnyk, Mariia Nazaruk, Nataliia Kunanets, Nataliia Veretennikova, Ruslan Nebesnyi</b> Information Analysis of Procedures for Choosing a Future Specialty Using Cognitive Cards
14:45 – 15:00	<b>Maryna Kutsenko, Evgeniya Boyko</b> Model of organizational innovative development management cycles on the basis of knowledge, competences and values
15:00 – 15:15	<b>Iulia Liubyma, Olena Kalnichenko, Victor Morozov</b> Anticipative Approach to Project Management for the Creation of Distributed Information Systems
15:15 – 15:30	<b>Natalia Bushuyeva, Denis Bushuiev, Victoriia Busuieva, Igor Achkasov</b> IT Projects Management Driving by Competence
15:30 – 15:45	<b>Antonii Rzhеuskyi, Nataliia Kunanets , Mykola Stakhiv</b> Recommendation System "Virtual Reference"
15:45 – 16:00	<b>Coffee break</b>
16:00 – 16:15	<b>Natalia Kunanets, Stepan Krupa</b> Advisory System «Admission» for College Graduates
16:15 – 16:30	<b>N. Kunanets, Artem Kazarian, Volodymyr Pasichnyk, Roman Holoshchuk, Antonii Rzhеuskyi</b> Information Support Of The Virtual Research Community Activities Based On Cloud Computing
16:30 – 16:45	<b>Igor Kononenko, Svitlana Lutsenko</b> The Project Management Methodology and Guide Formation's Method
16:45 – 17:00	<b>Oleh Zachko, Dmytro Kobylkin</b> Discrete-event modeling of the critical parameters of functioning the products of infrastructure projects at the planning stage
18.00 – 20.00	<b>Excursion</b>

**SESSION 7, Building #5, Room 807****September 13****10<sup>00</sup>-12<sup>00</sup>****Intelligence-management technologies****Chairman: Prof. Ivan Tsmots**

10:00 – 10:15	<b>Lubomyr Sikora, Natalya Lysa, Roman Martsyshyn, Yuliya Miyushkovych, Rostyslav Tkachuk, Bohdan Durnyak</b> Information Technology of Laser Measurement System Creation for Automated Control Dynamics of Glue Drying in Polygraphy
10:15 – 10:30	<b>Oksana Boyko, Olesia Chaban</b> A mathematical model for optimizing the work of the primary care medical institution with taking into account the consumers opinion
10:30 – 10:45	<b>Piotr Lipiński Krzysztof Lichy, Jakub Santorek</b> Empirical Research of Autonomous Robot Control System
10:45 – 11:00	<b>Lubomyr Sikora, Natalya Lysa, Roman Martsyshyn, Yuliya Miyushkovych, Bohdana Fedyna, Bohdan Durnyak</b> Technologies of Development Laser Based System for Measuring the Concentration of Contaminants for Ecological Monitoring
11:00 – 11:15	<b>Ivan Tsmots, Oleksa Skorokhoda, Volodymyr Antoniv, Vasyl Rabyk</b> Vertical-parallel method and VLSI-structure for sorting of one-dimensional arrays
11:15 – 11:30	<b>Orest Ivakhiv, Petro Mushenyk, Markiyan Nakonechnyi, Oleksandr Viter</b> Programmable Flexible System
11:30 – 12:00	<b>Coffee break</b>



**SESSION 8**

(Room 809, Building #5)

**September 13****10<sup>00</sup>-12<sup>30</sup>****Software engineering****Chairman: Prof. Vitaliy Yakovyna**

10:00 – 10:15	<b>Olexandr Kharchenko, Ihor Bodnarchuk, Iryna Galai, Volodymyr Lisovyi</b> Adaptive Method for Assessment and Selection of Software Architecture in Flexible Techniques of Design
10:15 – 10:30	<b>Tetyana Koroteeva, Ruslan Tushnytskyi, Volodymyr Kulyk</b> Applying Neural Networks to Football Matches Results Forecasting
10:30 – 10:45	<b>Vasyl Kurylo, Vasyl Varyshchuk</b> Development and Performance Evaluation of a Remote Vision-Based Heart Rate Monitoring System
10:45 – 11:00	<b>George Markowsky, Oleg Savenko, Anatoliy Sachenko</b> Distributed System for Detecting the Malware in LAN
11:00 – 11:30	<b>Coffee break</b>
11:30 – 11:45	<b>Andrzej Kulakowski, Ludomir Tuszyński</b> Mobile survey system for participants of trade fair and conference events
11:45 – 12:00	<b>Olena Kovalenko, Yevgen Palamarchuk</b> Algorithms of blended learning in IT education
12:00 – 12:15	<b>Mariya Nazarkevych, Nataliya Lotoshynska, Volodymyr Buriachok, Sergiy Dmytryk</b> Research of Ateb-Gabor filter in biometric protection systems
12:15 – 12:30	<b>Yuriy Bobalo, Vitaliy Yakovyna, Maksym Seniv, Ivan Symets</b> Technique of Automated Construction of States and Transitions Graph for the Analysis of Technical Systems Reliability

## SESSION 9

<b>September 13</b>	<b>10<sup>00</sup>-12<sup>30</sup></b>
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**Artificial Intelligence**

**Chairman: Prof. Roman Tkachenko, Prof. Nataliya Shakhovska**

10:00 – 10:15	<b>Nataliia Melnykova, Pavlo Mukalov, Dmytro Kozij</b> The special ways of application of neural networks for medical information processing
10:15 – 10:30	<b>Nataliia Melnykova, Uliana Marikutsa, Yuri Kryvenchuk</b> The new approaches of heterogeneous data consolidation
10:30 – 10:45	<b>Soran Habib, Jashmid Deshmedski</b> Automatic segmentation of Abdominal Aortic Aneurysm
10:45 – 11:00	<b>Rostyslav Kosarevych, Oleksij Lutsyk, Bohdan Rusyn</b> Classification of Remote Sensing Images Based on their Random Point Fields
11:00 – 11:15	<b>Oleh Berezsky, Serhiy Verbovyi, Oleh Pitsun</b> Hybrid Intelligent Information Technology for Biomedical Image Processing
11:15 – 11:45	<b>Coffee break</b>
11.45 – 12.00	<b>Mykola Medykovsky, Olena Pavlyuk, Roman Sydorenko</b> Use of Machine Learning Technologys for the Electric Consumption Forecast
12:00 – 12:15	<b>Kamil Stokfiszewski, Dariusz Puchala, Mykhaylo Yatsymirskyy</b> Effectiveness of GPU Realizations of Parallel Prefix-Sums Computation Algorithms
12:15 – 12:30	<b>Mykhailo Granik, Volodymyr Mesyura, Andrii Yarovyi</b> Determining fake statements made by public figures by means of artificial intelligence
13.30 – 14:30	<b>Dinner</b>

**FINAL SESSION, The Assembly Hall, main building**

<b>September 13</b>	<b>14<sup>00</sup>-15<sup>00</sup></b>
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**Chairman: Prof. M. Medykovskyy , Prof. N. Shakhovska**

**Secretary: Tetiana Shestakevych**

- 1. Conference summary. Discussion of the presented papers.**
- 2. Meeting of the participants, Program and Organizing Committees. Feedbacks on the conference. Discussion on the possible ways of improvement for future.**
- 3.**

**Celebrating 40th Anniversary of the Lviv Polytechnic School “Information modeling.  
Data and knowledge engineering”,  
The Assembly Hall, main building**

<b>September 13</b>	<b>15<sup>00</sup>-17<sup>00</sup></b>
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**Chairman: Prof. Yu. Bobalo, Prof. V.Pasichnyk**

**Secretary: Tetiana Shestakevych**

**1. Prof. V.Pasichnyk. The results of 40 years of activity**

co-speakers: prof. A.Berko, prof. A.Peleshchyshyn, prof. P.Zhezhnych, prof. Ya.Vyklyuk, prof. V.Lytvyn, prof. N.Shakhovska, prof. Eu.Burov, prof. N.Kunanets

**2. Presentation of book seria “Computing”**

**FINAL SESSION**

<b>September 14</b>	<b>14<sup>00</sup>-15<sup>00</sup></b>
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**Chairman: Prof. M. Medykovskyy, Prof. N. Shakhovska**

**Secretary: Tetiana Shestakevych**

**1. Closing ceremony of CSIT 2018 conference.**



Lviv Polytechnic National University map:  
Main building and building V

