



Ulyanovsk State Technical University  
Russian Association for Artificial Intelligence  
Russian Association of Fuzzy Systems and Soft Computing

**2nd International Scientific-Practical Conference  
Fuzzy Technologies in the Industry (FTI 2018)**



**Ulyanovsk, Russia, 23 – 25 October 2018**

# Conference Schedule

- **Opening Session, Plenary lectures, Oral sections, Closing session – Room 1.**
- **Round table – Room 211, building 6 (Main building).**

## 22 October 2018

Arrival of conference participants

## 23 October 2018 (GMT+1)

**9:00-14:00** – Registration.

**10:00-10:15** – Opening session.

**10:15-10:50** – Plenary lecture: Vadim Stefanyuk (Institute for Information Transmission Problems of the Russian Academy of Sciences, Moscow).

**10:50-11:20** – Coffee break.

**11:30-12:30** – Plenary lecture: Alexander Tulupyev (SPIIRAS, Saint-Petersburg)

SOFT COMPUTING AND HUMAN RELIABILITY ASSESSMENT: AN INTRODUCTION TO SOCIAL ENGINEERING PROBLEMS.

**12:30-13:30** – Break.

**13:30-15:30** – **Section 1. Applied Intelligent Systems.** Chairs – Nadezhda Yarushkina, Alexander Tulupyev.

**16:00-19:00** – Excursion.

**19:00** – Welcome party.

## 24 October 2018

**10:00-14:00** – Registration.

**10:00-10:30** – Plenary lecture: *Valery Tarassov (Bauman Moscow State Technical University, Moscow).*

**10:30-11:00** – Plenary lecture: *Alexey Averkin (Dorodnicyn Computing Centre, FRC CSC RAS, Moscow).*

AN APPROACH FOR PREDICTION OF USER EMOTIONS BASED ON ANFIS IN SOCIAL NETWORKS.

**11:00-11:30** – Coffee break.

**11:30-13:30** – **Section 2. Intelligent Systems in the industry.** Chairs – Nadezhda Yarushkina, Valery Tarassov

**13:30-14:30** – Break.

**14:30-16:30 – Section 3. Semantic technologies in design. Chairs – Aleksey Averkin, Petr Sosnin**

**16:30-18:00 – Round table «Lotfi Zade is the Father of fuzzy logic». Chair – Shahnaz Shahbazova (Azerbaijan Technical University, Baku).**

**18:00 – Organizational event.**

## **25 October 2018**

**10:00-12:00 – Section 4. Data Mining. Chairs – Tatiana Afanasieva, Innokentiy Semushin**

**12:00 – Closing Session.**

## Section reports FTI 2018

### **23 October 2018**

#### **Section 1. Applied Intelligent Systems. Chairs – Nadezhda Yarushkina, Alexander Tulupyeu**

1. *Marina Trenina (Togliatti State University) and Boris Melnikov (Russian State Social University, Moscow)*

ON POSSIBLE METHODS FOR SOLVING THE PROBLEM OF RECONSTRUCTING THE MATRIX OF DISTANCES BETWEEN DNA STRINGS

2. *Sergey Mkrtychev (Togliatti State University)*

METHODOLOGY TO DESIGN MANAGEMENT ACCOUNTING INFORMATION SYSTEMS

3. *Yaroslav Fedulov, Vadim Borisov and Alexander Fedulov (The Branch of National Research University “Moscow Power Engineering Institute” in Smolensk)*

FINANCIAL SUSTAINABILITY EVALUATION OF HIGHER EDUCATION INSTITUTIONS USING “COMPATIBLE” COGNITIVE MAPS

4. *Alena Suvorova (SPIIRAS, Saint-Petersburg)*

EXPLORING BAYESIAN BELIEF NETWORK FOR RISKY BEHAVIOR MODELLING: DISCRETIZATION AND LATENT VARIABLES

5. *Alexander Tulupyeu, Nikita Kharitonov and Andrey Zolotin (SPIIRAS, Saint-Petersburg)*

ALGEBRAIC BAYESIAN NETWORKS: CONSISTENT FUSION OF PARTIALLY INTERSECTED KNOWLEDGE SYSTEMS

6. *Anastasiia Khlobystova, Maxim Abramov and Alexander Tulupyeu (SPbU, SPIIRAS, Saint-Petersburg)*

IDENTIFYING THE MOST CRITICAL TRAJECTORY OF THE SPREAD OF A SOCIAL ENGINEERING ATTACK BETWEEN TWO USERS

7. *Artur Azarov, Alena Suvorova and Tatiana Tulupyeva (SPIRAS, Saint-Petersburg)*

CHANGING THE INFORMATION SYSTEM'S PROTECTION LEVEL FROM SOCIAL ENGINEERING ATTACKS, IN CASE OF REORGANIZING THE INFORMATION SYSTEM'S USERS' STRUCTURE

8. *Vadim Moshkin, Aleksey Filippov, Alexey Namestnikov, Gleb Guskov and Michael Samokhvalov (Ulyanovsk State Technical University)*

APPROACH TO TRANSLATION OF RDF/OWL-ONTOLOGY TO THE GRAPHIC KNOWLEDGE BASE OF INTELLIGENT SYSTEMS

9. *Vadim Moshkin, Nadezhda Yarushkina, Aleksey Filippov, Anton Romanov and Gleb Guskov (Ulyanovsk State Technical University)*

INTELLIGENT INSTRUMENTATION FOR OPINION MINING IN SOCIAL MEDIA

**24 October 2018**

**Section 2. Intelligent Systems in the industry. Chairs – Nadezhda**

**Yarushkina, Valery Tarassov**

1. *Gennady Vinogradov (Tver State Technical University), Alexey Prohorov (Research Institute "CENTERPROGRAMSYSTEM", Tver)*

MODELING OF COMMUNICATION PROCESSES IN INFORMATION SYSTEMS

2. *Gennady Korshunov and Anastasiya Petrushevskaya (Saint-Petersburg State University of Aerospace Instrumentation)*

MODELING OF DIGITAL MANUFACTURING OF ELECTRONICS PRODUCTION AND PRODUCT QUALITY ASSURANCE

3. *Roman Girin and Sergey Orlov (Samara State Technical University)*

THE USE OF NEURAL NETWORKS FOR TESTING AND FAILURE ANALYSIS OF ELECTRONIC DEVICES

4. *Anton Glushchenko, Vladislav Petrov and Konstantin Lastochkin (Stary Oskol technological institute n.a. A.A Ugarov (branch) NUST "MISIS")*

ADAPTIVE NEURAL NETWORK BASED CONTROL OF BALANCING ROBOT IN REAL TIME MODE

5. *Sergei Elyagin and Vitalii Dementiev (Ulyanovsk State Technical University)*  
REDUCING THE POWER CONSUMPTION OF SENSOR NODES IN A WIRELESS SENSOR NETWORK

6. *Georgy Burdo (Tver State Technical University)*

METHODOLOGICAL BASICS OF CREATING INTELLIGENT QUALITY MANAGEMENT SYSTEMS IN MECHANICAL ENGINEERING

7. *Yulia Tsyganova (Ulyanovsk State University), Andrey Tsyganov, Anastasia Kuvshinova and Hugo Ricardo Tapia Garza (Ulyanovsk State Pedagogical University named after I.N. Ulyanov)*

**METAHEURISTIC ALGORITHMS FOR IDENTIFICATION OF THE CONVECTION VELOCITY IN THE CONVECTION-DIFFUSION TRANSPORT MODEL**

8. *Anatolyi Gladkikh (Ulyanovsk State Technical university), Sergey Ageev (public corporation "Radioavionika"), Andrey Privalov (St. Petersburg state University of Railways of Emperor Alexander I) and Dmitry Mishin (Volga region state University of telecommunications and Informatics)*

**METHOD OF OPERATIONAL MONITORING OF TECHNICAL CONDITION OF ELEMENTS OF MULTISERVICE COMMUNICATION NETWORK ON THE BASIS OF HIERARCHICAL FUZZY INFERENCE**

### **Section 3. Semantic technologies in design. Chairs – Aleksey Averkin,**

**Petr Sosnin**

1. *Dmitry Mikhailov (Yaroslav-the-Wise Novgorod State University)*

**RELEVANCE OF TEXTUAL SET TO KNOWLEDGE UNIT AND ESTIMATION OF AFFINITY TO SENSE STANDART FOR ITS LINGUISTIC EXPRESSIONAL MEANS**

2. *Alexander Kolesnikov (IKBFU, Kaliningrad Branch of the Federal Research Center "Computer Science and Control" of the RAS), Sergey Listopad (Kaliningrad Branch of the Federal Research Center "Computer Science and Control" of the RAS) and Fedor Maitakov (Immanuel Kant Baltic Federal University)*

**RESEARCH PROTOTYPE OF TOOL SUPPORT OF INFORMATION TECHNOLOGY OF FUNCTIONAL HYBRID INTELLIGENT SYSTEMS WITH A HETEROGENEOUS VISUAL FIELD**

3. *Alexander Kolesnikov (IKBFU, Kaliningrad Branch of the Federal Research Center "Computer Science and Control" of the RAS), Sergey Listopad (Kaliningrad Branch of the Federal Research Center "Computer Science and Control" of the RAS) and Fedor Maitakov (Immanuel Kant Baltic Federal University)*

**CONCEPTUAL-VISUAL METALANGUAGE OF HYBRID INTELLIGENT SYSTEMS**

4. *Irina Astahova, Marina Fomina and Victoria Sherbakova (Moscow Power Engineering Institute)*

**DEVELOPMENT OF PRECEDENTS SEARCHING METHODS BASED ON DECISION TREES**

5. *Petr Sosnin, Ekaterina Sosnina and Anna Kulikova (Ulyanovsk State Technical University)*

SPECIFICATIONS OF FUZZY CONCEPTS WITH EVALUATIVE MEANING IN A PROJECT ONTOLOGY DURING A DESIGN OF A SYSTEM WITH SOFTWARE

6. *Dmitry Kanev (Cloud Ritel Ltd, Ulyanovsk), Natalya Belukhina, Tamara Egorova (Ulyanovsk State Technical University)*

THE POSSIBILITIES OF INTELLIGENT LEARNING ENVIRONMENTS FOR INCLUSIVE DISTANCE EDUCATION

7. *Afanasyev Alexander, Nikolay Voit and Sergey Kirillov (Ulyanovsk State Technical University)*

SEMANTIC FEATURES OF PROCESSING HYBRID DYNAMIC WORKFLOWS OF DESIGN

8. *Afanasyev Alexander and Sergey Brigadnov (Ulyanovsk State Technical University)*

METHODS AND MEANS OF INTELLECTUAL SYSTEM OF ANALYSIS OF DESIGN SOLUTIONS AND TRAINING OF DESIGNER

**25 October 2018**

**Section 4. Data Mining. Chairs – Tatiana Afanasieva, Innokentiy**

**Semushin**

1. *Innokentiy Semushin (Ulyanovsk State University)*

PHYSICALLY STRUCTURED SEQUENTIAL DATA MODELING: INTEGRATION OF QUALITATIVE AND QUANTITATIVE RESEARCH

2. *Tatiana Afanasieva and Ivan Sibirev (Ulyanovsk State Technical University)*

APPLICATION OF THE CLUSTERING IN SOFTWARE DEVELOPMENT ANALYSIS

3. *Pavel Komarov (The Branch of Financial University of the Russian Federation in Smolensk), Vadim Borisov and Victor Luferov (The Branch of National Research University «Moscow Power Engineering Institute» in Smolensk)*

INTELLIGENT TIME SERIES FORECASTING SYSTEM

4. *Nikita Andriyanov (Ulyanovsk Institute of Civil Aviation, Ulyanovsk State Technical University) and Vladislav Sonin (Gett)*

USING MATHEMATICAL MODELING OF TIME SERIES FOR FORECASTING TAXI SERVICE ORDERS AMOUNT

5. *Dmitry Yashin (Ulyanovsk State Technical University)*

USING A NEURAL NETWORK TO SELECT METHODS FOR PREDICTING TIME SERIES IN A HYBRID COMBINED MODEL

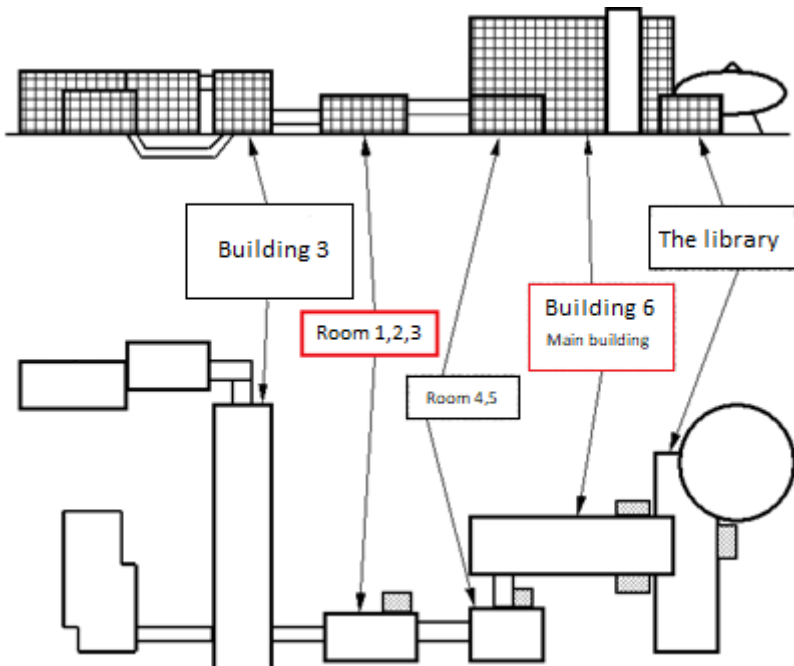
6. *Irina Moshkina, Anton Romanov, Evgeny Egov and Ivan Dyakov (Ulyanovsk State Technical University)*

EXTRACTION AND FORECASTING TIME SERIES OF PRODUCTION PROCESSES

7. *Innokentiy Semushin, Yulia Tsyganova, Vladimir Ugarov (Ulyanovsk State University) and Andrey Tsyganov (Ulyanovsk State Pedagogical University named after I.N. Ulyanov)*

*NEW COMBINED ARRAY INFORMATION UD ALGORITHM OF THE KALMAN FILTER BASED CHANNEL ESTIMATION FOR OFDM DATA TRANSMISSION*

## Location of the UISTU buildings



UISTU buildings are located in the "North" area (Severny venetz St., 32)

Travel by minibuses: №31, 32, 34, 43, 59, 69, 94, 95 (to the stop "Pochta"), 67, 68, 78 (to the final stop - "UISTU")

Directions from the railway station:

- by tram No. 4 from the stop "F/A station" to the stop "Garrison shop" (~ 40 minutes).

Directions from the bus station:

- by tram No. 9 from the bus station to the Mail station (~ 45 minutes) + 5 minutes on foot

- by tram No. 22 to the "Mail" stop (~ 45 minutes) + 5 minutes on foot.