

# ISAT 2017

SZKLARSKA POREBA, POLAND, 17-19 September 2017

## CONFERENCE SCHEDULE AND PROGRAM

The ISAT 2017 conference schedule and program has been organized around four tracks:

1. Track 1 TCS\_1 : Computer Science 1
2. Track 2 TCS\_2 : Computer Science 2
3. Track 3 TMS\_1 : Management Science 1
4. Track 4 Special Session : Modeling of Manufacturing Processes

The ISAT 2017 proceedings has been edited in three volumes: AISC 655 (book contains TCS\_1 papers), AISC 656 (book contains TCS\_2 papers), and AISC 657 (book contains TMS\_1 and Special Session papers).

All ISAT 2017 chapters are published on a searchable CD. You have also free access to the ebooks content using following links between September 16th and October 17th, 2017:

AISC 655: <http://link.springer.com/book/10.1007/978-3-319-67220-5>

AISC 656: <http://link.springer.com/book/10.1007/978-3-319-67229-8>

AISC 657: <http://link.springer.com/book/10.1007/978-3-319-67223-6>

### SUNDAY – 17 SEPTEMBER 2017

14:00 – 16:00	Registration & Hotel Accomodation			
16:00 – 17:00	Opening of the Conference & Welcome party (Sandwiches, soft drinks, sweets and appetizers) Room A & Patio			
17:00 – 19:00	DAY 1	Chairs: L. Borzemski, Z. Banaszak, J. Świętek, Z. Wilimowska		
	Room A	Room B	Room C	Room F
	Session TCS_1.1 <i>Big Data, Knowledge Discovery and Data Mining</i>	Session TCS_1.2 <i>Artificial Intelligence Methods</i>	Session TCS_2.1 <i>System Modeling I</i>	Session TMS_1.1 <i>Investment Decision Process Modeling</i>
17:00 – 17:20	M.Muchová, J.Paralič, M.Nemčík USING PREDICTIVE DATA MINING MODELS FOR DATA ANALYSIS IN A LOGISTICS COMPANY	D.Kucharski, D.Grochala, M.Kajor, E.Kańtoch A DEEP LEARNING APPROACH FOR VALVE DEFECT RECOGNITION IN HEART ACOUSTIC SIGNAL	D.Raczyński, W.Stanisławski USE OF THE MODIFIED EPSILON DECOMPOSITION FOR THE LTI MODELS REDUCTION	E.Dudek-Dyduch INTELLIGENT ALMM SYSTEM FOR DISCRETE OPTIMIZATION PROBLEMS – THE IDEA OF KNOWLEDGE BASE APPLICATION
17:20 – 17:40	M.Bach, A.Werner COST-SENSITIVE FEATURE SELECTION FOR CLASS IMBALANCE PROBLEM	K.Łapa POPULATION-BASED ALGORITHM WITH SELECTABLE EVOLUTIONARY OPERATORS FOR NONLINEAR MODELING	T.Sadowski, R.Zdunek MODIFIED HALS ALGORITHM FOR IMAGE COMPLETION AND RECOMMENDATION SYSTEM	A.Bukietyńska, M.Czekala, Z.Wilimowska, M.Wilimowski THE INVERSION TEST OF THE INVESTMENT FUNDS EFFICIENCY MEASURES
17:40 – 18:00	T.Nguyen, B.Vo, B.Huynh, V.Snasel, L.Nguyen CONSTRAINT-BASED METHOD FOR MINING COLOSSAL PATTERNS IN HIGH DIMENSIONAL DATABASES	J.Jakubik EVALUATION OF GATED RECURRENT NEURAL NETWORKS IN MUSIC CLASSIFICATION TASKS	P.Šarafín, J.Miček, O.Karpiš, J.Molka-Danielsen PROPOSAL OF INPUT SHAPER IN REAL APPLICATIONS	M.Stasiak MODELLING OF CURRENCY EXCHANGE RATES USING A BINARY-WAVE REPRESENTATION
18:00 – 18:20	L.Nguyen, H.Nguyen, S.Nguyen A DYNAMIC PACKED APPROACH FOR ANALYTIC DATA WAREHOUSE IN AD-HOC QUERIES	G.Dudek, P.Pełka NEURO-FUZZY SYSTEM FOR MEDIUM-TERM ELECTRIC ENERGY DEMAND FORECASTING	A.Derezinska A STRUCTURE-DRIVEN PROCESS OF AUTOMATED REFACTORING TO DESIGN PATTERNS	V.Vagizova, A.Akhmetshina, J.Koczar, K.Terenteva INFRASTRUCTURE INVESTMENTS AS A TOOL FOR IMPLEMENTING THE STRATEGY OF SUSTAINABLE DEVELOPMENT OF REGIONAL ECONOMIC SYSTEMS
18:20 – 18:40	M.Zalasiński, K.Cpałka A METHOD FOR GENETIC SELECTION OF THE DYNAMIC SIGNATURE GLOBAL FEATURES' SUBSET	R.Al-Jawadi, M.Studniarski, A.Younus AN EVOLUTIONARY OPTIMIZATION METHOD BASED ON SCALARIZATION FOR MULTI-OBJECTIVE PROBLEMS	M.Krótkiewicz, M.Jodłowiec MODELING AUTOREFERENTIAL RELATIONSHIPS IN ASSOCIATION-ORIENTED DATABASE METAMODEL	B.Rębiasz, I.Skalna APPLICATION OF PROBABILITY AND POSSIBILITY THEORY IN INVESTMENT APPRAISAL
18:40 – 19:00	T.Rauber, G.Rünger TUNING ENERGY EFFORT AND EXECUTION TIME OF APPLICATION SOFTWARE	G.Dudek MULTIVARIATE REGRESSION TREE FOR PATTERN-BASED FORECASTING TIME SERIES WITH MULTIPLE SEASONAL CYCLES	V.Vlasenko, S.Stemplewski, P.Koczur IDENTIFICATION OF OBJECTS BASED ON GENERALIZED AMPLITUDE-PHASE IMAGES STATISTICAL MODELS	C.De Oliveira, C.Sanín, E.Szczerbicki HAZARD CONTROL IN INDUSTRIAL ENVIRONMENTS: A KNOWLEDGE-BASED APPROACH
19:00 – 20:00	Dinner			

**MONDAY – 18 SEPTEMBER 2017**

7:00 – 8:00	<b>Breakfast</b>			
8:00 – 11:00	<b>Registration</b>			
8:00 – 9:40	<b>DAY 2</b>	<b>Chairs: G. Bocewicz, K. Zatwarnicki, A. Najgebauer, A. Burduk</b>		
	<b>Room A</b>	<b>Room B</b>	<b>Room C</b>	<b>Room F</b>
	<b>Session TCS_1.3</b> <i>Knowledge Discovery and Data Mining</i>	<b>Session TCS_1.4</b> <i>IoT, Distributed Systems &amp; Cloud Computing</i>	<b>Session TCS_2.2</b> <i>System Modeling II</i>	<b>Special Session</b> <i>Modeling of Manufacturing Processes</i>
8:00 – 8:20	M.Plechawska-Wójcik, M.Borys, M.Tokovarov, M.Kaczorowska MEASURING COGNITIVE WORKLOAD IN ARITHMETIC TASKS BASED ON RESPONSE TIME AND EEG FEATURES	B.Święcicki, L.Borzemski HOW IS SERVER SOFTWARE CONFIGURED? EXAMINING THE STRUCTURE OF CONFIGURATION FILES	V.Vlasenko, S.Stemplewski, P.Koczur ABNORMAL TEXTURES IDENTIFICATION BASED ON DIGITAL HILBERT OPTICS METHODS: FUNDAMENTAL TRANSFORMS AND MODELS	J.Kotowska, A.Burduk OPTIMIZATION OF PRODUCTION SUPPORT PROCESSES WITH THE USE OF SIMULATION TOOLS
8:20 – 8:40	D.Pałka, M.Zachara, K.Wójcik ACTIVE PROTOCOL DISCOVERER BASED ON GRAMMATICAL EVOLUTION	G.Blinowski RISK-BASED DECISION MAKING IN IOT SYSTEMS	M.Drakaki, Y.Karnavas, I.Chasiotis, P.Tzionas AN INTELLIGENT MULTI-AGENT SYSTEM FRAMEWORK FOR FAULT DIAGNOSIS OF SQUIRREL-CAGE INDUCTION MOTOR BROKEN BARS	L.Manzke, B.Keller, U.Buscher AN ARTIFICIAL BEE COLONY ALGORITHM TO SOLVE THE SINGLE ROW LAYOUT PROBLEM WITH CLEARANCES
8:40 – 9:00	P.Cyrta, T.Trzciński, W.Stokowiec SPEAKER DIARIZATION USING DEEP RECURRENT CONVOLUTIONAL NEURAL NETWORKS FOR SPEAKER EMBEDDINGS	M.Morawski, P.Ignaciuk ON IMPLEMENTATION OF ENERGY-AWARE MPTCP SCHEDULER	R.Lis, A.Vanin, A.Kotelnikova METHODS OF TRAINING OF NEURAL NETWORKS FOR SHORT TERM LOAD FORECASTING IN SMART GRIDS	M.Maqbool, W.Cesar, M.Sanin, E.Szczerbicki SMART INNOVATION ENGINEERING (SIE): EXPERIENCE-BASED PRODUCT INNOVATION SYSTEM FOR INDUSTRY 4.0
9:00 – 9:20	G.Dudek, S.Dudzik CLASSIFICATION TREE FOR MATERIAL DEFECT DETECTION USING ACTIVE THERMOGRAPHY	G.Żmuda, A.Opaliński, M.Głowacki MOBILE MONITORING SYSTEM FOR ENVIRONMENT PARAMETERS	R.Wojszczyk THE EXPERIMENT WITH QUALITY ASSESSMENT METHOD BASED ON STRATEGY DESIGN PATTERN EXAMPLE	D.Plinta, L.Dulina ERGONOMICS ANALYSIS IN THE CONTEXT OF A DIGITAL FACTORY
9:20 – 9:40	P.Butka, M.Smatana, V.Novotna INTERACTIVE VISUALIZATION OF QUERY RESULTS SET FROM INFORMATION RETRIEVAL USING CONCEPT LATTICES	W.Karwowski, M.Rusek, G.Dwornicki, A.Orłowski SWARM BASED SYSTEM FOR MANAGEMENT OF CONTAINERIZED MICROSERVICES IN A CLOUD CONSISTING OF HETEROGENEOUS SERVERS	V.Lakhno, O.Petrov, A.Petrov DEVELOPMENT OF A SUPPORT SYSTEM FOR MANAGING THE CYBER SECURITY OF INFORMATION AND COMMUNICATION ENVIRONMENT OF TRANSPORT	S.Kukla PLANNING AND ASSESSMENT OF MANUFACTURING PROCESSES FLOW VARIANTS BASED ON A SIMULATION EXPERIMENT
9:40 – 10:00	<b>Coffee Break</b>			

10:00 – 11:40	<b>DAY 2</b>	<b>Chairs: T. Rauber, G. Rünger, M. Studniarski, U. Buscher</b>		
	<b>Room A</b>	<b>Room B</b>	<b>Room C</b>	<b>Room F</b>
	<b>Session TCS_1.5</b> <i>HPC, SOA &amp; CDN</i>	<b>Session TCS_1.6</b> <i>Web Traffic &amp; Video Design</i>	<b>Session TCS_2.3</b> <i>System Modeling III</i>	<b>Special Session - continuation</b> <i>Modeling of Manufacturing Processes</i>
10:00 – 10:20	K.Łapa, K.Cpałka PID-FUZZY CONTROLLERS WITH DYNAMIC STRUCTURE AND EVOLUTIONARY METHOD FOR THEIR CONSTRUCTION	G.Suchacka, A.Dembczak VERIFICATION OF WEB TRAFFIC BURSTINESS AND SELF-SIMILARITY FOR MULTIPLE ONLINE STORES	A.Andrzejewski, K.Kręcisiz, M.Matusiak, A.Romanowski, L.Babout BRAINSTORMING SESSIONS – TOWARDS IMPROVING EFFECTIVENESS AND ASSESSMENT OF IDEAS GENERATION	J.Gąbka, G.Filcek MULTIPLE CRITERIA DECISION SUPPORT SYSTEM FOR MAKING THE BEST MANUFACTURING TECHNOLOGIES CHOICE AND ASSIGNING CONTRACTORS
10:20 – 10:40	Z.Saoud, J.Platoš COMMUNITY DETECTION IN BIBSONOMY USING DATA CLUSTERING	A.Popławski FREQUENT SCENE CHANGE IN WAVELET VIDEO COMPRESSION	S.Kaczmarek, M.Sac ANALYSIS OF IMS/NGN CALL PROCESSING PERFORMANCE USING PHASE-TYPE DISTRIBUTIONS BASED ON EXPERIMENTAL HISTOGRAMS	B.Szeląg, J.Studziński, J.Gawdzik SLUDGE VOLUME INDEX (SVI) MODELLING: DATA MINING APPROACH
10:40 – 11:00	P.Kwaśnicka, Ł.Falas, K.Juszczyszyn EXECUTION MANAGEMENT OF COMPUTATIONAL SERVICES IN SERVICE-ORIENTED SYSTEMS	S.Irgenfried, H.Wörn, S.Bergmann, M.Mohammadikajii, J.Beyerer, C.Dachsbacher A VERSATILE HARDWARE AND SOFTWARE TOOLSET FOR COMPUTER AIDED INSPECTION PLANNING OF MACHINE VISION APPLICATIONS	M.Skublewska-Paszkowska MOTION REPEATABILITY OF TENNIS FOREHAND PREPARATION PHASE WITHOUT THE BALL USING THREE DIMENSIONAL DATA	J.Grobelny, R.Michalski SIMULATED ANNEALING BASED ON LINGUISTIC PATTERNS: EXPERIMENTAL EXAMINATION OF PROPERTIES FOR VARIOUS TYPES OF LOGISTIC PROBLEMS
11:00 – 11:20	V.Deyneko, I.Jóźwiak CONTENT DELIVERY NETWORK AND EXTERNAL RESOURCES DETECTION FOR SELECTED HOSTS	M.Kowalski QUALITY OF INVESTMENT RECOMMENDATION – EVIDENCE FORM POLISH CAPITAL MARKET, INCOME APPROACH	A.Naumowicz TOWARDS STANDARDIZED MIZAR ENVIRONMENTS	J.Patalas-Maliszewska, S.Kłos KNOWLEDGE SHARING USING CUSTOMER RELATIONSHIP MANAGEMENT SYSTEMS (CRM) IN NPD PROCESSES - RESEARCH RESULTS FROM POLISH AND GERMAN MANUFACTURING COMPANIES
11:20 – 11:40	A.Krzywaniak, P.Czarnul PARALLELIZATION OF SELECTED ALGORITHMS ON MULTI-CORE CPUS, A CLUSTER AND IN A HYBRID CPU+XEON PHI ENVIRONMENT	J.Zabawa, B.Mielczarek, M.Hajłasz SIMULATION APPROACH TO FORECASTING POPULATION AGEING ON REGIONAL LEVEL	A.Kornilowicz, A.Kryvolap, M.Nikitchenko, I.Ivanov FORMALIZATION OF THE NOMINATIVE ALGORITHMIC ALGEBRA IN MIZAR	S.Kłos, D.Stadnicka AN ANALYSIS OF THE IMPACT OF MACHINE MAINTENANCE ON THE EFFECTIVENESS OF A MANUFACTURING SYSTEM USING COMPUTER SIMULATION
11:40 – 12:30	<b>Lunch</b>			
12:30 – 19:00	<b>Outdoor Event</b>			
20:00 – ...	<b>Conference Party</b>			

**TUESDAY – 19 SEPTEMBER 2017**

7:00 – 8:20	<b>Breakfast</b>
8:00 – 9:00	<b>Registration</b>

8:20 – 9:40		DAY 3				Chairs: G. Suchacka, M. Czekala H. Wörn, J. Werewka			
		Room A	Room B	Room C	Room F				
		Session TCS_1.7	Session TMS_1.2	Session TCS_2.4	Session TMS_1.3				
		HCI & Web Performance	Management of Innovation I	SOA & Cloud Computing I	Management of Organization I				
8:20 – 8:40		K.Jach, B.Bajcar, A.Borkowska THE ADAPTATION OF THE DEVICE ASSESSMENT QUESTIONNAIRE ISO 9241-9 IN THE POLISH SAMPLES	A.Szpara ON APPLICATION OF RECURSIVE PREFERENCES IN OPTIMAL GROWTH MODEL	M.Chmielewski, M.Kukielka, D.Frańszczak, D.Bugajewski MILITARY AND CRISIS MANAGEMENT DECISION SUPPORT TOOLS FOR SITUATION AWARENESS DEVELOPMENT USING SENSOR DATA FUSION.	M.Szmit, A.Szmit, M.Dąbkowska, D.Lisiak-Felicka AN ANALYSIS OF SELECTED CORRELATIONS BETWEEN MICROENTERPRISES' FINANCING AND ITS CHARACTERISTICS. A CASE STUDY.				
8:40 – 9:00		R.Antkiewicz, A.Najgebauer, D.Pierzchała, J.Rulka QUANTITATIVE METHODS OF STRATEGIC PLANNING SUPPORT - DEFENDING EUROPEAN FRONTLINE	D.Więcek, D.Więcek THE INFLUENCE OF THE METHODS OF DETERMINING COST DRIVERS VALUES ON THE ACCURACY OF COSTS ESTIMATION OF THE DESIGNED MACHINE ELEMENTS	M.Palkowski, W.Bielecki A PRACTICAL APPROACH TO TILING ZUKER'S RNA FOLDING USING THE TRANSITIVE CLOSURE OF LOOP DEPENDENCE GRAPHS	M.Żytniewski CONTEXT SPECIFICATION IN SUPPORT OF BUSINESS PROCESSES AND KNOWLEDGE MANAGEMENT INTEGRATION				
9:00 – 9:20		M.Fraś, D.Frańcek, K.Waśko NEAREST NEIGHBORHOOD DETERMINATION METHODS WITH REGARD TO MOBILE LOCATION-BASED APPLICATION	S.Tomczak THE STABILITY OF THE FINANCIAL INDICATORS OVER TIME	W.Kempa ON LOSS PROCESS IN A QUEUEING SYSTEM OPERATING UNDER SINGLE VACATION POLICY	P.Nielsen, Z.Michna, I.Nielsen THE ACTUAL NATURE OF LEAD TIMES IN SUPPLY CHAINS FOLLOWING A STRICT REORDER POINT BASED APPROACH				
9:20 – 9:40		W.Stadnik, Z.Nowak THE IMPACT OF WEB PAGES' LOAD TIME ON THE CONVERSION RATE OF AN E-COMMERCE PLATFORM	P.Nielsen, Z.Banaszak, G.Bocewicz, Z.Michna AN EXPERIMENTAL INVESTIGATION OF LEAD TIME AND THE EFFECT OF ORDER CROSSOVER	D.Gąsior NASH EQUILIBRIUM OF CAPACITY ALLOCATION GAME FOR AUTONOMIC MULTI-DOMAIN SOFTWARE DEFINED NETWORKS	K.Tworek, M.Hopej, J.Martan INTO ORGANIZATIONAL STRUCTURE SIMPLICITY				
9:40 – 10:00		<b>Coffee Break</b>							

10:00 – 11:40		DAY 3				Chairs: V. Vlasenko, D. Plinta, S. Klos, V. Vagizova			
		Room A	Room B	Room C	Room F				
		Session TCS_2.6	Session TMS_1.4	Session TCS_2.5	Session TMS_1.5				
		System Modeling IV	Management of Innovation II	SOA & Cloud Computing II	Management of Organization II				
10:00 – 10:20		R.Waszkowski, M.Jasiulewicz-Kaczmarek, M.Piechowski, R.Wyczółkowski IMPLEMENTING BPMN IN MAINTENANCE PROCESS MODELLING	M.Dolińska CROWDSOURCING-BASED OPEN INNOVATION PROCESSES ON THE INTERNET	W.Kempa QUEUEING DELAY IN A FINITE-BUFFER MODEL WITH FAILURES AND BERNOULLI FEEDBACK	M.Sarnovsky, P.Cibulova MEASUREMENT CENTER PROCESSES SUPPORT IN THE AUTOMOTIVE INDUSTRY				
10:20 – 10:40		R.Arendt, A.Kopczyński, P.Spychalski CENTRALIZED AND DISTRIBUTED STRUCTURES OF INTELLIGENT SYSTEMS FOR AIDED DESIGN OF SHIP SYSTEMS AUTOMATION	P.Ignaciuk, Ł.Wieczorek OPTIMIZATION OF MESH-TYPE LOGISTIC NETWORKS FOR ACHIEVING MAX SERVICE RATE UNDER ORDER-UP-TO INVENTORY POLICY	M.Masrani, G.Poornalatha TWITTER SENTIMENT ANALYSIS USING A MODIFIED NAÏVE BAYES ALGORITHM	A.Kamińska, A.Parkitna, A.Górski FACTORS DETERMINING THE DEVELOPMENT OF SMALL ENTERPRISES				
10:40 – 11:00		J.Wyrobek, J.Wąs, M.Zachara SIMULATION-BASED ANALYSIS OF WIND FARMS' ECONOMIC VIABILITY	A.Dereń, A.Parkitna, J.Skonieczny DIMENSIONS OF EFFICIENCY BUSINESS ECOSYSTEM	D.Gall, A.Walkowiak AN APPROACH TO SEMANTICS FOR UML ACTIVITIES	A.Arman, R.Hurriyati, G.Ruhman DESIGN OF EA DEVELOPMENT GUIDELINE FOR SMALL ENTERPRISES BASED ON TOGAF 9.1				
11:00 – 11:20		M.Drabowski, K.Kielkowicz A HYBRID GENETIC ALGORITHM FOR HARDWARE-SOFTWARE SYNTHESIS OF HETEROGENEOUS PARALLEL EMBEDDED SYSTEMS	N.Rizun, K.Ossowska, Y.Taranenko MODELING THE CUSTOMER'S CONTEXTUAL EXPECTATIONS BASED ON LATENT SEMANTIC ANALYSIS ALGORITHMS	P.Zabawa, B.Hnatkowska CDMM-F – DOMAIN LANGUAGES FRAMEWORK	G.Hołodnik-Janczura ANALYSIS OF MEASUREMENT CONVERTIBILITY FROM FP TO CFP: CONVERSION FORMULA AND MONOTONICITY CONDITION				
11:20 – 11:40		P.Sitek, J.Wikarek, T.Stefański MODEL TRANSFORMATION METHOD FOR HYBRID APPROACH	A.Czarnecka, Z.Wilimowska HURST EXPONENT AS A RISK MEASUREMENT ON THE CAPITAL MARKET	G.Bocewicz, P.Nielsen, Z.Banaszak, R.Wojcik AN ANALYTICAL MODELING APPROACH TO CYCLIC SCHEDULING OF MULTIPRODUCT BATCH PRODUCTION FLOWS SUBJECT TO DEMAND AND CAPACITY CONSTRAINTS	J.Werewka DEVELOPING CONFORMANCE BETWEEN PROJECT MANAGEMENT AND ENTERPRISE ARCHITECTURE GOVERNANCE ON THE BASIS OF A PMBOK CASE				
11:40 – 12:15		<b>Break (to leave hotel rooms)</b>							
12:15 – 12:45		<b>Closing Session Room A</b>							
13:00 – 14:00		<b>Lunch</b>							