Sunday, July 1

12.00-14.00  Registration
14.00-14.15  Opening of the Doctoral Consortium
14.15-16.15  Doctoral Consortium Session I
Chair: Raimundas Matulevičius
  • Security Means in Multilayered Architecture of Internet of Things for Secure Communication and Data Transmission  
    Raimundas Savukynas
  • Increasing the Utilization of Additive Manufacturing Resources through the Use of Blockchain Technology for a Production Network  
    Wjatscheslav Baumung
  • Simulation Based Multi-Objective Optimization for Dynamic Business Processes  
    Tadas Vysockis
  • Open Data Quality  
    Anastasija Nikiforova
16.15-16.45  Coffee Break
16.45-17.45  Doctoral Consortium Session II
Chair: Raimundas Matulevičius
  • Physical Design Tuning of RDF Stores  
    Vsevolod Sevostyanov
  • Comparison of Supervised Machine Learning Techniques for CERN CMS Offline Data Certification  
    Mantas Stankevicius
17.45-18.30  Doctoral Consortium Keynote by Janis Grundspenakis “Intelligent Knowledge Assessment Systems – Myth or Reality”
19.00-21.00  Welcome party
Place: Hotel “Esperanza Resort&SPA”

Monday, July 2

8.00-9.00  Registration
9.00-9.50  Opening of the 13th Baltic DB&IS Conference
• Plenary Talk by the Representative of Lithuanian Presidency Saulė Mačiukaitė-Žvinienė
• Plenary Talk by Gintautas Dzemyda “Data Science and Advanced Digital Technologies”
• Plenary Talk by Juris Borzovs “A Light Insight into Latvian and Lithuanian ICT Terminology: Whether Kindred Language Imply Kindred Terminology?”

10.00-11.00 Invited Talk by Marlon Dumas “Business Process Analytics: from Insights to Predictions”

11.00-11.25 Coffee Break

11.25-12.40 Session “Information Systems Engineering I”
Chair: Ahto Kalja
• Towards the Trust Model for Industry 4.0
  Marina Harlamova and Marite Kirikova
• Towards the Reference Model for Security Risk Management in Internet of Things
  Raman Shapaval and Raimundas Matulevičius
• Pattern Library for Use-Case-Based Application Logic Reuse
  Michał Śmiełek, Albert Ambroziewicz, and Rafał Parol

12.45-14.00 Session “Advanced Database Systems”
Chair: Boris Novikov
• Proposal of an Unrestricted Character Encoding for Japanese
  Antoine Bossard and Keiichi Kaneko
• Facilitation of Health Professionals Responsible Autonomy with Easy-To-Use Hospital Data Querying Language
  Edgars Rencis, Juris Barzdins, Mikus Grasmanis, and Agris Sostaks
• Efficient Model Repository for Web Applications
  Sergejs Kozlovičs

14.00-15.00 Lunch

15.00-17.05 Session “Information Systems Engineering II”
Chair: Michał Śmiełek
• Information Requirements for Big Data Projects: A Review of State-of-the-Art Approaches
  Natalija Kozmina, Laila Niedrite, and Janis Zemnickis
Impact of Demographic Differences on Color Preferences in the Interface Design of e-Services in Latvia
Jurģis Šķilters, Līga Zariņa, Signe Bāliņa, and Dace Baumgarte

Asynchronous Client-Side Coordination of Cluster Service Sessions
Karolis Petrauskas and Romas Baronas

Ping-Pong Tests On Distributed Processes Using Java Bindings of Open MPI and Java Sockets with Applications to Distributed Database Performance
Mehmet Can Boysan

Model Based Approach for Testing: Distributed Real-Time Systems Augmented with Online Monitors
Deepak Pal and Jüri Vain

17.05-17.30 Coffee Break
17.30-18.45 Session “Applications and Case Studies”
Chair: Marite Kirikova

What Language Do Stocks Speak?
Marko Poženel and Dejan Lavbič

The Algorithm for Constrained Shortest Path Problem Based on Incremental Lagrangian Dual Solution
Boris Novikov and Roman Guralnik

Current Perspectives on the Application of Bayesian Networks in Different Domains
Galina M. Novikova and Esteban J. Azofeifa

19:00-20.30 Historical Tour to Trakai
19:00-21.00 Steering Committee Meeting

Tuesday, July 3

8.30-9.00 Registration
9.00-10.00 Invited Talk by Marko Bajec “Smart City as a Platform-based Ecosystem”
10.00-11.00 Invited Talk by Milan Zdravković “Towards the Next-Generation Enterprise Information Systems – Research Opportunities and Challenges”
11.00-11.25 Coffee Break
11.25-12.15 Session “Knowledge and Ontologies”
Chair: Juris Borzovs
- **Domain Ontology for Expressing Knowledge of Variants of Thermally Modified Wood Products**  
  Hele-Mai Haav and Riina Maigre

- **The Knowledge Increase Estimation Framework for Integration of Ontology Instances' Relations**  
  Adrianna Kozierkiewicz and Marcin Pietranik

### 12.20-14.00 Session “Big Data Analysis and Processing”

**Chair: Vytautas Čyras**

- **Scalable Hadoop-Based Infrastructure for Big Data Analytics**  
  Irina Astrova, Arne Koschel, Felix Heine, and Ahto Kalja

- **Application of Graph Clustering and Visualisation Methods to Analysis of Biomolecular Data**  
  Edgars Celms, Kārlis Čerāns, Kārlis Freivalds, Paulis Ķikusts, Lelde Lāce, Gatis Melkus, Mārtiņš Opmanis, Dārta Rituma, Pēteris Ručevskis, and Juris Viķsna

- **A New Knowledge-Transmission Based Horizontal Collaborative Fuzzy Clustering Algorithm for Unequal-Length Time Series**  
  Shurong Jiang, Jianlong Wang, and Fusheng Yu

- **Non-Index Based Skyline Analysis on High Dimensional Data with Uncertain Dimensions**  
  Nurul Husna Mohd Saad, Hamidah Ibrahim, Fatimah Sidi, and Razali Yaako

### 12.20-14.00 Session “Cognitive Computing”

**Chair: Tarmo Robal**

- **Semi-Automatic Quasi-Morphological Word Segmentation for Neural Machine Translation**  
  Jānis Zuters, Gus Strazds, and Kārlis Immers

- **Effective Online Learning Implementation for Statistical Machine Translation**  
  Toms Miks, Mārcis Pinnis, Matīss Rikters, and Rihards Krišlauks

- **Investigation of Text Attribution Methods Based on Frequence Author Profile**  
  Polina Diurdeva and Elena Mikhailova

- **Implementing a Face Recognition System for Media Companies**  
  Arturs Sprogis, Karlis Freivalds, and Elita Cirule

### 14.00-15.00 Lunch

### 15.00-22.30 Excursion to Vilnius. Conference Dinner (A visit to an authentic Lithuanian village)
Wednesday, July 4

8.30-9.00  Registration
9.00-10.00  Invited Talk by Inguna Skadiņa “Languages of Baltic Countries in Digital Age”

10.00-12.00  Conference Forum Session I
Chair: Saulius Gudas

- Debugging Neural Machine Translations
  Matīss Rikters

- What Software Test Approaches, Methods, and Techniques Are Actually Used in Software Industry?
  Laura Strazdiņa, Vineta Arnicane, Guntis Arnicāns, Jānis Bičevskis, Juris Borzovs, and Ivans Kuļešovs

- Towards a Robust Method of Dataset Generation of Malicious Activity on a Windows Based Operating System for Anomaly-based HIDS Training
  Dainius Čeponis and Nikolaj Goranin

- An Empirical Assessment of Customer Lifetime Value Models within Data Mining
  Abdulkadir Hiziroglu, Merve Sisci, Halil Ibrahim Cebeci, and Omer Faruk Seymen

- Smart Museum Information Services to Assist Preservation, Transmission and Research in Cultural and Historical Heritage Domain
  Dmitry Korzun, Svetlana Yalovitsyna, and Valentina Volokhova

- Formalising Taboo as a Prohibition on Informing
  Vytautas Čyras and Friedrich Lachmayer

12.00-12.25  Coffee Break
12.25-14.25  Conference Forum Session II
Chair: Hele-Mai Haav

- Significance Level of a Big Data Query by Exploiting Business Processes and Strategies
  Loan Dinh Thi Ngoc, Gour Karmakar, Joarder Kamruzzaman and Andrew Stranieri

- Model of Linking Organisation Goals to Employee Competence Management for Formal and Non-formal Education Providers
  Uldis Zandbergs, Signe Brike, Dace Namsone and Anete Butkevica
• *Metamodel Based Framework for Information System Development – ISTechnology*
  Jānis Iljins and Ģirts Karnītis

• *An Approach to Designing Belief-Desire-Intention Based Virtual Agents for Travel Assistance*
  Arūnas Miliauskas and Dalė Dzemydienė

• *Measuring Enterprise Application Software Interoperability Capability*
  Andrius Valatavičius and Saulius Gudas

• *The Architecture of the Personalized Adaptive E-learning System*
  Vija Vagale, Laila Niedrite and Svetlana Ignatjeva

14.30-16.00  Closing & Lunch