



The 7th International Conference on Knowledge Science, Engineering and Management KSEM 2014

16–18 October 2014

Lucian Blaga University of Sibiu, Romania

Conference programme



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Hui Xiong	Rutgers University, USA

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Zhi Jin	Peking University, China
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Zhisheng Huang	Vrije University Amsterdam, The Netherlands
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THE CONFERENCE AND THE VENUES

The Conference

KSEM 2014 (the International Conference on Knowledge Science, Engineering and Management) followed an established tradition of long-standing conferences and was the seventh in the KSEM series, subsequent to the successful events in Guilin, China (KSEM 2006), Melbourne, Australia (KSEM 2007), Vienna, Austria (KSEM 2009), Belfast, UK (KSEM 2010), Irvine, USA (KSEM 2011), and Dalian, China (KSEM 2013).

KSEM 2014 was held in Sibiu, Romania, one of the most beautiful medieval towns in Transylvania. Due to its cultural richness along with its history, traditional values, architectural and geographical beauty, Sibiu was designated European Capital of Culture for the year 2007 and, according to *Forbes*, it is one of Europe's "most idyllic places to live." The conference was hosted by Lucian Blaga University of Sibiu and provided an opportunity to establish an international forum for aggregating and consolidating different technical viewpoints on the concept of "knowledge," as they emerge from its various facets – engineering, management, and science. Epistemic aspects were discussed in relation to mathematical formalisms, business goals, or information system architectures, in order to highlight and stimulate refinements on the key enabling concept for a knowledge-driven society. Integration requirements emerged from a wide array of problems and research challenges, and the problem of bridging the gap between knowledge management and knowledge engineering was tackled from multiple perspectives.

Based on the reviews by members of the Program Committee, a selection of 30 full papers and four short papers were presented and included in this year's proceedings. Additionally, three highly valued speakers provided keynote presentations, whose abstracts are also included here. We would like to give special thanks to Acad. Prof. Ruqian Lu, Prof. Dr. Pericles Loucopoulos and Prof. Dr. Gheorghe Cosmin Silaghi for their inspiring keynote talks.

A large scientific community was involved in setting up KSEM 2014. We would like to extend our gratitude to everybody who contributed to the success of the event. First of all, we wish to thank the authors who submitted their valuable work and the members of the Program Committee who provided their expertise for selecting and guiding the improvement of submissions. We greatly appreciate the support and advice of the conference chairs: Prof. Dr. Ioan Bondrea (Lucian Blaga University of Sibiu, Romania), Prof. Dr. Dimitris Karagiannis (University of Vienna, Austria), and Prof. Dr. Hui Xiong (Rutgers University, USA). We also thank the team at Springer led by Alfred Hofmann for the technical support in the publication of this volume.

The event would not have been possible without the extensive efforts of the Organizing Committee from Lucian Blaga University from Sibiu and of our host, Rector Prof. Dr. Ioan Bondrea.

October 2014

Robert Buchmann
Claudiu Vasile Kifor
Jian Yu

The Venues

General information on Sibiu and relevant tourist information can be found in the conference brochure. Please see the map below and identify the main locations of the conference.



No	Location	Address
1	University Library	4 Lucian Blaga Str.
2	University Restaurant	31 Victoriei Blvd..
3	Avram Iancu Auditorium	5-7 Victoriei Blvd.
4	Academic Reunion Centre	6 Banatului Str.
5	Senate Hall	10 Victoriei Blvd.
6	Parc Hotel,	1-3, Scoala de Inot

CONFERENCE PROGRAMME

Day 0 - 15 October 2014

15.00 Registration desk open for early arrivals

18.00–20.00 Welcome reception

Venue: University Restaurant, 31 Victoriei Blv.

Day 1 - 16 October 2014

08.00 Registration desk open

Venue: University Library, 4 Lucian Blaga Str., Senate Hall

09.00–09.30 Welcoming speeches (chair: **Claudiu Vasile Kifor**)

Venue: University Library, 4 Lucian Blaga Str., Senate Hall

Prof. Ioan Bondrea, Rector of the Lucian Blaga University of Sibiu, Romania
o. Univ.-Prof. Prof.h.c. Dr. Dimitris Karagiannis, University of Vienna, Austria
Prof. Hui Xiong, Rutgers University, USA

09.30–10.30 Keynote speech: **Ruqian Lu**, *Korchestration and the Korc Calculus*

Venue: University Library, 4 Lucian Blaga Str. , Senate Hall

10.30–11.00 Coffee break

Venue: University Library, 4 Lucian Blaga Str.

11.00–12.30 Session1: Formal Semantics I (chair: **Chengqi Zhang**)

Venue: University Library, 4 Lucian Blaga Str.

- Bernhard Heinemann** *Coming Upon the Classic Notion of Implicit Knowledge Again*
- Éric Grégoire** *Knowledge Preemption and Defeasible Rules*
- Xiaoxin Jing, Shier Ju, and Xudong Luo** *A Method for Merging Logic Systems in Cross-Cultural Environments*

11.00–12.30 Session2: Content and Document Analysis I (chair: **Costin Bădică**)

Venue: University Library, 4 Lucian Blaga Str.

- Christophe Thovex and Francky Trichet** *Automatic Building of Socio-semantic Networks for Requirements Analysis: Model and Business Application*
- Jungang Xu, Shilong Zhou, Lin Qiu, Shengyuan Liu, and Pengfei Li** *A Document Clustering Algorithm based on Semiconstrained Hierarchical Latent Dirichlet Allocation*
- Zhiwei Jiang, Gang Sun, Qing Gu, and Daoxu Chen** *An Ordinal Multi-class Classification Method for Readability Assessment of Chinese Documents*

12.30–13.45 Lunch break

Shuttle bus in front of the library

Venue: University Restaurant, 31 Victoriei Blv.

13.45–14.45 Keynote speech: **Pericles Loucopoulos**, *Enterprise Knowledge Modelling Facilitating Flexible Dynamically Changing Systems*

Venue: Avram Iancu Auditorium, 5-7 Victoriei Blvd.

14.45–15.00 Coffee break

Venue: Academic Reunion Centre, 6 Banatului Str.

15.00–17.00 Session 3: Formal Semantics II (chair: **Éric Grégoire**)

Venue: Academic Reunion Centre, 6 Banatului Str.

1. **Wenjuan Wu, Dianfu Ma, Yongwang Zhao, and Xianqi Zhao** *Formal Modeling of Airborne Software High-level Requirements Based on Knowledge Graph*
2. **Haijiang Wu, Jie Liu, Dan Ye, Jun Wei, and Hua Zhong** *Scalable Horn-Like Rule Inference of Semantic Data Using MapReduce*
3. **Lianyi Zhang, Qingdi Meng, and Guiming Luo** *Model Checking (k; d)-Markov Chain with ipLTL*
4. **Fuan Pu, Jian Luo, Yulai Zhang, and Guiming Luo** *Argument Ranking with Categoriser Function*

15.00-17.00 Session 4: Content and Document Analysis II (chair: Christoph Thovex)

Venue: Academic Reunion Centre, 6 Banatului Str.

1. **Cungen Cao, Shi Wang, and Lin Jiang** *A Practical Approach to Extracting Names of Geographical Entities and their Relations from the Web*
2. **Wenting Zhao, Lijin Wang, Yilong Yin, Bingqing Wang, Yi Wei, and Yushan Yin** *An Improved Backtracking Search Algorithm for Constrained Optimization Problems*
3. **Yaxin Bi, Maurice Mulvenna, and Anna Jurek** *Sentiment Classification by Combining Triplet Belief Functions*
4. **Mihaela Colhon, Costin Bădică, and Alexandra Şendre** *Relating the Opinion Holder and the Review Accuracy in Sentiment Analysis of Tourist Reviews*

17.00-17.15 Coffee break

Venue: Academic Reunion Centre, 6 Banatului Str.

17.15-18.15 Panel Discussion: Interdisciplinarity versus Specialization in the Scientific World (panel chair: Dimitris Karagiannis)

Venue: Senate Hall, 10 Victoriei Blv.

19.00 Dinner

Venue: University Restaurant, 31 Victoriei Blv.

21.00 Theater performance. *Good Person of Szechwan*, by Bertolt Brecht. Directed by Anca Bradu

Venue: Cavas Studio, Faculty of Letters and Arts, 5-7 Victoriei Blvd.

Day 2 - 17 October 2014

09.00-10.00 Keynote speech: Gheorghe Cosmin Silaghi, *Multi-criteria Resource Negotiation and Scheduling*

Venue: Avram Iancu Auditorium, 5-7 Victoriei Blvd.

10.00-10.30 Coffee break

Venue: Avram Iancu Auditorium, 5-7 Victoriei Blvd.

10.30-12.30 Session 5: Enterprise Knowledge Representation (chair: Hans-Georg Fill)

Venue: Academic Reunion Centre, 6 Banatului Str.

1. **Huili Jiang, Zili Zhang, and Li Tao** *A Semantic-Based EMRs Integration Framework for Diagnosis Decision-Making*
2. **Michael Kaufmann, Gwendolin Wilke, Edy Portmann, and Knut Hinkelmann** *Combining Bottom-up and Top-down Generation of Interactive Knowledge Maps for Enterprise Search*
3. **Christoph Prackwieser** *A Modeling Procedure for Information and Material Flow Analysis Comprising Graphical Models, Rules and Animated Simulation*
4. **Niksa Visic and Dimitris Karagiannis** *Developing Conceptual Modeling Tools Using a DSL*

10.30-12.30 Session 6: Concept and Lexical Analysis (chair: Jian Yu)

Venue: Academic Reunion Centre, 6 Banatului Str.

1. **Hisashi Masuda, Wilfrid Utz, Yoshinori Hara** *Development of an Evaluation Approach for Customer Service Interaction Models*
2. **Sanda Dragoş, Diana Haliţă, Christian Săcărea, and Diana Troancă** *Applying Triadic FCA in Studying Web Usage Behaviors*
3. **Lili Mou, Ge Li, Zhi Jin, and Lu Zhang** *Verification based on Hyponymy Hierarchical Characteristics for Web-based Hyponymy Discovery*
4. **Wafa Wali, Bilel Gargouri, and Abdelmajid Ben Hamadou** *Using Standardized Lexical Semantic Knowledge to Measure Similarity*

12.30-13.45 Lunch break

Venue: University Restaurant, 31 Victoriei Blv.

13.45-15.15 Session 7: Hybrid Knowledge Systems (chair: Michael Kaufmann)

Venue: Academic Reunion Centre, 6 Banatului Str.

1. **Hans-Georg Fill** *On the Social Network based Semantic Annotation of Conceptual Models*
2. **Nobuhito Marumo, Takashi Beppu, and Takahira Yamaguchi** *A Knowledge-Transfer System Integrating Workflow, a Rule Base, Domain Ontologies and a Goal Tree*
3. **Andreas Müller, Stefan Mitsch, Werner Retschitzegger, and Wieland Schwinger** *A Conceptual Reference Model of Modeling and Verification Concepts for Hybrid Systems*

13.45-15.15 Session 8: Clustering and Classification (chair: Zhi Jin)

Venue: Academic Reunion Centre, 6 Banatului Str.

1. **Zoltan Geler, Vladimir Kurbalija, Miloš Radovanović, and Mirjana Ivanović** *Impact of the Sakoe-Chiba Band on the DTW Time-Series Distance Measure for kNN Classification*
2. **Liping Jing, Dong Deng, and Jian Yu** *Weighting Exponent Selection of Fuzzy C-Means via Jacobian Matrix*
3. **Binfeng Wang, Li Tao, Chao Gao, Dawen Xia, Zhuobo Rong, Wu Wang, and Zili Zhang** *Dividing Traffic Sub-Areas Based on a Parallel K-Means Algorithm*

15.15-15.30 Coffee break

Venue: Academic Reunion Centre, 6 Banatului Str.

15.30-17.00 Session 9: Knowledge Management (chair: Christoph Prackwieser)

Venue: Academic Reunion Centre, 6 Banatului Str.

1. **Bogdan Chiliban, Lal Mohan Baral, and Claudiu Vasile Kifor** *Review of Knowledge Management Models for Implementation within Advanced Product Quality Planning*
2. **Lal Mohan Baral, Claudiu Vasile Kifor, and Ioan Bondrea** *Assessing the Impact of DMAIC-Knowledge Management Methodology on Six Sigma Projects: An Evaluation through Participant's Perception*
3. **Nora Fteimi and Franz Lehner** *The Core Elements of Corporate Knowledge Management and their Reflection in Research and Practice – the Case of Knowledge Management Systems*

15.30-17.00 Session 10: Ontology Engineering (chair: Robert Buchmann)

Venue: Academic Reunion Centre, 6 Banatului Str.

1. **Sabin C. Buraga and Claudia Gheorghiu** *An Ontological Approach for Specifying Provenance into SPARQL Service Descriptions*
2. **Alex Becheru and Costin Bădică** *Complex Networks' Analysis Using an Ontology-Based Approach: Initial Steps*
3. **Marco Rospocher, Tania Tudorache, Mark A. Musen** *Investigating Collaboration Dynamics in Different Ontology Development Environments*

17.00-17.15 Coffee break

Venue: Academic Reunion Centre, 6 Banatului Str.

17.15-18.15 Panel Discussion: Knowledge Engineering in Big Data Era

(panel chair: Ruqian Lu)

Venue: Senate Hall, 10 Victoriei Blv.

18.15-18.45 Closing plenary

Venue: Senate Hall, 10 Victoriei Blv.

20.00 Closing banquet

Venue: Parc Hotel, 1-3, Scoala de Inot

Day 3 - 18 October

10.00 Final tour departure

**Shuttle busses in front of the Avram Iancu Auditorium Building, 5-7 Victoriei Blvd.
Venue: Sâmbăta Academy – Spirituality, art culture, science**

11.00-13.00 Tour

13.00-15.00 Lunch break

15.00 Return to Sibiu

Arrival and transportation

Should you choose to travel to Sibiu by plane, it is very convenient to reach the city centre from the airport which is located within the city. The tourist may either take a taxi or travel by bus to the city centre.

In the former situation, we recommend the following taxi companies: taxi 924 (call 0269.924) or taxi 942 (call 0269.942); cca 2 RON/km.

In the latter case, please take bus no. 11, 111, 112, 114. Further details about bus itineraries are available here: <http://www.tursib.ro/trasee?language=en>

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