

The 11th IEEE International Conference on
Semantic Computing (ICSC 2017)



TECHNICAL PROGRAM

The Catamaran Resort Hotel and Spa
Jan 30-Feb 1, 2017 ■ San Diego, California, USA

Organized by
Organizing Committee of ICSC 2017

Sponsored by
IEEE
IEEE Computer Society
IEEE Technical Committee on Multimedia Computing (TCMC)
IEEE Technical Committee on Semantic Computing (TCSEM)

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Welcome to the Proceedings of the 11th IEEE International Conference on Semantic Computing (ICSC 2017) in San Diego, California, USA. ICSC 2017 continues to foster the growth of a new research community. This edition of the conference builds upon the tradition and success of the past ICSC series as an international forum for researchers as well as practitioners in academia and industry to present research that not only advances the state of the art and practice of Semantic Computing but also identifies the emerging research topics, and defines the future of the field.

This year, the conference received 129 paper submissions from over 24 countries. Every submission was reviewed by at least three up to six experts from the technical program committee (actually, more than half of papers received 4-5 reviews each). As a result, full paper acceptance was very competitive with an acceptance rate of 20.15% (26 accepted over 129 submissions). The selection of the papers was a challenging and difficult task. The Program Committee members have put in a significant effort in order to provide useful feedback to the authors. In addition, the proceedings include high-quality short papers, poster papers, special session papers, and workshop papers. All of these papers provide novel ideas, new results, and state-of-the-art techniques in the field. We are honored to have several of the world's leading experts in the field join us as distinguished keynote speakers and plenary speakers. Altogether, we are proud to be able to present you a rich program that contains a variety of top-notch research works.

New for this year is the **Best Paper Award** session. For this, we selected the top scored 6 papers as candidates based on their received reviews for the ICSC 2017 Best Paper Award. The authors of these papers will give their presentations in a specially-designated session, which will be attended by the "best paper award committee" judges, who will select the best student paper and the best paper after listening to all presentations. We strongly encourage all attendees to take part in this best paper award session, which will be held on January 31, 2017, to benefit from these top papers.

Another new trial for this year is the poster session. For this, we additionally allocate time slots for all full and short papers to be presented as posters, which have oral presentations on the same day. We aim at providing more opportunities to the accepted full and short papers so that authors can discuss their novel ideas with all attendees after the time limited oral presentation. We strongly encourage all attendees to take part in the poster session to ask questions and to discuss with authors according to your interests.

Many individuals have contributed to the success of this conference. We would like to take this opportunity to thank all authors for their submissions, many of whom traveled great distances to participate in this conference and make valuable contributions. We are indebted to the program committee members who have put in hard work and long hours to review each paper in a timely and professional manner. Without their help and advice, this program would not be possible. We would also like to express our deepest thanks to the General Chairs and Organizing Committee for their strong support. Last but not least, we would like to thank Professor Phillip Sheu for starting this wonderful conference in 2007.

IEEE ICSC 2017 Program Co-Chairs:

Daniela D'Auria, University of Naples Federico II, Italy

Jianquan Liu, NEC Corporation, Japan

Giovanni Pilato, Italian National Research Council, Italy

KEYNOTE SPEECH I

Requirements for Requirements Engineering Tools that Require Understanding Requirement Semantics - Why such tools should be clerical and not NLP-based

Daniel M. Berry

Professor, University of Waterloo, Canada



ABSTRACT This talk notes the advanced state of the natural language (NL) processing art and considers four broad categories of tools for processing NL requirements documents. These tools are used in a variety of scenarios. The strength of a tool for a NL processing task is traditionally measured by its recall, precision, and their simple harmonic mean, the F-measure. A hairy requirements or software engineering task involving NL documents is one that is not inherently difficult for NL-understanding humans on a small scale but becomes unmanageable in the large scale, such as occurs in industrial software development projects. A hairy task demands tool assistance. Because humans need far more help in carrying out a hairy task completely than they do in making the local yes-or-no decisions, a tool for a hairy task should have as close to 100% recall as possible, even at the expense of high imprecision. A tool that falls short of 100% recall may even be useless, e.g., when the software involved has high-dependability requirements, because to find the missing information, a human has to do the entire task manually anyway. Any such tool based on NL processing techniques inherently fails to achieve 100% recall, because even the best parsers are no more than 91% correct. Therefore, to achieve 100% recall in a tool for a hairy task, it needs to be based on something other than traditional NLP. Perhaps a dumb, clerical tool doing an identifiable part of such a task may be better than an intelligent tool trying but failing in unidentifiable ways to do the entire task. The reality is that a tool's achieving exactly 100% recall, which may be impossible anyway, may not be necessary. It suffices for a human working with the tool on a task to achieve better recall than a human working on the task entirely manually. This talk describes research whose goal is to discover and test a variety of non-traditional approaches to building tools for hairy tasks to see which, if any, allows a human working with the tool to achieve better recall than a human working entirely manually. Among the early results are (1) some advice about the correct balance between recall and precision and the resulting weighted F-measure to use to evaluate tools for hairy tasks (2) and the introduction of a new measure, summarization. Joint work with Ricardo Gacitua, Pete Sawyer, and Sri Fatimah Tjong

BIOSKETCH Dr. Daniel M. Berry got his B.S. in Mathematics from Rensselaer Polytechnic Institute, Troy, New York, USA in 1969 and his Ph.D. in Computer Science from Brown University, Providence, Rhode Island, USA in 1974. He was on the faculty of the Computer Science Department at the University of California, Los Angeles, California, USA from 1972 until 1987. He was in the Computer Science Faculty at the Technion, Haifa, Israel from 1987 until 1999. From 1990 until 1994, he worked for half of each year at the Software Engineering Institute at Carnegie Mellon University, Pittsburgh, Pennsylvania, USA, where he was part of a group that built CMU's Master of Software Engineering program. During the 1998-1999 academic year, he visited the Computer Systems Group at the University of Waterloo in Waterloo, Ontario, Canada. In 1999, Berry moved to what is now the Cheriton School of Computer Science at the University of Waterloo. Between 2008 and 2013, Berry held an Industrial Research Chair in Requirements Engineering sponsored by Scotia Bank and the National Science and Engineering Research Council of Canada (NSERC). Prof. Berry's current research interests are software engineering in general, and requirements engineering and electronic publishing in the specific.

KEYNOTE SPEECH II

The RoDyMan Platform for Robotic Dynamic Manipulation

Bruno Siciliano

Professor, University of Naples Federico II, Italy



ABSTRACT The state of the art of robotic manipulation is still rather far from the human dexterity in the execution of complex motions such as, for example, in dynamic manipulation tasks. Dynamic manipulation is considered as the most complex category of manipulation requiring ad-hoc controllers and specialized hardware. In case of non-prehensile manipulation or non-rigid objects, the task of dynamic manipulation becomes even more challenging. This reduces the opportunities for wide adoption of robots within human co-habited environments. The talk describes a method to manipulate rigid objects in a non-prehensile way with an underactuated robot manipulator, along with a method to track in real-time a 3D object undergoing large elastic deformations and fast rigid motions. The tasks are experimentally tested on the RoDyMan platform which is employed as a pizza chef robot.

BIOSKETCH Dr. Bruno Siciliano is Professor of Control and Robotics, Director of the Interdepartmental Center for Advanced Robotics in Surgery (ICAROS) and Responsible of the PRISMA Lab in the Department of Electrical Engineering and Information Technology at University of Naples Federico II. His research interests include force and visual control, human-robot interaction, aerial and service robotics. He has co-authored 7 books, 80 journal papers, 200 conference papers and book chapters. He has delivered 110 invited lectures and seminars at institutions worldwide, and he has been the recipient of several awards. He is a Fellow of IEEE, ASME and IFAC. He has served on the editorial boards of several peer-reviewed journals and has been chair of program and organizing committees of several international conferences. He is Co-Editor of the Springer Tracts in Advanced Robotics, and of the Springer Handbook of Robotics, which received the PROSE Award for Excellence in Physical Sciences & Mathematics and was also the winner in the category Engineering & Technology. His group has been granted fifteen European projects in the last eight years including an Advanced Grant from the European Research Council. Professor Siciliano is the Past-President of the IEEE Robotics and Automation Society.

KEYNOTE SPEECH III

TBD

Bob Rogers

*Chief Data Scientist for Big Data Solutions, Intel Corporation, USA***ABSTRACT** TBD, TBD

BIOSKETCH Bob Rogers, PhD, is Chief Data Scientist for Big Data Solutions at Intel, where he applies his experience solving problems with big data and analytics to help Intel build world class customer solutions. Prior to joining Intel, Bob was co-founder and Chief Scientist at Apixio, a big data analytics company for healthcare. Bob's mission is to put powerful analytics in the hands of all decision makers. To achieve that, he believes that the secrets of unstructured data must be unlocked through the application of broadly accessible open source analytical tools.



KEYNOTE SPEECH IV

Deep Tweaking: Techniques for Measuring Semantic Engagement

Dick Bulterman

Professor, Vrije Universiteit Amsterdam & CWI, The Netherlands

ABSTRACT Understanding the emotional reactions of audiences to a wide range of content types is an important area of research. It can help actors, directors and producers understand what 'works' in theater productions, it can help teachers understand how students react to the content of lessons and it can help marketers understand how their commercial pitches are being received. In this talk, I will survey various approaches to modeling, quantifying and understanding audience reactions to the semantic messages being provided through content based on a broad range of evaluation techniques. Using results from a study of the Heineken Weasel television commercial as a backdrop, I will provide an overview of evaluation approaches and their impact in long-term and real-time evaluation. The talk will consider various approaches to measuring audience reactions and discuss some of the open issues in the field. In the process, I will describe our experiences with audience evaluation based on several projects that my group in Amsterdam has conducted over the past decade.

BIOSKETCH Dr. Dick Bulterman is a senior researcher at CWI in Amsterdam, where since 2004 he heads the Distributed and Interactive Systems group. He is also holds the professorship of Distributed Multimedia Languages and Interfaces with the department of computer science at the Vrije Universiteit in Amsterdam, where he teaches and does research within the Computer Systems and Web and Media groups. From 1988-1994 (and briefly in 2002), he led CWI's Department of Computer Systems and Telematics and from 1994 to 1998, he was head of the Multimedia and Human Computer theme. In 1999, he started Oratrix Development BV, a CWI spin-off company that transferred the group's SMIL-based GRINS software to many parts of the civilized world. In 2002, after handing the responsibilities of CEO over to Mario Wildvanck, he returned to CWI and started up a new research activity at CWI on distributed multimedia systems. Prior to joining CWI in 1988, he was on the faculty of the Division of Engineering at Brown, where he was part of the Laboratory for Engineering Man/Machine Systems. Other academic appointments include visiting professorships in computer science at Brown (1993-94) and in the information theory group at TU Delft (1985) and a part-time appointment in computer science at the University of Utrecht (1989-1991). Dr. Bulterman received a Ph.D. in computer science from Brown University (USA) in 1982. He also holds a Sc.M. in applied mathematics and computer science from Brown (1977) and a B.A. in political economics (with a minor in mathematics) from Hope College (1973). He started his academic journey at Tottenville High School on Staten Island, NY, where he learned (among other things) to play trombone and string bass. He was born in Amstelveen (The Netherlands); after 35 years in the USA, he now resides with his family in Amsterdam. His hobbies include flying airplanes (he holds an FAA private ASEL license with instrument rating and a Dutch commercial pilot's license with IR), singing in the Cantorij of the Oude Kerk in Amsterdam and playing jazz trombone in the Amsterdam band the Jazz Warriors. Bulterman is co-chair of the W3C Synchronized Multimedia working group and is a member of various conference steering committees. He is on the editorial board of the ACM/Springer Multimedia Systems Journal and Multimedia Tools and Applications. He is a member of Sigma Xi, the ACM and the IEEE.

KEYNOTE SPEECH V

Breaking BAD: Data Serving for Big Active Data

Michael J. Carey

Professor, University of California at Irvine, USA



ABSTRACT Despite significant progress, virtually all of today's Big Data systems come up short in a crucial way: they are all *passive* in nature. In this talk we describe a new project to shift Big Data platforms from being passive to being *active*. We detail our vision for a scalable system that can continuously and reliably capture Big Data (e.g., arising from social, mobile, Web, and sensed data sources) in order to enable the timely and automatic delivery of new information to a very large pool of interested users as well as supporting the analysis of historical information. We are currently building such a Big Active Data (BAD) system based on extending an existing scalable open-source BDMS (AsterixDB) in this active direction. This talk will detail our overall system design and then zoom in on the Big Active Data Serving piece of the BAD puzzle, including its key concepts, its user model, its approaches to ingesting and disseminating information, and some of its salient initial architectural and internal details. The talk will also embed a brief overview of Apache AsterixDB, the Big Data software platform upon which this work is being based. (The BAD effort is joint work between Big Data researchers at UC Irvine and UC Riverside.)

BIOSKETCH Dr. Michael J. Carey received his B.S. and M.S. degrees from Carnegie-Mellon University and his Ph.D. from the University of California, Berkeley, in 1979, 1981, and 1983, respectively. He is currently a Bren Professor of Information and Computer Sciences at the University of California, Irvine (UCI) and a Consulting Architect at Couchbase, Inc. Before joining UCI in 2008, Dr. Carey worked at BEA Systems for seven years and led the development of BEA's AquaLogic Data Services Platform product for virtual data integration. He also spent a dozen years teaching at the University of Wisconsin-Madison, five years at the IBM Almaden Research Center working on object-relational databases, and a year and a half at e-commerce platform startup Propel Software during the infamous 2000-2001 Internet bubble. Dr. Carey is an ACM Fellow, an IEEE Fellow, a member of the National Academy of Engineering, and a recipient of the ACM SIGMOD E.F. Codd Innovations Award. His current interests all center around data-intensive computing and scalable data management (a.k.a. Big Data).

PROGRAM AT A GLANCE (MONDAY, JANUARY 30)

Place Time	Rousseau Center (foyer)	Rousseau East/West	Boardroom West	Boardroom
07:30 - 17:00	Registration			
07:30 - 08:30	Breakfast (foyer)			
08:30 - 09:00	Opening ceremony			
09:00 - 09:50	Keynote 1 Prof. Daniel M. Berry			
09:50 - 10:10	Coffee break			
10:10 - 12:10	Session 1: Semantic applications			
12:10 - 13:30	Lunch (on your own)			
13:30 - 14:20	Keynote 3 Dr. Bob Rogers			
14:20 - 14:25	Short break			
14:25 - 15:40	Session 2-A: Semantic analytics	Session 2-B: Semantic applications	Session 2-C: Semantic languages	
15:40 - 16:00	Coffee break			
16:00 - 17:20	Session 3: Semantic structures			
17:20 - 18:30		Poster session 1		
18:30 - 19:00	Break			
19:00 - 21:30				Reception

PROGRAM AT A GLANCE (TUESDAY, JANUARY 31)

Place Time	Rousseau Center (foyer)	Rousseau East/West	Boardroom West	Kon Tiki
07:30 - 17:00	Registration			
07:30 - 08:30	Breakfast (foyer)			
08:30 - 09:20	Keynote 2 Prof. Bruno Siciliano			
09:20 - 09:40	Coffee break			
09:40 - 11:40	Session 4: Best paper session			
11:40 - 13:00	Lunch (on your own)			
13:00 - 13:50	Panel Prof. Phillip Sheu			
13:50 - 14:00	Short break			
14:00 - 15:00	Session 5: Semantic multimedia		Tutorial: Big Data	
15:00 - 15:20	Coffee break		Dr. David Ostrowski	
15:20 - 17:20	Session 6: Semantic descriptions		(half day)	
17:20 - 18:30		Poster session 2		
18:30 - 19:00	Break			
19:00 - 21:30				Banquet Keynote 4 Prof. Dick Bulterman Best paper awards

PROGRAM AT A GLANCE (WEDNESDAY, FEBRUARY 1)

Place Time	Rousseau Center (foyer)	Rousseau East/West	Boardroom West	
08:00 - 17:00	Registration			
08:00 - 09:00	Breakfast (foyer)			
09:00 - 09:50	Keynote 5 Prof. Michael J. Carey			
09:50 - 10:10	Coffee break			
10:10 - 12:10	Special session: VESC (60 min)	Workshop: SCKNE (120 min)	Workshop: SMC (80 min)	
	Workshop: TWSCBD (20 min)			
12:10 - 13:30	Lunch (on your own)			
13:30 - 15:10	Workshop: IWSER (100 min)	Workshop: SDI (100 min)	Workshop: WSCE (100 min)	
15:10 - 15:30	Coffee break			
15:30 - 17:50	Workshop: SR (120 min)	Workshop: SCSN (100 min)	Workshop: BDISA (95 min) 15:25 – 17:00	

TECHNICAL PROGRAM (MONDAY, JANUARY 30)

08:30 - 09:00	Opening Ceremony Prof. Phillip Sheu, <i>University of California, Irvine, USA</i>	Rousseau Center
09:00 - 09:50	Keynote Speech I Session Chair: Dr. David A. Ostrowski, <i>Ford Motor Company, USA</i> Requirements for Requirements Engineering Tools that Require Understanding Requirement Semantics - Why such tools should be clerical and not NLP-based Prof. Daniel M. Berry, <i>University of Waterloo, Canada</i>	Rousseau Center
09:50 - 10:10	Coffee Break	
10:10 - 12:10	Session 1: Semantic applications Session Chair: Dr. Sanja Štajner, <i>University of Mannheim, Germany</i> #3 Implementing Semantic Document Search Using a Bounded Random Walk in a Probabilistic Graph <i>Lubomir Stanchev</i> (Full Paper, 20 minutes) #9 MicroSIA: A Gut-Microbes Information-Extraction Method with Semantic Inverse Analysis for Discovering Unique Bacteria-Combinations in Nationality <i>Shiori Hikichi and Yasushi Kiyoki</i> (Full Paper, 20 minutes) #96 Filtering Tweets for Social Unrest <i>Alan Mishler, Kevin Wonus, Wendy Chambers and Michael Bloodgood</i> (Full Paper, 20 minutes) #97 Exploring Double Subjectivity Through News Frames In Online News Sources: A Network Approach <i>Loretta Cheeks and Ashraf Gaffar</i> (Full Paper, 20 minutes) #101 A Semantic Model for Information Sharing in Autonomous Vehicle Systems <i>Shuai Zhang, I-Ling Yen, Hessam Moeini, Farokh Bastani and Darnell Moore</i> (Full Paper, 20 minutes) #108 Towards the Semantic Web based Northbound Interface for SDN Resource Management <i>Xi Chen and Tao Wu</i> (Full Paper, 20 minutes)	Rousseau Center
12:10 - 13:30	Lunch (on your own)	
13:30 - 14:20	Keynote Speech III Session Chair: Dr. Daniela D'Auria, <i>University of Naples Federico II, Italy</i> Title (TBD) Dr. Bob Rogers, <i>Chief Data Scientist for Big Data Solutions, Intel Corporation, USA</i>	Rousseau Center

14:20 - 14:25 Short Break

Parallel Sessions

14:25 - 15:40	Session 2-A: Semantic analytics Session Chair: Dr. Takahiro Kawamura, <i>Japan Science and Technology Agency, Japan</i>	Rousseau Center
#30	The Arabic Knowledge Graph: Opportunities and Challenges <i>Ahmed Ktob and Zhoujun Li</i> (Short Paper, 15 minutes)	
#45	Enhancing Coreference Classifiers using a Ranking-Aware Feature <i>Khair Nguyen and Ryutaro Ichise</i> (Short Paper, 15 minutes)	
#69	Alignment of Occupancy Grid and Floor Maps using Graph Matching <i>Daisuke Kakuma, Satoki Tsuchihiro, Gustavo Alfonso Garcia Ricardez, Jun Takamatsu and Tsukasa Ogasawara</i> (Short Paper, 15 minutes)	
#73	A Deep Learning Framework for Coreference Resolution Based on Convolutional Neural Network <i>Jheng-Long Wu and Wei-Yun Ma</i> (Short Paper, 15 minutes)	
#93	Classification of Private Tweets using Tweet Content <i>Qiaozhi Wang, Jaisneet Bhandal, Shu Huang and Bo Luo</i> (Short Paper, 15 minutes)	
14:25 - 15:40	Session 2-B: Semantic applications Session Chair: Prof. Jun Takamatsu, <i>Nara Institute of Science and Technology, Japan</i>	Rousseau East/West
#5	Body Gestures and Spoken Sentences: a Novel Approach for Revealing User's Emotions <i>Vito Gentile, Fabrizio Milazzo, Salvatore Sorce, Antonio Gentile, Agnese Augello and Giovanni Pilato</i> (Short Paper, 15 minutes)	
#59	Information Mediator for Demand Response in Electrical Grids and Buildings <i>Jason Koh, Steven Ray and Jack Hodges</i> (Short Paper, 15 minutes)	
#74	Finding errors in a Chinese lexico-semantic resource using GWAP <i>Hanyu Zhang, Sajjan Raj Ojha and Fausto Giunchiglia</i> (Short Paper, 15 minutes)	
#89	Linking and maintaining quality of data about MOOCs using Semantic Computing <i>Chinmay Dhekne and Srividya Bansal</i> (Short Paper, 15 minutes)	
#102	Multimodal Classification of Obstructive Sleep Apnea using Feature Level Fusion <i>Gokhan Memis and Mustafa Sert</i> (Short Paper, 15 minutes)	

14:25 - 15:40 Session 2-C: Semantic languages Boardroom West
Session Chair: Prof. Chih-Hua Tai, *National Taipei University, Taiwan*

- #27 Company Relation Extraction from Web News Articles for Analyzing Industry Structure
Ayana Yamamoto, Yuichi Miyamura, Kouta Nakata and Masayuki Okamoto
(Short Paper, 15 minutes)
- #42 Identifying the Overlap between Election Result and Candidates' Ranking based on Hashtag-Enhanced, Lexicon-Based Sentiment Analysis
Rezvaneh Rezapour, Lufan Wang, Omid Abdar and Jana Diesner
(Short Paper, 15 minutes)
- #62 A Context-Aware Approach for the Identification of Complex Words in Natural Language Texts
Elnaz Davoodi, Leila Kosseim and Matthew Mongrain
(Short Paper, 15 minutes)
- #92 Using Text Comprehension Model for Learning Concepts, Context, and Topic of Web Content
Ismael A Ali, Naser Madi and Austin Melton
(Short Paper, 15 minutes)
- #106 Relation-wise Automatic Domain-Range Information Management for Knowledge Entries
Md-Mizanur Rahoman and Ryutaro Ichise
(Short Paper, 15 minutes)

15:40 - 16:00 Coffee Break

16:00 - 17:20 Session 3: Semantic structures Rousseau Center
Session Chair: Prof. Bo Luo, *The University of Kansas, USA*

- #35 Semantic data integration for knowledge graph construction at query time
Diego Collarana, Mikhail Galkin, Christoph Lange, Maria-Esther Vidal, Sören Auer and Ignacio Traverso-Ribón
(Full Paper, 20 minutes)
- #37 SELEcTor: Discovering Similar Entities on LinkEd DaTa by Ranking their Features
Livia Ruback, Marco Antonio Casanova, Chiara Renso and Claudio Lucchese
(Full Paper, 20 minutes)
- #50 KBox -- Transparently Shifting Query Execution on Knowledge Graphs to the Edge
Edgard Marx, Ciro Baron Neto, Tommaso Soru and Sören Auer
(Full Paper, 20 minutes)
- #61 Discovering, Ranking and Merging RDF Data Cubes
Sebastian Bayerl and Michael Granitzer
(Full Paper, 20 minutes)

17:20 - 18:30 Poster session 1 Rousseau East/West
Session Chair: Prof. Yi-Cheng Chen, *Tamkang University, Taiwan*

- * Full and short papers presented on the same day have to present as a poster as well. [10 (full) + 15 (short) = 25]*
- #3 Implementing Semantic Document Search Using a Bounded Random Walk in a Probabilistic Graph
Lubomir Stanchev (Full paper)
- #9 MicroSIA: A Gut-Microbes Information-Extraction Method with Semantic Inverse Analysis for Discovering Unique Bacteria-Combinations in Nationality
Shiori Hikichi and Yasushi Kiyoki (Full paper)
- #96 Filtering Tweets for Social Unrest
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- #93 Classification of Private Tweets using Tweet Content
Qiaozhi Wang, Jaisneet Bhandal, Shu Huang and Bo Luo (Short paper)
- #5 Body Gestures and Spoken Sentences: a Novel Approach for Revealing User's Emotions
Vito Gentile, Fabrizio Milazzo, Salvatore Sorce, Antonio Gentile, Agnese Augello and Giovanni Pilato (Short paper)
- #59 Information Mediator for Demand Response in Electrical Grids and Buildings
Jason Koh, Steven Ray and Jack Hodges (Short paper)

TECHNICAL PROGRAM (TUESDAY, JANUARY 31)

08:30 - 09:20 **Keynote Speech II** Rousseau Center
Session Chair: Dr. Giovanni Pilato, Italian National Research Council, Italy

The RoDyMan Platform for Robotic Dynamic Manipulation
 Prof. Bruno Siciliano, *University of Naples Federico II, Italy*

09:20 - 09:40 **Coffee Break**

09:40 - 11:40 **Session 4: Best paper session** Rousseau Center
Session Chair: Dr. Jianquan Liu, NEC Corporation, Japan

#12 Identifying Medications that Patients Stopped Taking in Online Health Forums
Jason H.D. Cho, Tony Gao and Roxana Girju
 (Full Paper, 20 minutes)

#51 Torpedo: Improving the State-of-the-Art RDF Dataset Slicing
Edgard Marx, Saeedeh Shekarpour, Tommaso Soru, Adrian M.P. Brasoveanu, Muhammad Saleem, Ciro Baron Neto, Jens Lehmann, Axel-Cyrille Ngonga Ngomo, Sören Auer and Albert Weichselbraun
 (Full Paper, 20 minutes)

#63 Querying Intimate-Core Groups in Weighted Graphs
Zheng Dong, Jianquan Liu, Rong-Hua Li, Cigdem Aslay, Yi-Cheng Chen and Xin Huang
 (Full Paper, 20 minutes)

#71 Domain Adaptation for Automatic Detection of Speculative Sentences
Sanja Štajner, Goran Glavas, Simone Paolo Ponzetto and Heiner Stuckenschmidt
 (Full Paper, 20 minutes)

#91 Using Social Sensing to Discover Trends in Public Emotion
Maryam Hasan, Elke Rundensteiner, Xiangnan Kong and Emmanuel Agu
 (Full Paper, 20 minutes)

#112 Hyponym/Hypernym Detection in Science and Technology Thesauri from Bibliographic Datasets
Takahiro Kawamura, Motoki Sekine and Katsuji Matsumura
 (Full Paper, 20 minutes)

11:40 - 13:00 **Lunch (on your own)**

13:00 - 13:50 **Panel Discussion** Rousseau Center
Session Chair: Prof. Phillip Sheu, University of California, Irvine, USA

Semantic Computing and Robotic Computing
 Panelists:
 Daniela D'Auria, *University of Naples Federico II, Italy*
 David A. Ostrowski, *Ford Motor Company, USA*
 Giovanni Pilato, *Italian National Research Council, Italy*
 Phillip Sheu, *Phillip Sheu, University of California, Irvine, USA*
 Elin Anna Topp, *Lund University, Sweden*

#74 Finding errors in a Chinese lexico-semantic resource using GWAP
Hanyu Zhang, Sajjan Raj Ojha and Fausto Giunchiglia (Short paper)

#89 Linking and maintaining quality of data about MOOCs using Semantic Computing
Chinmay Dhekne and Srividya Bansal (Short paper)

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Ismael A Ali, Naser Madi and Austin Melton (Short paper)

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#37 SELEcTor: Discovering Similar Entities on LinkEd DaTa by Ranking their Features
Livia Ruback, Marco Antonio Casanova, Chiara Renso and Claudio Lucchese (Full paper)

#50 KBox -- Transparently Shifting Query Execution on Knowledge Graphs to the Edge
Edgard Marx, Ciro Baron Neto, Tommaso Soru and Sören Auer (Full paper)

#61 Discovering, Ranking and Merging RDF Data Cubes
Sebastian Bayerl and Michael Granitzer (Full paper)

#6 Various Type of Wavelet Filters on Time Series Forecasting
Park Keun-Tae and Beak Jun-Geol (Poster paper)

#7 A Lifelong Learning Topic Model Structured Using Latent Embeddings
Mingyang Xu, Ruixin Yang, Steve Harenberg and Nagiza Samatova (Poster paper)

18:30 - 19:00 **Break**

19:00 - 21:30 **Reception**

Boardroom

13:50 - 14:00 Short Break

Parallel Sessions

14:00 - 15:00 Session 5: Semantic multimedia Rousseau Center
Session Chair: Prof. Leila Kosseim, Concordia University, Canada

#4 Robotic Binaural Localization and Separation of Multiple Simultaneous Sound Sources
Fakheredine Keyrouz
(Full Paper, 20 minutes)

#19 Nicky: Toward A Virtual Assistant for Test and Measurement Instrument Recommendations
Robert Kincaid and Graham Pollock
(Full Paper, 20 minutes)

#82 Labeling the Frames of a Video Stream with Interval Events
Fabio Persia, Fabio Bettini and Sven Helmer
(Full Paper, 20 minutes)

15:00 - 15:20 Coffee Break

15:20 - 17:20 Session 6: Semantic descriptions Rousseau Center
Session Chair: Prof. Michael Bloodgood, The College of New Jersey, USA

#1 The Sharing Economy Meets the Semantic Web: An Ontology for the Matchmaking of Peers
Moritz von Hoffen
(Full Paper, 20 minutes)

#13 Reasoning-supported Robustness Validation of Automotive E/E Components
Jan Novacek, Alexander Viehl, Oliver Bringmann and Wolfgang Rosenstiel
(Full Paper, 20 minutes)

#15 D-SPACES: An Implementation of Declarative Semantics for Spatially Structured Information
Salim Perchy, Stefan Haar and Frank Valencia
(Full Paper, 20 minutes)

#18 SemUI: A Knowledge Driven Visualization Of Diversified Data
Fausto Giunchiglia, Sajan Raj Ojha and Subhashis Das
(Full Paper, 20 minutes)

#65 Harnessing English Sentiment Lexicons for Polarity Detection in Urdu Tweets: A Baseline Approach
Muhammad Yaseen Khan, Shah Muhammad Emaduddin and Khurum Nazir Junejo
(Full Paper, 20 minutes)

#87 A Behavior-Based Ontology for Supporting Automated Assessment of Interactive Systems. *Thiago Silva, Jean-Luc Hak and Marco Winckler*
(Full Paper, 20 minutes)

14:00 - 17:20 Tutorial: Big Data Boardroom West
Session Chair: Dr. David A. Ostrowski, Ford Motor Company, USA

17:20 - 18:30 Poster session 2 Rousseau East/West
Session Chair: Dr. Salim Perchy, INRIA, France

* Full and short papers presented on the same day have to present as a poster as well. [15 (full)]

#12 Identifying Medications that Patients Stopped Taking in Online Health Forums
Jason H.D. Cho, Tony Gao and Roxana Girju (Full paper)

#51 Torpedo: Improving the State-of-the-Art RDF Dataset Slicing
Edgard Marx, Saeedeh Shekarpour, Tommaso Soru, Adrian M.P. Brasoveanu, Muhammad Saleem, Ciro Baron Neto, Jens Lehmann, Axel-Cyrille Ngonga Ngomo, Sören Auer and Albert Weichselbraun (Full paper)

#63 Querying Intimate-Core Groups in Weighted Graphs
Zheng Dong, Jianquan Liu, Rong-Hua Li, Cigdem Aslay, Yi-Cheng Chen and Xin Huang
(Full paper)

#71 Domain Adaptation for Automatic Detection of Speculative Sentences
Sanja Štajner, Goran Glavas, Simone Paolo Ponzetto and Heiner Stuckenschmidt (Full paper)

#91 Using Social Sensing to Discover Trends in Public Emotion
Maryam Hasan, Elke Rundensteiner, Xiangnan Kong and Emmanuel Agu (Full paper)

#112 Hyponym/Hypernym Detection in Science and Technology Thesauri from Bibliographic Datasets
Takahiro Kawamura, Motoki Sekine and Katsuji Matsumura (Full paper)

#4 Robotic Binaural Localization and Separation of Multiple Simultaneous Sound Sources
Fakheredine Keyrouz (Full paper)

#19 Nicky: Toward A Virtual Assistant for Test and Measurement Instrument Recommendations. *Robert Kincaid and Graham Pollock* (Full paper)

#82 Labeling the Frames of a Video Stream with Interval Events
Fabio Persia, Fabio Bettini and Sven Helmer (Full paper)

#1 The Sharing Economy Meets the Semantic Web: An Ontology for the Matchmaking of Peers. *Moritz von Hoffen* (Full paper)

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Jan Novacek, Alexander Viehl, Oliver Bringmann and Wolfgang Rosenstiel (Full paper)

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Fausto Giunchiglia, Sajan Raj Ojha and Subhashis Das (Full paper)

#65 Harnessing English Sentiment Lexicons for Polarity Detection in Urdu Tweets: A Baseline Approach
Muhammad Yaseen Khan, Shah Muhammad Emaduddin and Khurum Nazir Junejo
(Full paper)

TECHNICAL PROGRAM (WEDNESDAY, FEBRUARY 1)

09:00 - 09:50 **Keynote Speech V** Rousseau Center
Session Chair: Mr. Atsushi Kitazawa, NEC Solution Innovators, Japan

Breaking BAD: Data Serving for Big Active Data
 Prof. Michael J. Carey, *University of California at Irvine, USA*

09:50 - 10:10 **Coffee Break**

Parallel Sessions

10:10 - 11:10 **Special session: VESC** Rousseau Center
Session Chair: Dr. Robert Mertens, HSW University of Applied Sciences, Germany

VESC-2 TurtleEditor 2.0: A Synchronized Graphical and Text Editor for RDF Vocabularies
Alexandra Similea, Niklas Petersen, Steffen Lohmann, Christoph Lange

VESC-3 Semantic Navigation and Discussion in a Digital Boardroom
Jessica Rubart, Benjamin Lietzau, Patrick Söhlke, Bastian Alex, Stephan Becker, Tim Wienböcker

VESC-4 An Aspect-Oriented Visual Ontology Editor with Edit-Time Consistency Checking
Florian Hallay, Stefan Hartmann, Niklas Kewitz, Robert Mertens

11:10 - 11:30 **Workshop: TWSCBD** Rousseau Center
Session Chair: Dr. David A. Ostrowski, Ford Motor Company, USA

A Semantic Based Framework for the purpose of Big Data Integration
David Ostrowski, Mira Kim

10:10 - 12:10 **Workshop: SCKNE** Rousseau East/West
Session Chair: Prof. Cristiane Chaves Gattaz, Centro Universitário FEI, Brazil

SCKNE-01 Database and knowledge base integration method to support decision-making related to quality of application and use of agricultural sprayers
Elmer A. Gamboa Peñaloza, Paulo Estevão Cruvinel, Vilma A. Oliveira, Augusto G. F. Costa

SCKNE-02 Prerequisite Study for the Development of Embedded Instrumentation for Plant Phenotyping using Computational Vision
Nicolas dos Santos Rosa, Paulo Estevão Cruvinel

SCKNE-03 Parameter estimation of a demand forecasting function associated with the behavior of weed using genetic algorithm
Marinna S. Sterzo, Paulo Estevão Cruvinel

SCKNE-04 Crowdfunding Research Agenda
Israel José dos Santos Felipe, Wesley Mendes-da-Silva, Cristiane Chaves Gattaz

SCKNE-05 Semantic Smart City: Context Aware Application Architecture
Sahil Sholla

#87 A Behavior-Based Ontology for Supporting Automated Assessment of Interactive Systems. *Thiago Silva, Jean-Luc Hak and Marco Winckler* (Full paper)

#17 ESKAPE: Platform for Enabling Semantics in the Continuously Evolving Internet of Things
André Pomp, Alexander Paulus, Sabina Jeschke and Tobias Meisen (Poster paper)

#21 Ontology-based CMS news authoring environment
Edgard Costa Oliveira, Edison Ishikawa, Lucas Hiroshi Horinouchi, Thabata Hellen Granja, Marcos Valério De Almeida Nunes, Daniel Rodriguez, Rafael Batista Menegassi, Luciano Pina Gois and Gheorge Ghinea (Poster paper)

#26 Solving the Singularity Problem of Semiconductor Process Signal using Improved Dynamic Time Warping
Jae Yeol Hong, Seung Hwan Park and Jun-Geol Baek (Poster paper)

#38 Tackling Complex Ontologies with AVOnEd - Aspect-oriented Visual Ontology Editor
Lena Gesterkamp, Jonas Rebstadt and Robert Mertens (Poster paper)

#41 Schema Matching for Semi-structured and Linked Data
Mohamed Salah Kettouch, Cristina Luca and Mike Hobbs (Poster paper)

#53 ATOM: Ontology Aware Transportation Model
Subhashis Das, Sajan Raj Ojha and Fausto Giunchiglia (Poster paper)

#66 An Audience-Responsive Robotic Performance Network
Colin Zyskowski, Shlomo Dubnov and Mauricio de Oliveira (Poster paper)

#78 Towards Secure SPARQL Queries in Semantic Web Applications using PHP
Fatmah Bamashmoos, Ian Holyer, Theodore Tryfonas and Przemyslaw Woznowski (Poster paper)

#86 Document Understanding Using Improved Sqrt-Cosine Similarity
Sahar Sohngir and Dingding Wang (Poster paper)

#99 Real Time Evaluation of Quality Of Search Terms During Query Expansion For Streaming Text Data Using Velocity And Relevance
Nilayan Bhattacharya, I. Budak Arpinar and Ugur Kursuncu (Poster paper)

#128 Seeing Trees in a Forest for Improving Syntactic and Semantic Parsing
Yukiko Sasaki Alam and Shahid Alam (Poster paper)

#129 Semantic Patent Analysis System based on Big data
Junghoon Shin, Sangjun Lee and Taehyung Wang (Poster paper)

18:30 - 19:00 **Break**

19:00 - 21:30 **Banquet + Keynote Speech IV + Best Paper Awards** Kon Tiki
Session Chair:
 Prof. Phillip Sheu, *University of California, Irvine, USA*
 Dr. Jianquan Liu, *NEC Corporation, Japan*

Deep Tweaking: Techniques for Measuring Semantic Engagement
 Prof. Dick Bulterman, *Vrije Universiteit Amsterdam & CWI, The Netherland*

SCKNE-06 An Intelligent and Semantics-Aware Distraction-Free Writing System
Jonathan Johannsen, Yu Sun

10:10 - 11:30 **Workshop: SMC** **Boardroom West**
Session Chair: Dr. Fabio Persia, Free University of Bozen-Bolzano, Italy

SMC-01 KIRA: a system for knowledge-based access to multimedia art collections
Flora Amato, Vincenzo Moscato, Antonio Picariello and Giancarlo Sperli

SMC-03 Research Challenges in Multimedia Recommender Systems
Mouzhi Ge and Fabio Persia

SMC-05 Towards Real-time Stream Reasoning for the Internet of Things
Markus Endler, Edward Hermann Haeusler, Vitor Pinheiro Almeida, Francisco Silva E Silva and Jean-Pierre Briot

SMC-06 Open Specification for Indoor-Navigation
Christoph Fabritz, Mohammed Abdelrahim, Steven Wirsz and Taehyung Wang

12:10 - 13:30 **Lunch (on your own)**

Parallel Sessions

13:30 - 15:10 **Workshop: IWSER** **Rousseau Center**
Session Chair: Dr. Feroz Farazi, Birmingham City University, United Kingdom

Invited A formal approach to design a large scale domain ontology
Biswanath Dutta

IWSER-06 Human-like context modelling for robot surveillance
Fausto Giunchiglia, Enrico Bignotti and Mattia Zeni

IWSER-13 Comparison of Three Different CNN Architectures for Age Classification
M. Fatih Aydogdu, Vakkas Celik and M. Fatih Demirci

IWSER-04 Process Ontology For Confectionery SweetBot
Sampada Karanjit, Sajan Raj Ojha and Subhashis Das

IWSER-12 Towards A Formal Ontology To Support Interoperability Across Multiple Product Lifecycle Domains
Sattam Saha, Zahid Usman, Steve Jones, Rohit Kshirsagar and Weidong Li

IWSER-10 Supporting Semantic Capture During Kinesthetic Teaching of Collaborative Industrial Robots
Maj Stenmark, Mathias Haage, Elin Anna Topp and Jacek Malec

13:30 - 15:10 **Workshop: SDI** **Rousseau East/West**
Session Chair: Prof. Srividya K Bansal, Arizona State University, USA

SDI-01 Capacity Measurement and Planning for NoSQL Databases
Ramya Pasumarti, Rushin Barot, Susie Xia, Ang Xu and Haricharan Ramachandra

SDI-03 C-SWRL: SWRL for Reasoning over Stream Data information
Edmond Jajaga and Lule Ahmedi

SDI-04 Events Discovery Assistant: A semi-supervised spatio-temporal and semantic model for discovering First World War events
Maaly Nassar and Nicolas Apostolopoulos

SDI-05 Information Retrieval from a Structured Knowledge Base
Avani Chandurkar and Ajay Bansal

SDI-06 Semantic ETL State-of-the-art and open research challenges
Jaydeep Chakraborty, Aparna Padki and Srividya Bansal

13:30 - 15:10 **Workshop: WSCE** **Boardroom West**
Session Chair: Prof. Shlomo Dubnov, University of California, San Diego, USA

Invited A Metadata Generation Method for Music Retrieval by Story-Arc Corresponds to Multi-Temporal-Granularity
Asako Uraki, Yasushi Kiyoki

Invited Obtaining Semantic Cues from Audience Response: An Interactive Musical Installation on a Mobile Robotic Network
Colin Zyskowski

WSCE-01 A multi-modal platform for semantic music analysis: visualizing audio- and score-based tension. *Dorien Herremans and Ching-Hua Chuan*

WSCE-02 RemixNet: Generative Adversarial Networks for Mixing Multiple Inputs
Mehrdad Yazdani

WSCE-03 Novel Method of Nonlinear Symbolic Dynamics for Semantic Analysis of Auditory Scenes. *Pauline Mouawad and Shlomo Dubnov*

15:10 - 15:30 **Coffee Break**

Parallel Sessions

15:30 - 17:30 **Workshop: SR** **Rousseau Center**
Session Chair: Dr. Daniela D'Auria, University of Naples Federico II, Italy

SR-01 A Methodology for Improving Vegetation Representation and Health Exploiting a Semantic Robotic System
Daniela D'Auria and Fabio Persia

SR-02 Obstacle avoidance for low-cost UAVs
Wilbert G. Aguilar, Verónica P. Casaliglla and José L. Polit

SR-03 Pedestrian detection for UAVs using HAAR-LBP with Meanshift
Wilbert G. Aguilar, Marco A. Luna, Julio F. Moya, Vanessa Abad, Humberto Parra and Hugo Ruiz

SR-04 Verbal corpus based on natural language processing for Ecuadorian dialect
Wilbert G. Aguilar, Darwin Alulema, Alex Limaico and David Sandoval

SR-06 Overview of an Ontology-based Approach for Kit Building Applications
Zeid Kootbally, Thomas Kramer, Craig Schlenoff and Satyandra Gupta

SR-07 Consistent Cuboid Detection for Semantic Mapping
Zakieh Sadat Hashemifar, Kyung Won Lee, Nils Napp and Karthik Dantu

15:30 - 17:10 Workshop: SCSN Rousseau East/West
 Session Chair: Dr. Giovanni Pilato, *Italian National Research Council, Italy*

SCSN-02 A Review on Sarcasm Detection from Machine-Learning Perspective
Setra Genyang Wicana, Taha Yasin Ibisoglu, Uraz Yavanoglu

SCSN-03 Network Security Scoring/Mustafa Sami Kaçar and Kasım Öztoprak
Mustafa Sami Kaçar and Kasım Öztoprak

SCSN-04 Topic Distribution Constant Diameter Overlay Design Algorithm (TD-CD-ODA)
Sina Layazali, Kasim Oztoprak, Erdogan Dogdu

SCSN-07 Study of Evolving Co-Authorship Network: Identification of Growth Patterns of Collaboration Using SNA Measures
Samreen Kazi

SCSN-08 The use of Latent Semantic Analysis in the Positive Psychology: a Comparison with Twitter Posts
Sara Santilli, Laura Nota, Giovanni Pilato

15:25 - 17:00 Workshop: BDISA Boardroom West
 Session Chair: Dr. Guigang Zhang, *Institute of Automation, Chinese Academy of Sciences, China*

BDISA-01 Reconstruction of Records Storage Model on the Cloud Datacenter
Sixin Xue
 (Full paper, 20 minutes)

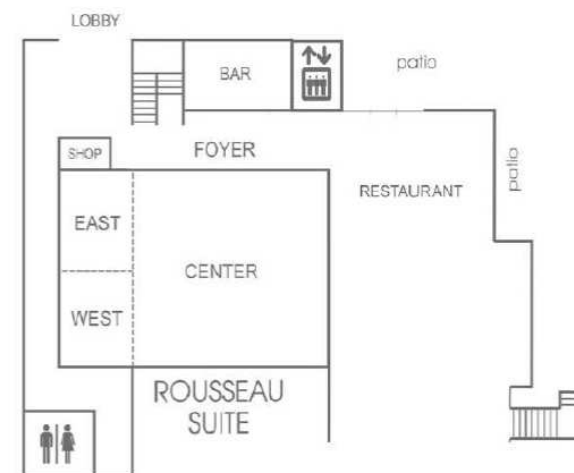
BDISA-02 Medical Big Data Web Service Management Platform
Jiawei Liu, Yong Zhang, Chunxiao Xing
 (Full paper, 20 minutes)

BDISA-03 Public Cultural Knowledge Graph Platform
Yi Yang, Guigang Zhang, Jian Wang, Shufeng Ye, Jianqiao Hu
 (Full paper, 20 minutes)

BDISA-04 Civil Aircraft Big Data Platform
Sujie Li, Yi Yang, Lu Yang, Haixia Su, Guigang Zhang, Jian Wang
 (Full paper, 20 minutes)

BDISA-05 Semantic Framework for Electronic Health Records
André Amaro Toffanello, André Amaro Toffanello, Edgard Costa
 (Short paper, 15 minutes)

FLOOR MAPS OF CONFERENCE ROOMS



FLOOR 1



FLOOR 2