

Table of Contents

The Association for Computing Machinery	ii
Symposium Organizing Committee	iii
Sponsoring SIG Information	iv
Track Chairs	v
Message from the Symposium Chairs	x
Message from the Program Chairs	xi
Abstracts for Keynote Presentations	xii
Abstracts for Tutorial Presentations	xiv

Volume I: Artificial Intelligence and Agents, Distributed Systems, and Information Systems

Computational Biology and Bioinformatics Track

Track Co-Chairs: Paola Lecca, University of Trento, Italy
Dan Tulpan, National Research Council, Canada
Juan Manuel Corchado Rodriguez, University of Salamanca, Spain

Parallel Approximate Steady-State Analysis of Large Probabilistic Boolean Networks	1
<i>Andrzej Mizera, University of Luxembourg, Luxembourg</i> <i>Jun Pang, University of Luxembourg, Luxembourg</i> <i>Qixia Yuan, University of Luxembourg, Luxembourg</i>	
Discovering Disease-Associated Drugs using Web Crawl Data	9
<i>Hyunjin Kim, Yonsei University, South Korea</i> <i>Sanghyun Park, Yonsei University, South Korea</i>	
IDO: Inferring Describable Disease-Gene Relationships using Opinion Sentences	15
<i>Jeongwoo Kim, Yonsei University, South Korea</i> <i>Youngmi Yoon, Gachon University, South Korea</i> <i>Sanghyun Park, Yonsei University, South Korea</i>	
Discovering Discriminative Graph Patterns from Gene Expression Data	23
<i>Fabio Fassetti, University of Calabria, Italia</i> <i>Simona E. Rombo, University of Palermo, Italia</i> <i>Cristina Serrao, University of Calabria, Italia</i>	
A Framework for Virtual Screening	31
<i>Vinicius Rosa Seus, Universidade Federal do Rio Grande, Brazil</i> <i>Lande Silva Jr., Universidade Federal do Rio Grande, Brazil</i> <i>Jorge Gomes, Universidade Federal do Rio Grande, Brazil</i> <i>Pedro E.A. da Silva, Universidade Federal do Rio Grande, Brazil</i> <i>Adriano V. Werhli, Universidade Federal do Rio Grande, Brazil</i> <i>Karina S. Machado, Universidade Federal do Rio Grande, Brazil</i> <i>Nubia Prates, Universidade Federal do Rio Grande, Brazil</i> <i>Nilo Zanata, Universidade Federal do Rio Grande, Brazil</i>	

Poster Papers

A Method for Obtaining Rich Data from PubMed using SVM 37

Junbum Cha, Yonsei University, South Korea
Jeongwoo Kim, Yonsei University, South Korea
Yunku Yeu, Yonsei University, South Korea
Sanghyun Park, Yonsei University, South Korea

Identification of Dynamical Biological Systems based on Mixed-Effect Models 40

Levy Batista, CRAN, CYBERnano, France
Thierry Bastogne, CRAN, INRIA BIGS, CYBERnano, France
El Hadi Djermoune, CRAN, France

Extensive Assessment of Metrics on RNA Secondary Structures and Relative Ensembles 44

Marco Barsacchi, University of Florence, Italy
Andrea Baiù, University of Pisa, Italy
Alessio Bechini, University of Pisa, Italy

Computational Intelligence and Video & Image Analysis Track

Track Co-Chairs: *Agostinho Rosa, University of Lisbon, Portugal*
Yin-Fu Huang, National Yunlin University of Science and Technology, Taiwan

Track Editorial 48

Unveiling Smoke in Social Images with the SmokeBlock Approach 49

Mirela T. Cazzolato, University of Sao Paulo, Brazil
Marcos V.N. Bedo, University of Sao Paulo, Brazil
Alceu F. Costa, University of Sao Paulo, Brazil
Jessica Andressa de Souza, University of Sao Paulo, Brazil
Caetano Traina Jr., University of Sao Paulo, Brazil
Jose F. Rodrigues-Jr., University of Sao Paulo, Brazil
Agma J.M. Traina, University of Sao Paulo, Brazil

Multiscale Convolutional Blind Source Separation in Wavelet Transform Domain 55

Jamel Hattay, University of Tunis, Tunisia
Samir Belaid, University of Monastir, Tunisia
Wady Naanaa, University of Monastir, Tunisia
Taoufik Aguil, University of Tunis, Tunisia

An Image Analysis Framework for Effective Classification of Seed Damages 61

Douglas F. Pereira, Federal University of Technology, Brazil
Priscila T.M. Saito, Federal University of Technology, Brazil
Pedro H. Bugatti, Federal University of Technology, Brazil

A Graph Theory-Based Online Keywords Model for Image Semantic Extraction 67

Jing Wang, University of Huddersfield, UK
Zhijie Xu, University of Huddersfield, UK

Beyond Data: Contextual Information Fusion for Cyber Security Analytics 73

Ahmed Aleroud, Yarmouk University, Jordan
George Karabatis, University of Maryland, Baltimore County, USA

Poster Papers

Video Similarity Search by using Compact Representations 80

Henrique Batista da Silva, Universidade Federal de Minas Gerais, Brazil

Raquel Pereira de Almeida, Pontifical Catholic University of Minas Gerais, Brazil

Gabriel Barbosa da Fonseca, Pontifical Catholic University of Minas Gerais, Brazil

Carlos Caetano, Pontifical Catholic University of Minas Gerais, Brazil

Dario Vieira, EFREI, France

Zenilton K. Gonçalves do Patrocínio Jr., Pontifical Catholic University of Minas Gerais, Brazil

Arnaldo de Albuquerque Araújo, Universidade Federal de Minas Gerais, Brazil

Silvio Jamil F. Guimarães, Pontifical Catholic University of Minas Gerais, Brazil

Lung Nodule Classification based on Shape Distributions 84

Valéria P.M. Fernandes, Federal University of Maranhão, Brazil

Rodrigo F.A. Kanehisa, Federal University of Maranhão, Brazil

Geraldo Braz Junior, Federal University of Maranhão, Brazil

Aristófanés C. Silva, Federal University of Maranhão, Brazil

Anselmo C. de Paiva, Federal University of Maranhão, Brazil

Evolutionary Computation Track

Track Co-Chairs: *Raúl Giráldez, Pablo de Olavide University, Spain*

Beatriz Pontes, University of Seville, Spain

Track Editorial 87

Solving Many-Objective Problems using Targeted Search Directions 89

Maha Elarbi, University of Tunis, Tunisia

Slim Bechikh, University of Tunis, Tunisia

Lamjed Ben Said, University of Tunis, Tunisia

Chih-Cheng Hung, Kennesaw State University, USA

Active Learning Approaches for Learning Regular Expressions with Genetic Programming 97

Alberto Bartoli, DIA, University of Trieste, Italy

Andrea De Lorenzo, DIA, University of Trieste, Italy

Eric Medvet, DIA, University of Trieste, Italy

Fabiano Tarlao, DIA, University of Trieste, Italy

An Improved λ -Linear Genetic Programming Evaluated in Solving the Santa Fe Ant Trail Problem 103

Léo F.D.P. Sotto, Universidade Federal de São Paulo, Brazil

Vinicius V. de Melo, Universidade Federal de São Paulo, Brazil

Márcio P. Basgalupp, Universidade Federal de São Paulo, Brazil

Poster Papers

On Convergence of Conventional and Meta-Heuristic Methods for Security-Constrained OPF Analysis 109

Jagadeesh Gunda, University of Edinburgh, UK

Sasa Djokic, University of Edinburgh, UK

Roberto Langella, Second University of Naples, Italy

Alfredo Testa, Second University of Naples, Italy

Medoid-Based Data Clustering with Estimation of Distribution Algorithms	112
<i>Henry E.L. Cagnini, Pontifical Catholic University of Rio Grande do Sul, Brazil</i>	
<i>Rodrigo C. Barros, Pontifical Catholic University of Rio Grande do Sul, Brazil</i>	
<i>Christian V. Quevedo, Pontifical Catholic University of Rio Grande do Sul, Brazil</i>	
<i>Márcio P. Basgalupp, Universidade Federal de São Paulo, Brazil</i>	
Student Research Competition Paper	
Student Research Abstract: Evolutionary Reinforcement Learning based Search Optimization	116
<i>Deblina Bhattacharjee, Kyungpook National University, South Korea</i>	
Healthcare Track	
<i>Track Co-Chairs: Cecilia Laschi, Scuola Superiore Sant'Anna, Italy</i>	
<i>Arianna Menciassi, Scuola Superiore Sant'Anna, Italy</i>	
Track Editorial	118
Privacy-Enabled Remote Health Monitoring Applications for Resource Constrained Wearable Devices	119
<i>Davy Preuveneers, iMinds-DistriNet-KU Leuven, Belgium</i>	
<i>Wouter Joosen, iMinds-DistriNet-KU Leuven, Belgium</i>	
A Situation-Aware Pervasive Approach for Assessing Therapeutic Goals in Healthcare Environment	125
<i>Joao Lopes, Federal University of Rio Grande do Sul, Brazil</i>	
<i>Rodrigo Souza, Federal University of Rio Grande do Sul, Brazil</i>	
<i>Claudio Geyer, Federal University of Rio Grande do Sul, Brazil</i>	
<i>Alexandre Souza, Federal University of Pelotas, Brazil</i>	
<i>Patricia Davet, Federal University of Pelotas, Brazil</i>	
<i>Ana Pernas, Federal University of Pelotas, Brazil</i>	
<i>Adenauer Yamin, Federal University of Pelotas, Brazil</i>	
Mind the Tracker You Wear – A Security Analysis of Wearable Health Trackers	131
<i>Rohit Goyal, Technical University of Denmark, Denmark</i>	
<i>Nicola Dragoni, Technical University of Denmark, Denmark</i>	
<i>Angelo Spognardi, Technical University of Denmark, Denmark</i>	
Testing for Mobile E-Health Interventions	137
<i>Fiemke Griffioen-Both, Utrecht University, The Netherlands</i>	
<i>Sandor Spruit, Utrecht University, The Netherlands</i>	
<i>Siska Fitrianie, Utrecht University, The Netherlands</i>	
<i>Robbert Jan Beun, Utrecht University, The Netherlands</i>	
<i>Jaap Lancee, University of Amsterdam, The Netherlands</i>	
Towards Automatic Induction of Abnormal Behavioral Patterns for Recognizing Mild Cognitive Impairment	143
<i>Zaffar Haider Janjua, University of Milano, Italy</i>	
<i>Daniele Riboni, University of Cagliari, Italy</i>	
<i>Claudio Bettini, University of Milano, Italy</i>	

Haptic Interaction Objective Evaluation in Needle Insertion Task Simulation	149
<i>Cléber Gimenez Corrêa, Escola Politécnica da Universidade de São Paulo, Brazil</i>	
<i>Daniel M. Tokunaga, Escola Politécnica da Universidade de São Paulo, Brazil</i>	
<i>Edith Ranzini, Pontifícia Universidade Católica de São Paulo, Brazil</i>	
<i>Fátima L.S. Nunes, University of Sao Paulo, Brazil</i>	
<i>Romero Tori, Escola Politécnica da Universidade de São Paulo, Brazil</i>	
A Movement Activity Recognition Pervasive System for Patient Monitoring in Ambient Assisted Living	155
<i>José Daniel Pereira Ribeiro Filho, Universidade Federal do Maranhão, Brazil</i>	
<i>Francisco José da Silva e Silva, Universidade Federal do Maranhão, Brazil</i>	
<i>Luciano Reis Coutinho, Universidade Federal do Maranhão, Brazil</i>	
<i>Berto de Tácio Pereira Gomes, Universidade Federal do Maranhão, Brazil</i>	
<i>Markus Endler, Pontifical Catholic University of Rio de Janeiro, Brazil</i>	
Poster Papers	
A Novel EEG-Based Emotion Recognition Approach for E-Healthcare Applications	162
<i>Mouhannad Ali, Alpen-Adria University, Austria</i>	
<i>Fadi Al Machot, Alpen-Adria University, Austria</i>	
<i>Ahmad Haj Mosa, Alpen-Adria University, Austria</i>	
<i>Kyandoghere Kyamakya, Alpen-Adria University, Austria</i>	
Student Research Competition Paper	
Student Research Abstract: A Web Tool for Medical Topic Modeling	165
<i>Lukas Huber, UMIT, Austria</i>	
Smart Human Computer Interaction Track	
Track Co-Chairs:	<i>Soon Ki Jung, Kyungpook National University, South Korea</i>
	<i>Anand Paul, Kyungpook National University, South Korea</i>
	<i>Ganesh Kumar P., Anna University, India</i>
Understanding Player Perceptions of RegnaTales: A Mobile Game for Teaching Social Problem Solving Skills	167
<i>Yoon Phaik Ooi, University of Basel, Switzerland</i>	
<i>Dion Hoe-Lian Goh, Nanyang Technological University, Singapore</i>	
<i>Elisa D. Mekler, University of Basel, Switzerland</i>	
<i>Alexandre N. Tuch, University of Basel, Switzerland</i>	
<i>Jillian Boon, Institute of Mental Health, Singapore</i>	
<i>Rebecca P. Ang, Nanyang Technological University, Singapore</i>	
<i>Daniel Fung, Institute of Mental Health, Singapore</i>	
<i>Jens Gaab, University of Basel, Switzerland</i>	
A Comparative Evaluation of Interaction Models for the Design of Interactive Systems	173
<i>Anna Beatriz Marques, Universidade Federal do Amazonas, Brazil</i>	
<i>Simone D.J. Barbosa, Pontifical Catholic University of Rio de Janeiro, Brazil</i>	
<i>Tayana Conte, Universidade Federal do Amazonas, Brazil</i>	

Accessibility Evaluation of Rich Internet Applications Interface Components for Mobile Screen Readers	181
<i>Lucas Pedroso Carvalho, Universidade Federal de Lavras, Brazil</i>	
<i>Lucas Pereira Ferreira, Universidade Federal de Lavras, Brazil</i>	
<i>André Pimenta Freire, Universidade Federal de Lavras, Brazil</i>	
Multimodal Human Attention Detection for Reading	187
<i>Jiajia Li, The Hong Kong Polytechnic University, Hong Kong</i>	
<i>Grace Ngai, The Hong Kong Polytechnic University, Hong Kong</i>	
<i>Hong Va Leong, The Hong Kong Polytechnic University, Hong Kong</i>	
<i>Stephen Chan, The Hong Kong Polytechnic University, Hong Kong</i>	
VCloud: Adding Interactiveness to Word Clouds for Knowledge Exploration in Large Unstructured Texts	193
<i>Wallace Lira, Simon Fraser University, Canada</i>	
<i>Fernando Gama, Vale Institute of Technology, Brazil</i>	
<i>Hivana Barbosa, Vale Institute of Technology, Brazil</i>	
<i>Ronnie Alves, LIRMM, Brazil</i>	
<i>Cleidson de Souza, Vale Institute of Technology, Brazil</i>	
Poster Papers	
From Storyboard to Software: User Evaluation of an Information Literacy Game	199
<i>Yan Ru Guo, Nanyang Technological University, Singapore</i>	
<i>Dion Hoe-Lian Goh, Nanyang Technological University, Singapore</i>	
User-Friendly Spreadsheet Querying: An Empirical Study	202
<i>Rui Pereira, HASLab/INESC Tec, Universidade do Minho, Portugal</i>	
<i>João Saraiva, HASLab/INESC Tec, Universidade do Minho, Portugal</i>	
<i>Jácome Cunha, Universidade Nova de Lisboa, Portugal</i>	
<i>João Paulo Fernandes, Universidade da Beira Interior, Portugal</i>	
STRATUS: A Questionnaire for Strategic Usability Assessment	205
<i>Suzanne Kieffer, Université Catholique de Louvain, Belgium</i>	
<i>Jean Vanderdonckt, Université Catholique de Louvain, Belgium</i>	
Usability Heuristics and Accessibility Guidelines: A Comparison of Heuristic Evaluation and WCAG	213
<i>Andreia R. Casare, University of Campinas, Brazil</i>	
<i>Celmar G. da Silva, University of Campinas, Brazil</i>	
<i>Paulo S. Martins, University of Campinas, Brazil</i>	
<i>Regina L.O. Moraes, University of Campinas, Brazil</i>	
Student Research Competition Paper	
Student Research Abstract: Social Element of Big Data Analytics: Integrating Social Network with the Internet of Things	216
<i>Awais Ahamad, Kyungpook National University, South Korea</i>	

Intelligent and Interactive Learning Environments Track

Track Co-Chairs: *Seiji Isotani, University of São Paulo, Brazil*
Ig Ibert Bittencourt, Federal University of Alagoas, Brazil
Riichiro Mizoguchi, JAIST, Japan
Julita Vassileva, University of Saskatchewan, Canada

Track Editorial 218

A Crowdsensing Approach for Mobile Learning in Acoustics and Noise Monitoring 219

Marco Zappatore, University of Salento, Italy
Antonella Longo, University of Salento, Italy
Mario A. Bochicchio, University of Salento, Italy
Daniele Zappatore, University of Salento, Italy
Alessandro A. Morrone, University of Salento, Italy
Gianluca De Mitri, University of Salento, Italy

**An Interactive Approach for the Teaching of Virtual Memory using
Open Educational Resources** 225

Carlos E.A. Cacho, Institute of Mathematics and Computer Science, University of São Paulo, Brazil
Paulo S.L. Souza, Institute of Mathematics and Computer Science, University of São Paulo, Brazil
Sarita M. Bruschi, Institute of Mathematics and Computer Science, University of São Paulo, Brazil
Ellen F. Barbosa, Institute of Mathematics and Computer Science, University of São Paulo, Brazil
Fernando Tiosso, Institute of Mathematics and Computer Science, University of São Paulo, Brazil

Design and Usability of a Braille-Based Mobile Audiogame Environment 232

Maria C.C. Araújo, Federal University of Ceará, Brazil
Antônio R.S. Silva, Federal Institute of Ceará, Brazil
Ticianne G.R. Darin, Federal University of Ceará, Brazil
Everardo L. Castro, Federal University of Ceará, Brazil
Rossana M.C. Andrade, Federal University of Ceará, Brazil
Ernesto T. de Lima, Federal University of Ceará, Brazil
Jaime Sánchez, University of Chile, Chile
José Aires de C. Filho, Federal University of Ceará, Brazil
Windson Viana, Federal University of Ceará, Brazil

**Mobile Phone Text Messaging to Increase Student Participation:
An Experience in a Blended Course** 239

Edgar Marçal, Universidade Federal do Ceará, Brazil
Rossana Andrade, Universidade Federal do Ceará, Brazil
Windson Viana, Universidade Federal do Ceará, Brazil
Eduardo Junqueira, Universidade Federal do Ceará, Brazil
Rosemeiry Melo, Universidade Federal do Ceará, Brazil

Intelligent Robotics and Multi-Agent Systems Track

Track Co-Chairs: *Rui P. Rocha, ISR - University of Coimbra, Portugal*
Christopher D. Kiekintveld, University of Texas at El Paso, United States
M. Ani Hsieh, Drexel University, United States

Track Editorial	246
Learning Relational Probabilistic Action Models for Online Planning with Decision Forests	248
<i>Lenz Belzner, Ludwig-Maximilians-Universität, Germany</i> <i>Alexander Neitz, Ludwig-Maximilians-Universität, Germany</i>	
Time-Adaptive Cross Entropy Planning	254
<i>Lenz Belzner, Ludwig-Maximilians-Universität, Germany</i>	
A Tale of Many Explanations: Towards an Explanation Generation System for Robots	260
<i>Mohan Sridharan, University of Auckland, New Zealand</i> <i>Ben Meadows, University of Auckland, New Zealand</i> <i>Zenon Colaco, University of Auckland, New Zealand</i>	
The Next Frontier: Combining Information Gain and Distance Cost for Decentralized Multi-Robot Exploration	268
<i>Rafael Gonçalves Colares, Universidade Federal de Minas Gerais, Brazil</i> <i>Luiz Chaimowicz, Universidade Federal de Minas Gerasi, Brazil</i>	
Towards Collective Manipulation Without Inter-Agent Communication	275
<i>Siamak G. Faal, Worcester Polytechnic Institute, USA</i> <i>Shadi Tasdighi Kalat, Worcester Polytechnic Institute, USA</i> <i>Cagdas D. Onal, Worcester Polytechnic Institute, USA</i>	
Poster Papers	
Extensible Collaborative Autonomy using GAMS	281
<i>Anton Dukeman, Vanderbilt University, USA</i> <i>Julie A. Adams, Vanderbilt University, USA</i> <i>James Edmondson, Carnegie Mellon University, USA</i>	
Human-Agent Teamwork: What is Predictability, Why is It Important?	284
<i>Sebastian Ahrndt, Technische Universität Berlin, Germany</i> <i>Johannes Fähndrich, Technische Universität Berlin, Germany</i> <i>Sahin Albayrak, Technische Universität Berlin, Germany</i>	
A Modular Hybrid Localization Approach for Mobile Robots Combining Local Grid Maps and Natural Landmarks	287
<i>Florian Mirus, Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany</i> <i>Frank Slomian, Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany</i> <i>Stefan Dörr, Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany</i> <i>Felipe Garcia Lopez, Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany</i> <i>Matthias Gruhler, Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany</i> <i>Jürgen Pfadt, Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany</i>	

Neuro Computing and Deep Learning and Continuous-Time Computing Track

Track Co-Chairs: *Sander Bohte, Centrum Wiskunde & Informatica, The Netherlands*
Davide Zambrano, Centrum Wiskunde & Informatica, The Netherlands
Cecilia Laschi, Scuola Superiore Sant'Anna, Italy
Egidio Falotico, Scuola Superiore Sant'Anna, Italy
Florian Röhrbein, Technical University of Munich, Germany
Marc-Oliver Gewaltig, École Polytechnique Fédérale de Lausanne, Switzerland
Stefan Ulbrich, Technical University of Munich, Germany
Paul Levi, Technical University of Munich, Germany

Track Editorial 291

Learning to be Efficient: Algorithms for Training Low-Latency, Low-Compute Deep Spiking Neural Networks 293

Daniel Neil, Institute of Neuroinformatics, Switzerland
Michael Pfeiffer, Institute of Neuroinformatics, Switzerland
Shih-Chii Liu, Institute of Neuroinformatics, Switzerland

Similarity Analysis of Neuronal Activation Patterns 299

Eugênio de Carvalho Saraiva, Federal University of Campina Grande, Brazil
Herman Martins Gomes, Federal University of Campina Grande, Brazil

Poster Papers

An Automatic Method for Multiple Sclerosis Lesion Detection in Fluid Attenuated Inversion Recovery Magnetic Resonance Images 305

Pedro Costa Klein, Pontifícia Universidade Católica do Rio Grande do Sul, Brazil
Ricardo Bernardi Soder, Pontifícia Universidade Católica do Rio Grande do Sul, Brazil
Jefferson Becker, Pontifícia Universidade Católica do Rio Grande do Sul, Brazil
Alexandre Rosa Franco, Pontifícia Universidade Católica do Rio Grande do Sul, Brazil
Marcio Sarroglia Pinho, Pontifícia Universidade Católica do Rio Grande do Sul, Brazil

Petri Nets for Modelling and Analysing a Complex System Related to Alzheimer's Disease 309

Safae Cherdal, Mohammed V University of Rabat, Morocco
Salma Mouline, Mohammed V University of Rabat, Morocco

Student Research Competition Paper

Student Research Abstract: Modeling the Cerebellum, from Neurons to Healthy and Pathological Behaviors 313

Alberto Antonietti, Politecnico di Milano, Italy

The Semantic Web and Applications Track

Track Co-Chairs: *Soon Ae Chun, City University of New York, United States*
Hyoil Han, Marshall University, United States
Sangsoo Sung, Google Inc., United States

Measuring Semantic Distance for Linked Open Data-Enabled Recommender Systems 315

Guangyuan Piao, National University of Ireland, Galway, Ireland
John G. Breslin, National University of Ireland, Galway, Ireland

An Ontology Pattern Language for Service Modeling	321
<i>Ricardo A. Falbo, Federal University of Espirito Santo, Brazil</i>	
<i>Glaice K. Quirino, Federal University of Espirito Santo, Brazil</i>	
<i>Julio C. Nardi, Federal Institute of Espirito Santo, Brazil</i>	
<i>Monalessa P. Barcellos, Federal University of Espirito Santo, Brazil</i>	
<i>Giancarlo Guizzardi, Federal University of Espirito Santo, Brazil</i>	
<i>Nicola Guarino, Institute of Cognitive Sciences and Technologies, Italy</i>	
<i>Antonella Longo, University of Salento, Italy</i>	
<i>Barbara Livieri, University of Salento, Italy</i>	
Leveraging the Schema in Latent Factor Models for Knowledge Graph Completion	327
<i>Pasquale Minervini, Università degli Studi di Bari Aldo Moro, Italy</i>	
<i>Claudia d'Amato, Università degli Studi di Bari Aldo Moro, Italy</i>	
<i>Nicola Fanizzi, Università degli Studi di Bari Aldo Moro, Italy</i>	
<i>Floriana Esposito, Università degli Studi di Bari Aldo Moro, Italy</i>	
Ontology Enrichment by Discovering Multi-Relational Association Rules from Ontological Knowledge Bases	333
<i>Claudia d'Amato, University of Bari, Italy</i>	
<i>Steffen Staab, University of Koblenz-Landau, Germany</i>	
<i>Andrea G.B. Tettamanzi, University of Nice Sophia Antipolis, France</i>	
<i>Tran Duc Minh, University of Nice Sophia Antipolis, France</i>	
<i>Fabien Gandon, INRIA Sophia Antipolis, France</i>	
Gold Standard based Evaluation of Ontology Learning Techniques	339
<i>Hela Sfar, ENSI, Tunisia</i>	
<i>Anja Habacha Chaibi, ENSI, Tunisia</i>	
<i>Amel Bouzeghoub, Telecom SudParis, France</i>	
<i>Henda Ben Ghezala, ENSI, Tunisia</i>	
GoAAL: An Ontology for Goal-Oriented Development of AAL Environments	347
<i>Marco Cameranesi, Università Politecnica delle Marche, Italy</i>	
<i>Claudia Diamantini, Università Politecnica delle Marche, Italy</i>	
<i>Domenico Potena, Università Politecnica delle Marche, Italy</i>	
<i>Emanuele Storti, Università Politecnica delle Marche, Italy</i>	
A 2-Phase Frame-Based Knowledge Extraction Framework	354
<i>Francesco Corcoglioniti, Fondazione Bruno Kessler, Italy</i>	
<i>Marco Rospocher, Fondazione Bruno Kessler, Italy</i>	
<i>Alessio Palmero Aprosio, Fondazione Bruno Kessler, Italy</i>	
SECF: Improving SPARQL Querying Performance with Proactive Fetching and Caching	362
<i>Wei Emma Zhang, The University of Adelaide, Australia</i>	
<i>Quan Z. Sheng, The University of Adelaide, Australia</i>	
<i>Yongrui Qin, The University of Adelaide, Australia</i>	
<i>Lina Yao, The University of Adelaide, Australia</i>	
<i>Ali Shemshadi, The University of Adelaide, Australia</i>	
<i>Kerry Taylor, Australian National University, Australia</i>	

Poster Papers

A Bootstrapping Method for Extracting Attribute Names with Keys from the Web 368

Yoshinori Hijikata, Osaka University, Japan

Shintaro Nomura, Osaka University, Japan

Fumitaka Nakane, Osaka University, Japan

Shogo Nishida, Osaka University, Japan

Automatic Semantic Service Composition Aiming at Increasing End-Users' Accessibility 372

Nikolaos Kaklanis, Information Technologies Institute, Greece

Ageliki Konstadinidou, Information Technologies Institute, Greece

Konstantinos Votis, Information Technologies Institute, Greece

Dimitrios Tzovaras, Information Technologies Institute, Greece

Student Research Competition Paper

Student Research Abstract: Exploiting the Semantic Similarity of Interests in a Semantic Interest Graph for Social Recommendations 375

Guangyuan Piao, National University of Ireland, Galway, Ireland

Cloud Computing Track

Track Co-Chairs: *Fernando De la Prieta, University of Salamanca, Spain*

S.D Madhu Kumar, National Institute of Technology Calicut, India

Track Editorial 377

Monitoring of Cloud Computing Environments: Concepts, Solutions, Trends, and Future Directions 378

Guilherme da Cunha Rodrigues, Federal University of Rio Grande do Sul, Brazil

Rodrigo N. Calheiros, The University of Melbourne, Australia

Vinicius Tavares Guimarães, Federal University of Rio Grande do Sul, Brazil

Glederson Lessa dos Santos, Federal University of Rio Grande do Sul, Brazil

Márcio Barbosa de Carvalho, Federal University of Rio Grande do Sul, Brazil

Lisandro Zambenedetti Granville, Federal University of Rio Grande do Sul, Brazil

Liane Margarida Rockenbach Tarouco, Federal University of Rio Grande do Sul, Brazil

Rajkumar Buyya, The University of Melbourne, Australia

Supporting Media Workflows on an Advanced Cloud Object Store Platform 384

Maurizio Montagnuolo, Rai - Radiotelevisione Italiana Spa, Italy

Alberto Messina, Rai - Radiotelevisione Italiana Spa, Italy

Elliot K. Kolodner, IBM Research - Haifa, Israel

Doron Chen, IBM Research - Haifa, Israel

Eran Rom, IBM Research - Haifa, Israel

Kalman Meth, IBM Research - Haifa, Israel

Paula Ta-Shma, IBM Research - Haifa, Israel

Elastic Provisioning for Cloud Databases with Uncertainty Management 390

Victor A.E. Farias, Federal University of Ceará, Brazil

Flávio R.C. Sousa, Federal University of Ceará, Brazil

José G.R. Maia, Federal University of Ceará, Brazil

João P.P. Gomes, Federal University of Ceará, Brazil

Javam C. Machado, Federal University of Ceará, Brazil

Securing Integration of Cloud Services in Cross-Domain Distributed Environments	398
<i>Bojan Suzic, Graz University of Technology, Austria</i>	
Hadoop Energy Consumption Reduction with Hybrid HDFS	406
<i>Ivanilton Polato, Federal University of Technology - Paraná, Brazil</i>	
<i>Denilson Barbosa, University of Alberta, Canada</i>	
<i>Abram Hindle, University of Alberta, Canada</i>	
<i>Fabio Kon, University of São Paulo, Brazil</i>	
An Architecture for Providing Elasticity based on Autonomic Computing Concepts	412
<i>Emanuel F. Coutinho, Federal University of Ceará, Brazil</i>	
<i>Paulo A.L. Rego, Federal University of Ceará, Brazil</i>	
<i>Danielo G. Gomes, Federal University of Ceará, Brazil</i>	
<i>José Neuman de Souza, Federal University of Ceará, Brazil</i>	
Performance-Aware Server Consolidation with Adjustable Interference Levels	420
<i>Luis Carlos Jersak, Pontifical Catholic University of Rio Grande do Sul, Brazil</i>	
<i>Tiago Coelho Ferreto, Pontifical Catholic University of Rio Grande do Sul, Brazil</i>	
On the Usability of Shortest Remaining Time First Policy in Shared Hadoop Clusters	426
<i>Nathanaël Cherièr, ENS Rennes, France</i>	
<i>Pierre Donat-Bouillud, ENS Rennes, France</i>	
<i>Shadi Ibrahim, Inria, Rennes Bretagne Atlantique Research Center, France</i>	
<i>Mathieu Simonin, Inria, Rennes Bretagne Atlantique Research Center, France</i>	
Scalable and Manageable Customization of Workflows in Multi-Tenant SaaS Offerings	432
<i>Majid Makki, KU Leuven, Belgium</i>	
<i>Dimitri Van Landuyt, KU Leuven, Belgium</i>	
<i>Stefan Walraven, KU Leuven, Belgium</i>	
<i>Wouter Joosen, KU Leuven, Belgium</i>	
A Certification Framework for Cloud-Based Services	440
<i>M. Anisetti, Università degli Studi di Milano, Italy</i>	
<i>C.A. Ardagna, Università degli Studi di Milano, Italy</i>	
<i>F. Gaudenzi, Università degli Studi di Milano, Italy</i>	
<i>E. Damiani, Etisalat British Telecom Innovation Center Khalifa University of Science, Technology and Research Abu Dhabi, UAE</i>	
NCaaS: Network Configuration as a Service in SDN-Driven Cloud Architectures	448
<i>Maha Shamseddine, American University of Beirut, Lebanon</i>	
<i>Imad Elhadj, American University of Beirut, Lebanon</i>	
<i>Ali Chehab, American University of Beirut, Lebanon</i>	
<i>Ayman Kayssi, American University of Beirut, Lebanon</i>	
<i>Wassim Itani, Beirut Arab University, Lebanon</i>	
Evaluating the Elasticity of Multimedia Applications in a Cloud Computing Environment using Network Metrics	455
<i>Emanuel F. Coutinho, Federal University of Ceará, Brazil</i>	
<i>Paulo A.L. Rego, Federal University of Ceará, Brazil</i>	
<i>José Neuman de Souza, Federal University of Ceará, Brazil</i>	
An Enhanced Biomorphic Model for Cloud Scaling	462
<i>Gyorgi Stoykov, Oslo and Akershus University College, Norway</i>	
<i>Anis Yazidi, Oslo and Akershus University College, Norway</i>	

Poster Papers

Inventory Theory Applied to Cost Optimization in Cloud Computing 470

Andrea Nodari, Imperial College, UK

Jukka K. Nurminen, Aalto University, Finland

Christian Fröhlich, Nordcloud Oy, Finland

**Dynamic Partitioning of Physical Memory Among Virtual Machines
[ASMI:Architectural Support for Memory Isolation]** 474

Jithin R, NIT Calicut, India

Priya Chandran, NIT Calicut, India

A Plug-and-Work Tool for Cloud System Reconfiguration with Single Command 477

Ruey-Kai Sheu, Tunghai University, Taiwan

Shyan-Ming Yuan, National Chiao Tung University, Taiwan

Xiao-Long Liu, National Chiao Tung University, Taiwan

Po-Yu Chung, National Chiao Tung University, Taiwan

Reliable Modeling of CPU usage in an Office Worker Environment 480

Hugo Lewi Hammer, Oslo and Akershus University College of Applied Sciences, Norway

Anis Yazidi, Oslo and Akershus University College of Applied Sciences, Norway

Kyrre Begnum, Oslo and Akershus University College of Applied Sciences, Norway

PaaS Dependability Integration Architecture based on Cloud Brokering 484

Wiem Abderrahim, Carthage University, Tunisia

Zied Choukair, Carthage University, Tunisia

Student Research Competition Paper

**Student Research Abstract: Towards Workload-Aware Fine-Grained
Control over Cloud Resources** 488

Amjad Ullah, University of Stirling, UK

Dependable and Adaptive Distributed Systems Track

Track Co-Chairs: *Karl M. Goeschka, UAS Technikum Vienna, Austria*

Rui Oliveira, Universidade do Minho, Portugal

Peter Pietzuch, Imperial College London, UK

Giovanni Russello, University of Auckland, New Zealand

Track Editorial 490

Stretching Multi-Ring Paxos 492

Samuel Benz, University of Lugano, Switzerland

Leandro Pacheco de Sousa, University of Lugano, Switzerland

Fernando Pedone, University of Lugano, Switzerland

Planning the Transformation of Overlays 500

Young Yoon, Hongik University, South Korea

Nathan Robinson, University of Toronto, Canada

Vinod Muthusamy, IBM T.J. Watson Research Center, USA

Sheila McIlraith, University of Toronto, Canada

Hans-Arno Jacobsen, University of Toronto, Canada

NATCloud: Cloud-Assisted NAT-Traversal Service	508
<i>Hanna Kavalionak, CNR-ISTI, Italy</i>	
<i>Amir H. Payberah, Swedish Institute of Computer Science, Sweden</i>	
<i>Alberto Montresor, University of Trento, Italy</i>	
<i>Jim Dowling, Swedish Institute of Computer Science, Sweden</i>	

Dynamic Adaptation of Geo-Replicated CRDTs	514
<i>Carlos Bartolomeu, INESC-ID, Instituto Superior Tecnico, Universidade de Lisboa, Portugal</i>	
<i>Manuel Bravo, INESC-ID, Instituto Superior Tecnico, Universidade de Lisboa, Portugal</i>	
<i>Luis Rodrigues, INESC-ID, Instituto Superior Tecnico, Universidade de Lisboa, Portugal</i>	

Monitoring Service Level Workload and Adapting Highly Available Applications	522
<i>Mehran Khan, Concordia University, Canada</i>	
<i>Ferhat Khendek, Concordia University, Canada</i>	
<i>Maria Toeroe, Ericsson Inc., Canada</i>	

Poster Papers

A Multi-Criteria Ranking of Security Countermeasures	530
<i>Nicola Nostro, ResilTech Srl, Italy</i>	
<i>Ilaria Matteucci, Institute of Informatics and Telematics of CNR, Italy</i>	
<i>Andrea Ceccarelli, University of Florence, Italy</i>	
<i>Francesco Santini, University of Perugia, Italy</i>	
<i>Felicita Di Giandomenico, ISTI - CNR, Italy</i>	
<i>Fabio Martinelli, Institute of Informatics and Telematics of CNR, Italy</i>	
<i>Andrea Bondavalli, University of Florence, Italy</i>	

Analysis of Checkpointing Overhead in Parallel State Machine Replication	534
<i>Odorico M. Mendizabal, Universidade Federal do Rio Grande, Brazil</i>	
<i>Fernando Luis Dotti, Pontificia Universidade Católica do Rio Grande do Sul, Brazil</i>	
<i>Fernando Pedone, University of Lugano, Switzerland</i>	

Deadlock Models in Distributed Computation: Foundations, Design, and Computational Complexity	538
<i>Valmir Carneiro Barbosa, Universidade Federal do Rio de Janeiro, Brazil</i>	
<i>Alan Diêgo A. Carneiro, Universidade Federal Fluminense, Brazil</i>	
<i>Fábio Protti, Universidade Federal Fluminense, Brazil</i>	
<i>Uéverton S. Souza, Universidade Federal Fluminense, Brazil</i>	

Virtualization Technologies for the Big Data Environment	542
<i>Aymen Jlassi, University François-Rabelais of Tours, France</i>	
<i>Patrick Martineau, University François-Rabelais of Tours, France</i>	

Mobile Computing and Applications Track

Track Co-Chairs: *Hong Va Leong, Hong Kong Polytechnic University, Hong Kong*
Alvin Chan, Singapore Institute of Technology, Singapore

Toward Accurate Energy-Efficient Cellular Network: Switching Off Excessive Carriers based on Traffic Profiling	546
<i>Bin Cao, Zhejiang University of Technology, China</i>	
<i>Jing Fan, Zhejiang University of Technology, China</i>	
<i>Mingxuan Yuan, Huawei Noah's Ark Lab, Hong Kong</i>	
<i>Yanhua Li, Worcester Polytechnic Institute, USA</i>	

Automated Semantic Trajectory Annotation with Indoor Point-of-Interest Visits in Urban Areas	552
<i>Victor De Graaff, University of Twente, The Netherlands</i>	
<i>Rolf A. De By, University of Twente, The Netherlands</i>	
<i>Maurice Van Keulen, University of Twente, The Netherlands</i>	
Context-Aware Daily Activity Summarization with Adaptive Transmission	560
<i>Chung-Kuang Chou, National Taiwan University, Taiwan</i>	
<i>Chia-Chih Lin, National Taiwan University, Taiwan</i>	
<i>Ming-Syan Chen, National Taiwan University, Taiwan</i>	
Mobile Platform Support for Remote Music Play	566
<i>Hochul Lee, Hanyang University, South Korea</i>	
<i>Jaehun Lee, Hanyang University, South Korea</i>	
<i>Hyuck Han, Dongduk Women's University, South Korea</i>	
<i>Sooyong Kang, Hanyang University, South Korea</i>	
Virtual Running of Vehicle Trajectories for Automatic Map Generation	572
<i>Jinkwan Park, Pusan National University, South Korea</i>	
<i>Taeyong Kim, Pusan National University, South Korea</i>	
<i>Bokuk Park, Pusan National University, South Korea</i>	
<i>Hwan-Gue Cho, Pusan National University, South Korea</i>	
Insights into Rooted and Non-Rooted Android Mobile Devices with Behavior Analytics	580
<i>Yun Shen, Symantec Research Labs, Ireland</i>	
<i>Nathan Evans, Symantec Research Labs, USA</i>	
<i>Azzedine Benameur, Symantec Research Labs, USA</i>	
Real-Time Counting of Moving Objects in Complex Environments	588
<i>Alfredo Cuzzocrea, University of Trieste and ICAR-CNR, Italy</i>	
<i>Enzo Mumolo, University of Trieste, Italy</i>	
<i>Alessandro Moro, Chuo University, Japan</i>	
Voronoi Maps: An Approach to Individual-Based Environmental Exposure Estimation	596
<i>Wan D. Bae, University of Wisconsin - Stout, USA</i>	
<i>Shayma Alkobaisi, United Arab Emirates University, UAE</i>	
<i>Wade Meyers, Colorado School of Mines, USA</i>	
<i>Sada Narayanappa, Microsoft, USA</i>	
<i>Petr Vojtěchovský, University of Denver, USA</i>	
Navigating Visually Impaired Travelers in a Large Train Station using Smartphone and Bluetooth Low Energy	604
<i>Jee-Eun Kim, The University of Tokyo, Japan</i>	
<i>Masahiro Bessho, The University of Tokyo, Japan</i>	
<i>Shinsuke Kobayashi, YRP Ubiquitous Networking Laboratory, Japan</i>	
<i>Noboru Koshizuka, The University of Tokyo, Japan</i>	
<i>Ken Sakamura, The University of Tokyo, Japan</i>	
A Sensor Cloud Architecture for Healthcare Applications	612
<i>Mohamed Jacem Guezguez, University of Carthage, Tunisia</i>	
<i>Slim Rekhis, University of Carthage, Tunisia</i>	
<i>Noureddine Boudriga, University of Carthage, Tunisia</i>	

Poster Papers

An Android Application for Head Tracking 618

Massimiliano Benedetto, University of Pisa, Italy
Alessio Gagliardi, University of Pisa, Italy
Pasquale Buonocunto, Scuola Superiore Sant'Anna, Italy
Giorgio Buttazzo, Scuola Superiore Sant'Anna, Italy

A Crowdsourcing Game-Theoretic Intrusion Detection and Rating System 622

Farah Saab, American University of Beirut, Lebanon
Imad Elhadj, American University of Beirut, Lebanon
Ayman Kayssi, American University of Beirut, Lebanon
Ali Chehab, American University of Beirut, Lebanon

Towards a Component Infrastructure for Cyber-Physical Systems 626

Marcio E.F. Maia, Federal University of Ceará, Brazil
Rossana M.C. Andrade, Federal University of Ceará, Brazil
Windson Viana, Federal University of Ceará, Brazil

Student Research Competition Paper

Student Research Abstract: A Mobile News Reader that Turns News Consumption into a Game 629

Catherine Sotirakou, University of Athens, Greece

Student Research Abstract: A Data Driven Context Aware Activity Recognition System 631

Piyush Rai Saxena, Marquette University, USA

Student Research Abstract: Context-Driven Mobile Apps Management and Recommendation 633

Yong Zheng, DePaul University, USA

Networking Track

Track Co-Chairs: *Mario M. Freire, University of Beira Interior, Portugal*
Marília Curado, University of Coimbra, Portugal
Manuela Pereira, University of Beira Interior, Portugal
Teresa Vazão, University of Lisboa, Portugal

Track Editorial 635

Prioritizing Deadline-Constrained Data Flows in Cloud Datacenter Networks 636

Maurice Khabbaz, Notre-Dame University, Lebanon
Khaled Shaban, Qatar University, Qatar
Chadi Assi, Concordia University, Canada
Long Qu, Qatar University, Qatar

LoSeRO: A Locality Sensitive Routing Protocol in Opportunistic Networks 644

Gianpiero Costantino, Institute of Informatics and Telematics of CNR, Italy
Rajib Ranjan Maiti, Institute of Informatics and Telematics of CNR, Italy
Fabio Martinelli, Institute of Informatics and Telematics of CNR, Italy
Paolo Santi, Institute of Informatics and Telematics of CNR, Italy

Available Bandwidth Measurement in Software Defined Networks	651
<i>Péter Megyesi, Budapest University of Technology and Economics, Hungary</i>	
<i>Alessio Botta, University of Napoli Federico II, Italy</i>	
<i>Giuseppe Aceto, University of Napoli Federico II, Italy</i>	
<i>Antonio Pescapè, University of Napoli Federico II, Italy</i>	
<i>Sándor Molnár, Budapest University of Technology and Economics, Hungary</i>	
Policy based Security Architecture for Software Defined Networks	658
<i>Kallol Krishna Karmakar, Macquarie University, Australia</i>	
<i>Vijay Varadharajan, Macquarie University, Australia</i>	
<i>Udaya Tupakula, Macquarie University, Australia</i>	
<i>Michael Hitchens, Macquarie University, Australia</i>	
Circuit-Switched Translucent Optical Networks Planning with User Level QoS	664
<i>André Soares, Federal University of Piauí, Brazil</i>	
<i>Alexandre Fontinele, Federal University of Piauí, Brazil</i>	
<i>Gilvan Durães, Federal Institute Baiano, Brazil</i>	
<i>William Giozza, University of Brasilia, Brazil</i>	
<i>José Roberto Amazonas, University of São Paulo, Brazil</i>	
 Poster Papers	
PLIERS: A Popularity-Based Recommender System for Content Dissemination in Online Social Networks	671
<i>Valerio Arnaboldi, Institute of Informatics and Telematics of CNR, Italy</i>	
<i>Mattia Giovanni Campana, Institute of Informatics and Telematics of CNR, Italy</i>	
<i>Franca Delmastro, Institute of Informatics and Telematics of CNR, Italy</i>	
<i>Elena Pagani, Università degli Studi di Milano, Italy</i>	
 Wireless Communications and Networking Track	
Track Co-Chairs:	<i>Dongkyun Kim, Kyungpook National University, South Korea</i>
	<i>Wei Wang, San Diego State University, United States</i>
Track Editorial	674
Cooperative Localisation with Hybrid Inertial Navigation System/Pedestrian Dead Reckoning Tracking for GPS-Denied Environments	675
<i>Panagiotis Agis Oikonomou-Filandras, University College London, UK</i>	
<i>Kai-Kit Wong, University College London, UK</i>	
<i>Zhongbin Zheng, East China Institute of Telecommunications, China</i>	
<i>Yangyang Zhang, Kuang-Chi Institute of Advanced Technology, China</i>	
A Scalable Multiagent Approach for Channel Assignment in Wireless Networks	682
<i>T.L. Monteiro, DAINF - Federal Technological University of Parana, Brazil</i>	
<i>M.E. Pellenz, PPGIa - Pontifical Catholic University of Parana, Brazil</i>	
<i>E. Jamhour, PPGIa - Pontifical Catholic University of Parana, Brazil</i>	
<i>M.C. Penna, PPGIa - Pontifical Catholic University of Parana, Brazil</i>	
<i>F. Enembreck, PPGIa - Pontifical Catholic University of Parana, Brazil</i>	
<i>R.D. Souza, CPGEI - Federal Technological University of Parana, Brazil</i>	

A Joint User Association and Load Balancing Scheme for Wireless LANs Supporting Multicast Transmission	688
<i>Made Harta Dwijaksana, Seoul National University, South Korea</i>	
<i>Wha Sook Jeon, Seoul National University, South Korea</i>	
<i>Dong Geun Jeong, Hankuk University of Foreign Studies, South Korea</i>	
Comparative Study of Routing Strategies in Software Defined Networking	696
<i>Sahrish Khan, COMSATS Institute of Information Technology, Pakistan</i>	
<i>Abdul Wahid, COMSATS Institute of Information Technology, Pakistan</i>	
<i>Sadaf Tanvir, COMSATS Institute of Information Technology, Pakistan</i>	
On Best Drone Tour Plans for Data Collection in Wireless Sensor Network	703
<i>Rone Ilidio da Silva, Federal University of Sao Joao del-Rei, Brazil</i>	
<i>Mario A. Nascimento, University of Alberta, Canada</i>	
E-ProbT: A New Approach to Mitigate the Broadcast Storm Problem in VANETs	709
<i>Daniel Sucupira Lima, Universidade Estadual do Ceará, Brazil</i>	
<i>Joaquim Celestino Júnior, Universidade Estadual do Ceará, Brazil</i>	
Analytical Study of Anycast Asynchronous MAC Protocols for Wireless Sensor Networks	716
<i>Tales Heimfarth, Federal University of Lavras, Brazil</i>	
<i>João Carlos Giacomin, Federal University of Lavras, Brazil</i>	
<i>João Paulo de Araujo, Federal University of Lavras, Brazil</i>	
<i>Edison Pignaton de Freitas, Federal University of Rio Grande do Sul, Brazil</i>	
Interest Forwarding in Vehicular Information Centric Networks: A Survey	724
<i>Muhammad Azfar Yaqub, Kyungpook National University, South Korea</i>	
<i>Syed Hassan Ahmed, Kyungpook National University, South Korea</i>	
<i>Safdar H. Bouk, Kyungpook National University, South Korea</i>	
<i>Dongkyun Kim, Kyungpook National University, South Korea</i>	
Poster Papers	
An Adaptive Hole-Bypassing Algorithm for Wireless Sensor Networks	730
<i>Khaled Hadi, Kuwait University, Kuwait</i>	
Limited Space Oriented Optimized Storage Protocol in Autonomous Mobile Cloud	734
<i>Bo Cui, Inner Mongolia University, China</i>	
<i>Ru Li, Inner Mongolia University, China</i>	
<i>Jing Liu, Inner Mongolia University, China</i>	
<i>Yujun Zhang, Chinese Academy of Sciences, China</i>	
<i>Zhongcheng Li, Chinese Academy of Sciences, China</i>	
DS-MMAC: Dynamic Schedule based MAC for Mobile Wireless Sensor Network	738
<i>Sreejith V, BITS-Pilani, India</i>	
<i>Suriyadeepan R, BITS-Pilani, India</i>	
<i>Anupama K.R., BITS-Pilani, India</i>	
<i>Lucy J. Gudino, BITS-Pilani, India</i>	

Development of an O2O (Offline to Online) Application Case based on Person Wide Web Platform	742
<i>Sunju Ha, Hannam University, South Korea</i>	
<i>Jisup Yoon, Hannam University, South Korea</i>	
<i>Seongbae Eun, Hannam University, South Korea</i>	
<i>Sun-sup So, Gongju University, South Korea</i>	
<i>Jinman Jung, Hannam University, South Korea</i>	
<i>Young-Sun Yun, Hannam University, South Korea</i>	
Student Research Competition Paper	
Student Research Abstract: Internet of Things-Based Smart Classroom Environment	746
<i>Amir Atabekov, Kennesaw State University, USA</i>	
Web Technologies Track	
<i>Track Co-Chairs: Angelo Di Iorio, University of Bologna, Italy</i>	
<i> Davide Rossi, University of Bologna, Italy</i>	
<i> Cristian Mateos, UNICEN University, Argentina</i>	
Track Editorial	748
Who Likes Me More? Analysing Entity-Centric Language-Specific bias in Multilingual Wikipedia	750
<i>Yiwei Zhou, University of Warwick, UK</i>	
<i>Elena Demidova, L3S Research Center, Germany</i>	
<i>Alexandra I. Cristea, University of Warwick, UK</i>	
Rich Cloud-Based Web Applications with CloudBrowser 2.0	758
<i>Xiaozhong Pan, Virginia Tech, USA</i>	
<i>Godmar Back, Virginia Tech, USA</i>	
Automatic Identification of Drop-Down Menu Widgets using Mutation Observers and Visibility Changes	766
<i>Willian Massami Watanabe, Universidade Tecnológica Federal do Paraná, Brazil</i>	
<i>Renata Pontin de Mattos Fortes, University of São Paulo, Brazil</i>	
Duplicate Detection in Web Shops using LSH to Reduce the Number of Computations	772
<i>Iris van Dam, Erasmus University Rotterdam, The Netherlands</i>	
<i>Gerhard van Ginkel, Erasmus University Rotterdam, The Netherlands</i>	
<i>Wim Kuipers, Erasmus University Rotterdam, The Netherlands</i>	
<i>Nikki Nijenhuis, Erasmus University Rotterdam, The Netherlands</i>	
<i>Damir Vandic, Erasmus University Rotterdam, The Netherlands</i>	
<i>Flavius Frasincar, Erasmus University Rotterdam, The Netherlands</i>	
Job Recommendation in AskStory: Experiences, Methods, and Evaluation	780
<i>Yeon-Chang Lee, Hanyang University, South Korea</i>	
<i>Jiwon Hong, Hanyang University, South Korea</i>	
<i>Sang-Wook Kim, Hanyang University, South Korea</i>	

Supporting Adaptation of Web Applications to the Mobile Environment with Automated Usability Evaluation 787

Luiz F. Gonçalves, Federal University of Itajubá, Brazil
Leandro G. Vasconcelos, National Institute for Space Research, Brazil
Ethan V. Munson, University Wisconsin-Milwaukee, USA
Laércio A. Baldochi, Federal University of Itajubá, Brazil

Automatic Performance Space Exploration of Web Applications using Genetic Algorithms 795

Tanwir Ahmad, Åbo Akademi University, Finland
Dragos Truscan, Åbo Akademi University, Finland

Object Injection Vulnerability Discovery based on Latent Semantic Indexing 801

Hossain Shahriar, Kennesaw State University, USA
Hisham Haddad, Kennesaw State University, USA

Poster Papers

MorphingAssist: Seamless Transformation from Keywords to Structured Queries 808

Yui Yasunaga, University of Tsukuba, Japan
Atsuyuki Morishima, University of Tsukuba, Japan

Simultaneous Editing of JSON Objects via Operational Transformation 812

Tim Jungnickel, Technische Universität Berlin, Germany
Tobias Herb, Technische Universität Berlin, Germany

Controlling the Elasticity of Web Applications on Cloud Computing 816

Michel Albonico, Universidade Tecnológica Federal do Paraná and Mines Nantes, Brazil/France
Jean-Marie Mottu, University of Nantes, France
Gerson Sunyé, University of Nantes, France

Analyzing Crowdsourced Promotion Effects in Online Social Networks 820

Hee-Jeong Kim, Hanyang University, South Korea
Dong-Kyu Chae, Hanyang University, South Korea
Sang-Wook Kim, Hanyang University, South Korea
Jongwuk Lee, Hankuk University of Foreign Studies, South Korea

Data Mining Track

Track Co-Chairs: *Hasan Jamil, University of Idaho, United States*
Stefan Kramer, Johannes Gutenberg University - Mainz, Germany
Raymond Wong, University of New South Wales, Australia

PatchWork: A Scalable Density-Grid Clustering Algorithm 824

Frank Gouineau, Computer Research Institute of Montreal, Canada
Tom Landry, Computer Research Institute of Montreal, Canada
Thomas Triplet, Computer Research Institute of Montreal, Canada

A Robust Density-Based Clustering Algorithm for Multi-Manifold Structure 832

Jianpeng Zhang, Eindhoven University of Technology, The Netherlands
Mykola Pechenizkiy, Eindhoven University of Technology, The Netherlands
Yulong Pei, Eindhoven University of Technology, The Netherlands
Julia Efremova, Eindhoven University of Technology, The Netherlands

Mining Structured Petri Nets for the Visualization of Process Behavior	839
<i>Javier De San Pedro, Universitat Politecnica de Catalunya, Spain</i>	
<i>Jordi Cortadella, Universitat Politecnica de Catalunya, Spain</i>	
Interactive Generic Learning Method (IGLM): A New Approach to Interactive Short Text Classification	847
<i>Ameni Bouaziz, University of Nice Sophia Antipolis, France</i>	
<i>Célia da Costa Pereira, University of Nice Sophia Antipolis, France</i>	
<i>Christel Dartigues-Pallez, University of Nice Sophia Antipolis, France</i>	
<i>Frédéric Precioso, University of Nice Sophia Antipolis, France</i>	
Language-Independent Multi-Document Text Summarization with Document-Specific Word Associations	853
<i>Oskar Gross, University of Helsinki, Finland</i>	
<i>Antoine Doucet, University of La Rochelle, France</i>	
<i>Hannu Toivonen, University of Helsinki, Finland</i>	
Efficient Algorithms for Mining Recent Weighted Frequent Itemsets in Temporal Transactional Databases	861
<i>Jerry Chun-Wei Lin, Harbin Institute of Technology Shenzhen Graduate School, China</i>	
<i>Wensheng Gan, Harbin Institute of Technology Shenzhen Graduate School, China</i>	
<i>Philippe Fournier-Viger, Harbin Institute of Technology Shenzhen Graduate School, China</i>	
<i>Tzung-Pei Hong, National University of Kaohsiung, Taiwan</i>	
Redundancy Reduction: Does it Help Associative Classifiers?	867
<i>Luiza Antonie, University of Guelph, Canada</i>	
<i>Osmar R. Zaiane, University of Alberta, Canada</i>	
<i>Robert C. Holte, University of Alberta, Canada</i>	
On Structure Preserving Sampling and Approximate Partitioning of Graphs	875
<i>Wouter van Heeswijk, Eindhoven University of Technology, The Netherlands</i>	
<i>George H.L. Fletcher, Eindhoven University of Technology, The Netherlands</i>	
<i>Mykola Pechenizkiy, Eindhoven University of Technology, The Netherlands</i>	
Trading Off Accuracy for Efficiency by Randomized Greedy Warping	883
<i>Atif Raza, Johannes Gutenberg-Universität Mainz, Germany</i>	
<i>Jörg Wicker, Johannes Gutenberg-Universität Mainz, Germany</i>	
<i>Stefan Kramer, Johannes Gutenberg-Universität Mainz, Germany</i>	
Poster Papers	
An Optimization Method of Extreme Learning Machine for Regression	891
<i>Xiao-jian Ding, Science and Technology on Information Systems, China</i>	
<i>Xiao-guang Liu, Science and Technology on Information Systems, China</i>	
<i>Xin Xu, Science and Technology on Information Systems, China</i>	
LayerFolding: Discovering Creative Links in Word Association Networks	894
<i>Ping Xiao, University of Helsinki, Finland</i>	
<i>Hannu Toivonen, University of Helsinki, Finland</i>	

Efficient Closed High-Utility Itemset Mining	898
<i>Philippe Fournier-Viger, Harbin Institute of Technology Shenzhen Graduate School, China</i>	
<i>Souleymane Zida, University of Moncton, Canada</i>	
<i>Jerry Chun-Wei Lin, Harbin Institute of Technology Shenzhen Graduate School, China</i>	
<i>Cheng-Wei Wu, National Chiao Tung University, Taiwan</i>	
<i>Vincent S. Tseng, National Chiao Tung University, Taiwan</i>	

A Methodology for Selecting the Most Suitable Cluster Validation Internal Indices	901
<i>Caroline Tomasini, Universidade Federal do Rio Grande, Brazil</i>	
<i>Leonardo Emmendorfer, Universidade Federal do Rio Grande, Brazil</i>	
<i>Eduardo N. Borges, Universidade Federal do Rio Grande, Brazil</i>	
<i>Karina Machado, Universidade Federal do Rio Grande, Brazil</i>	

Clustering Nodes with Attributes via Graph Alignment	904
<i>Dimitrios Rafailidis, Aristotle University of Thessaloniki, Greece</i>	

Student Research Competition Paper

Student Research Abstract: An Efficient and Effective Link-Based Similarity Measure in Social and Information Networks	908
<i>Masoud Reyhani Hamedani, Hanyang University, South Korea</i>	

Data Streams Track

Track Co-Chairs: *Albert Bifet, Université Paris-Saclay, France*
 Pedro P. Rodrigues, Universidade do Porto, Portugal
 João Gama, University of Porto, Portugal

A Support Vector based Approach for Classification Beyond the Learned Label Space in Data Streams	910
<i>Poorya ZareMoodi, Sharif University of Technology, Iran</i>	
<i>Sajjad Kamali Siahroudi, Sharif University of Technology, Iran</i>	
<i>Hamid Beigy, Sharif University of Technology, Iran</i>	

Real Time Streaming Pattern Detection for eCommerce	916
<i>William Braik, Bordeaux University, France</i>	
<i>Floréal Morandat, Bordeaux University, France</i>	
<i>Jean-Rémy Falleri, Bordeaux University, France</i>	
<i>Xavier Blanc, Bordeaux University, France</i>	

Sampling Massive Streaming Call Graphs	923
<i>Shazia Tabassum, University of Porto, Portugal</i>	
<i>João Gama, University of Porto, Portugal</i>	

Fast Adaptive Stacking of Ensembles	929
<i>Isvani Frías-Blanco, University of Granma, Cuba</i>	
<i>Alberto Verdecia-Cabrera, University of Granma, Cuba</i>	
<i>Agustín Ortiz-Díaz, University of Granma, Cuba</i>	
<i>Andre Carvalho, University of Sao Paulo, Brazil</i>	

Wavelet Transform based Vehicle Detection from Sensors for Bridge Weigh-In-Motion	935
<i>Juan Alegre-Sanahuja, National Institute of Informatics, Japan</i>	
<i>Wei Lu, National Institute of Informatics, Japan</i>	
<i>Atsuhiko Takasu, National Institute of Informatics, Japan</i>	

Poster Papers

Eventually Consistent Cardinality Estimation with Applications in BioData Mining	941
<i>Georgios Drakopoulos, University of Patras, Greece</i>	
<i>Stavros Kontopoulos, University of Patras, Greece</i>	
<i>Christos Makris, University of Patras, Greece</i>	
DOBRO: A Prediction Error Correcting Robot Under Drifts	945
<i>Alexandr Maslov, Eindhoven University of Technology, The Netherlands</i>	
<i>Hoang Thanh Lam, IBM Research, Dublin, Ireland</i>	
<i>Mykola Pechenizkiy, Eindhoven University of Technology, The Netherlands</i>	
<i>Eric Bouillet, IBM Research, Dublin, Ireland</i>	
<i>Tommi Kärkkäinen, University of Jyväskylä, Finland</i>	
Clustering Data Streams using a Forgetful Neural Model	949
<i>Douglas O. Cardoso, Universidade Federal do Rio de Janeiro, Brazil</i>	
<i>Felipe França, Universidade Federal do Rio de Janeiro, Brazil</i>	
<i>João Gama, Universidade do Porto, Portugal</i>	
Deferral Classification of Evolving Temporal Dependent Data Streams	952
<i>Michael Mayo, University of Waikato, New Zealand</i>	
<i>Albert Bifet, LTCI, CNRS, Télécom ParisTech, France</i>	
A New Time Series Classification Approach based on Recurrence Quantification Analysis and Gabor Filter	955
<i>Angelo Silva, Faculdade de Computação, Brazil</i>	
<i>Renato Ishii, Faculdade de Computação, Brazil</i>	
Student Research Competition Paper	
Student Research Abstract: Advances in Network-Based Ensemble Classifiers for Evolving Data Streams	958
<i>Heitor Murilo Gomes, Pontifícia Universidade Católica do Paraná, Brazil</i>	
Database Theory, Technology and Applications Track	
<i>Track Co-Chairs: Ramzi A. Haraty, Lebanese American University, Lebanon</i>	
<i>Apostolos N. Papadopoulos, Aristotle University, Greece</i>	
<i>Junping Sun, Nova Southeastern University, United States</i>	
Track Editorial	960
Improving SQL Query Performance on Embedded Devices using Pre-Compilation	961
<i>Graeme Douglas, University of British Columbia, Canada</i>	
<i>Ramon Lawrence, University of British Columbia, Canada</i>	
Take Me to SSD: A Hybrid Block-Selection Method on HDFS based on Storage Type	965
<i>Minkyung Kim, Yonsei University, South Korea</i>	
<i>Mincheol Shin, Yonsei University, South Korea</i>	
<i>Sanghyun Park, Yonsei University, South Korea</i>	

Efficient Algorithms for Processing Preference Queries	972
<i>Marcos Roberto Ribeiro, Federal University of Uberlândia and Federal Institute of Minas Gerais, Brazil</i>	
<i>Fabiola Souza F. Pereira, Federal University of Uberlândia, Brazil</i>	
<i>Vinicius Vitor S. Dias, Federal University of Minas Gerais, Brazil</i>	
Data Producer Catalogs for the Web of Things: A Study on NoSQL Solutions	980
<i>Alberto Trindade Tavares, Federal University of Pernambuco, Brazil</i>	
<i>Marcelo Iury de Sousa Oliveira, Federal Rural University of Pernambuco, Brazil</i>	
<i>Bernadette Farias Lóscio, Federal University of Pernambuco, Brazil</i>	
ClusMAM: Fast and Effective Unsupervised Clustering of Large Complex Datasets using Metric Access Methods	986
<i>Jessica A. de Souza, University of Sao Paulo, Brazil</i>	
<i>Mirela T. Cazzolato, University of Sao Paulo, Brazil</i>	
<i>Agma J.M. Traina, University of Sao Paulo, Brazil</i>	
OLAP Analysis of Multidimensional Tweet Streams for Supporting Advanced Analytics	992
<i>Alfredo Cuzzocrea, University of Trieste and ICAR-CNR, Italy</i>	
<i>Carmen De Maio, University of Salerno, Italy</i>	
<i>Giuseppe Fenza, University of Salerno, Italy</i>	
<i>Vincenzo Loia, University of Salerno, Italy</i>	
<i>Mimmo Parente, University of Salerno, Italy</i>	
Optimizing Hash Partitioning for Solid State Drives	1000
<i>Mincheol Shin, Yonsei University, South Korea</i>	
<i>Hongchan Roh, Yonsei University, South Korea</i>	
<i>Wonmook Jung, LG Electronics, South Korea</i>	
<i>Sanghyun Park, Yonsei University, South Korea</i>	
Poster Papers	
Converting Spatiotemporal Data Among Multiple Granularity Systems	1008
<i>Muhao Chen, University of California Los Angeles, USA</i>	
<i>Shi Gao, University of California Los Angeles, USA</i>	
<i>Jingheng Zhou, Fudan University, China</i>	
<i>X. Sean Wang, Fudan University, China</i>	
Student Research Competition Paper	
Student Research Abstract: A Methodology for Estimating Execution Times of IO Traces in SSDs	1011
<i>Yoonsuk Kang, Hanyang University, South Korea</i>	
Information Access and Retrieval Track	
Track Co-Chairs:	<i>Gabriella Pasi, Università degli Studi di Milano Bicocca, Italy</i>
	<i>Gloria Bordogna, CNR IREA Consiglio Nazionale delle Ricerche, Italy</i>
Track Editorial	1013
SPARQL Extensions with Preferences: A Survey	1015
<i>Olivier Pivert, University of Rennes 1, France</i>	
<i>Olfa Slama, University of Rennes 1, France</i>	
<i>Virginie Thion, University of Rennes 1, France</i>	

Modeling Clicks using Document Popularity	1021
<i>Xenophon Evangelopoulos, University of Patras, Greece</i>	
<i>Christos Makris, University of Patras, Greece</i>	
Feeling Lucky? Multi-Armed Bandits for Ordering Judgements in Pooling-Based Evaluation	1027
<i>David E. Losada, Universidade de Santiago de Compostela, Spain</i>	
<i>Javier Parapar, University of A Coruña, Spain</i>	
<i>Álvaro Barreiro, University of A Coruña, Spain</i>	
Direct Measurement of Training Query Quality for Learning to Rank	1035
<i>Qingli Ma, University of Chinese Academy of Sciences, China</i>	
<i>Ben He, University of Chinese Academy of Sciences, China</i>	
<i>Jungang Xu, University of Chinese Academy of Sciences, China</i>	
Aggregating Semantic Information Nuggets for Answering Clinical Queries	1041
<i>Eya Znaidi, Institut de Recherche en Informatique de Toulouse, France</i>	
<i>Lynda Tamine, Institut de Recherche en Informatique de Toulouse, France</i>	
<i>Chiraz Latiri, Université de Tunis, Tunisia</i>	
IT Company Atlas Upper Franconia: A Practical Application of Expert Search Techniques	1048
<i>Daniel Blank, University of Bamberg, Germany</i>	
<i>Sebastian Boosz, University of Bamberg, Germany</i>	
<i>Andreas Henrich, University of Bamberg, Germany</i>	
Proximity Relevance Model for Query Expansion	1054
<i>Liana Ermakova, Institut de Recherche en Informatique de Toulouse, France</i>	
<i>Josiane Mothe, Institut de Recherche en Informatique de Toulouse, France</i>	
<i>Elena Nikitina, Perm State National Research University, Russia</i>	
Modeling Trust and Distrust Information in Recommender Systems via Joint Matrix Factorization with Signed Graphs	1060
<i>Dimitrios Rafailidis, Aristotle University of Thessaloniki, Greece</i>	
How do Users Handle Inconsistent Information? The Effect of Search Expertise	1066
<i>Kazutoshi Umemoto, Kyoto University, Japan</i>	
<i>Takehiro Yamamoto, Kyoto University, Japan</i>	
<i>Katsumi Tanaka, Kyoto University, Japan</i>	
 Poster Papers	
Leveraging MPEG-21 User Description for Interoperable Recommender Systems	1072
<i>Sabino Metta, Rai - Radiotelevisione Italiana Spa, Italy</i>	
<i>Paolo Casagrande, Rai - Radiotelevisione Italiana Spa, Italy</i>	
<i>Alberto Messina, Rai - Radiotelevisione Italiana Spa, Italy</i>	
<i>Maurizio Montagnuolo, Rai - Radiotelevisione Italiana Spa, Italy</i>	
<i>Francesco Russo, Rai - Radiotelevisione Italiana Spa, Italy</i>	
ADOREs: A Diversity-Oriented Online Recommender System	1075
<i>Max Chevalier, Université de Toulouse, France</i>	
<i>Damien Dudognon, Overblog, France</i>	
<i>Josiane Mothe, Université de Toulouse, France</i>	
Opinion Retrieval in Twitter using Stylistic Variations	1077
<i>Anastasia Giachanou, Università della Svizzera Italiana, Switzerland</i>	
<i>Fabio Crestani, Università della Svizzera Italiana, Switzerland</i>	

Exploiting Different Users' Interactions for Profiles Enrichment in Recommender Systems ...	1080
<i>Arthur F. da Costa, University of São Paulo, Brazil</i>	
<i>Rafael D. Martins, University of São Paulo, Brazil</i>	
<i>Marcelo G. Manzato, University of São Paulo, Brazil</i>	
<i>Ricardo J.G.B. Campello, University of São Paulo, Brazil</i>	
Towards Spreadsheet Integration using Entity Identification Driven by a Spatial-Temporal Model	1083
<i>Ramoza Ahsan, Worcester Polytechnic Institute, USA</i>	
<i>Rodica Neamtu, Worcester Polytechnic Institute, USA</i>	
<i>Elke Rundensteiner, Worcester Polytechnic Institute, USA</i>	
Student Research Competition Paper	
Student Research Abstract: Text Retrieval System based on a New Representation of Data and Semantic Relationships between Terms	1086
<i>Nesrine Ksentini, University of Sfax, Tunisia</i>	
Social Network and Media Analysis Track	
<i>Track Co-Chairs: Sang-Wook Kim, Hanyang University, South Korea</i>	
Track Editorial	1088
A Community Detection Technique for Research Collaboration Networks based on Frequent Collaborators Cores	1090
<i>Miloš Savić, University of Novi Sad, Serbia</i>	
<i>Mirjana Ivanović, University of Novi Sad, Serbia</i>	
<i>Bojana Dimić Surla, University of Novi Sad, Serbia</i>	
Estimating Topical Volume in Social Media Streams	1096
<i>Praveen Bommanavar, Twitter, USA</i>	
<i>Jimmy Lin, University of Waterloo, Canada</i>	
<i>Anand Rajaraman, Stanford University, USA</i>	
SimRank and Its Variants in Academic Literature Data: Measures and Evaluation	1102
<i>Masoud Reyhani Hamedani, Hanyang University, South Korea</i>	
<i>Sang-Wook Kim, Hanyang University, South Korea</i>	
Pick the Right Team and make a Blockbuster: A Social Analysis through Movie History	1108
<i>Wladston Viana, Universidade Federal de Minas Gerais, Brazil</i>	
<i>Ana Paula Couto da Silva, Universidade Federal de Minas Gerais, Brazil</i>	
<i>Mirella M. Moro, Universidade Federal de Minas Gerais, Brazil</i>	
The Anatomy of Online Deception: What Makes Automated Text Convincing?	1115
<i>Richard M. Everett, University of Oxford, UK</i>	
<i>Jason R.C. Nurse, University of Oxford, UK</i>	
<i>Arnau Erola, University of Oxford, UK</i>	
Personalized Time-Aware Outdoor Activity Recommendation System	1121
<i>Shakiba Rahimiaghdam, Middle East Technical University, Turkey</i>	
<i>Pınar Karagöz, Middle East Technical University, Turkey</i>	
<i>Alev Mutlu, Kocaeli University, Turkey</i>	

From Discussion to Wisdom: Web Resource Recommendation for Hyperlinks in Stack Overflow	1127
<i>Jing Li, Nanyang Technological University, Singapore</i>	
<i>Zhenchang Xing, Nanyang Technological University, Singapore</i>	
<i>Deheng Ye, Nanyang Technological University, Singapore</i>	
<i>Xuejiao Zhao, Nanyang Technological University, Singapore</i>	
Clique Covering of Large Real-World Networks	1134
<i>Alessio Conte, University of Pisa, Italy</i>	
<i>Roberto Grossi, University of Pisa, Italy</i>	
<i>Andrea Marino, University of Pisa, Italy</i>	
An Evaluation of Machine Translation for Multilingual Sentence-Level Sentiment Analysis	1140
<i>Matheus Araújo, Federal University of Minas Gerais, Brazil</i>	
<i>Julio Reis, Federal University of Minas Gerais, Brazil</i>	
<i>Adriano Pereira, Federal University of Minas Gerais, Brazil</i>	
<i>Fabricao Benevenuto, Federal University of Minas Gerais, Brazil</i>	
Opinion Retrieval in Twitter: Is Proximity Effective?	1146
<i>Anastasia Giachanou, Università della Svizzera Italiana, Switzerland</i>	
<i>Fabio Crestani, Università della Svizzera Italiana, Switzerland</i>	
Inferring Semantic Interest Profiles from Twitter Followees: Does Twitter Know Better than Your Friends?	1152
<i>Christoph Besel, University of Passau, Germany</i>	
<i>Jörg Schlotterer, University of Passau, Germany</i>	
<i>Michael Granitzer, University of Passau, Germany</i>	
On the Combination of "Off-the-Shelf" Sentiment Analysis Methods	1158
<i>Pollyanna Gonçalves, Federal University of Minas Gerais, Brazil</i>	
<i>Daniel Hasan Dalip, Federal University of Minas Gerais, Brazil</i>	
<i>Helen Costa, Federal University of Ouro Preto, Brazil</i>	
<i>Marcos André Gonçalves, Federal University of Minas Gerais, Brazil</i>	
<i>Fabricao Benevenuto, Federal University of Minas Gerais, Brazil</i>	
Poster Papers	
Communication Overload Management through Social Interactions Clustering	1166
<i>Juan Antonio Lossio-Ventura, University of Montpellier, France</i>	
<i>Hakim Hacid, Zayed University, UAE</i>	
<i>Mathieu Roche, CIRAD, France</i>	
<i>Pascal Poncelet, University of Montpellier, France</i>	
Dynamic Mapping of Dense Geo-Tweets and Web Pages based on Spatio-Temporal Analysis	1170
<i>Yuanyuan Wang, Nagoya University, Japan</i>	
<i>Goki Yasui, Kyoto Sangyo University, Japan</i>	
<i>Yukiko Kawai, Kyoto Sangyo University, Japan</i>	
<i>Toyokazu Akiyama, Kyoto Sangyo University, Japan</i>	
<i>Kazutoshi Sumiya, Kwansei Gakunin University, Japan</i>	
<i>Yoshiharu Ishikawa, Nagoya University, Japan</i>	

Improving Classification of Tweets using Word-Word Co-Occurrence Information from a Large External Corpus	1174
<i>Hugo Lewi Hammer, Oslo and Akershus University College of Applied Sciences, Norway</i>	
<i>Anis Yazidi, Oslo and Akershus University College of Applied Sciences, Norway</i>	
<i>Aleksander Bai, Oslo and Akershus University College of Applied Sciences, Norway</i>	
<i>Paal Engelstad, Oslo and Akershus University College of Applied Sciences, Norway</i>	
Enhanced Community Detection in Social Networks using Active Spectral Clustering	1178
<i>Sarah Habashi, Alexandria University, Egypt</i>	
<i>Nagia M. Ghanem, Alexandria University, Egypt</i>	
<i>Mohamed A. Ismail, Alexandria University, Egypt</i>	
News Recommendation based on Tweets for Understanding of Opinion Variation and Events	1182
<i>Douglas Rehem, Federal University of Rio de Janeiro, Brazil</i>	
<i>Jonice Oliveira, Federal University of Rio de Janeiro, Brazil</i>	
<i>Tiago França, Universidade Federal Rural do Rio de Janeiro, Brazil</i>	
<i>Walkir Brito, Federal University of Rio de Janeiro, Brazil</i>	
<i>Claudia Motta, Federal University of Rio de Janeiro, Brazil</i>	
Impact of Offline Events on Online Link Creation: A Case Study on Events Advertised on Facebook	1186
<i>Azadeh Esfandyari, Università degli Studi di Milano, Italy</i>	
<i>Matteo Zignani, Università degli Studi di Milano, Italy</i>	
<i>Sabrina Gaito, Università degli Studi di Milano, Italy</i>	
<i>Gian Paolo Rossi, Università degli Studi di Milano, Italy</i>	
 Student Research Competition Paper	
Student Research Abstract: Analyzing the Effect of Brand Building Activities on Brand Image using Topic Modeling Techniques	1189
<i>Kapil Kaushik, Indian Institute of Management Indore, India</i>	
 Volume II: Software Design and Development, and System Software and Security	
 Enterprise Application Development and Design Track	
<i>Track Co-Chairs: Tomas Cerny, Czech Technical University in Prague, Czech Republic</i>	
Track Editorial	1191
On Security Level Usage in Context-Aware Role-Based Access Control	1192
<i>Michal Trnka, Czech Technical University in Prague, Czech Republic</i>	
<i>Tomas Cerny, Czech Technical University in Prague, Czech Republic</i>	
Automated Development of Constraint-Driven Web Applications	1196
<i>Mario Luca Bernardi, Giustino Fortunato University, Italy</i>	
<i>Marta Cimitile, Unitelma Sapienza University, Italy</i>	
<i>Fabrizio Maria Maggi, University of Tartu, Estonia</i>	

Dynamically Reconfigurable Trust Policies for Untrustworthy Third-Party Components	1204
<i>Kiev Gama, Universidade Federal de Pernambuco, Brazil</i>	
<i>Didier Donsez, University of Grenoble, France</i>	

Poster Papers

Method for Decomposition of Monolithic Enterprise Applications	1210
<i>Solvita Berzisa, Riga Technical University, Latvia</i>	
<i>Inese Polaka, Riga Technical University, Latvia</i>	
<i>Inese Supulniece, Riga Technical University, Latvia</i>	
<i>Janis Grabis, Riga Technical University, Latvia</i>	
<i>Edgars Ozolins, Visma Enterprise, Latvia</i>	
<i>Egils Meiers, Visma Enterprise, Latvia</i>	

Goal Achievement Analysis based on LTL Checking and Decision Tree for Improvements of PAIS	1214
<i>Hiroki Horita, The University of Electro-Communications, Japan</i>	
<i>Hideaki Hirayama, The University of Electro-Communications, Japan</i>	
<i>Yasuyuki Tahara, The University of Electro-Communications, Japan</i>	
<i>Akihiko Ohsuga, The University of Electro-Communications, Japan</i>	

Multicore Software Engineering, Performance, Applications and Tools Track

Track Co-Chairs: Tomas Vojnar, Brno University of Technology, Czech Republic

Track Editorial	1217
------------------------------	------

An Operational Semantics of Cache Coherent Multicore Architectures	1219
<i>Shiji Bijo, University of Oslo, Norway</i>	
<i>Einar Broch Johnsen, University of Oslo, Norway</i>	
<i>Ka I Pun, University of Oslo, Norway</i>	
<i>S. Lizeth Tapia Tarifa, University of Oslo, Norway</i>	

A GPU-Based Implementation for the Gamma Multiset Rewriting Paradigm	1225
<i>Rubens H.P. de Almeida, Brazilian Navy Research Institute, Brazil</i>	
<i>Rui R. Mello Junior, Brazilian Navy Research Institute, Brazil</i>	
<i>Gabriel A.L. Paillard, Federal University of Ceará, Brazil</i>	
<i>Felipe M.G. França, Federal University of Rio de Janeiro, Brazil</i>	

SOMA: An OpenMP Toolchain for Multicore Partitioning	1231
<i>Emanuele Ruffaldi, Scuola Superiore Sant'Anna, Italy</i>	
<i>Filippo Brizzi, Scuola Superiore Sant'Anna, Italy</i>	
<i>Giacomo Dabisias, Scuola Superiore Sant'Anna, Italy</i>	
<i>Giorgio Buttazzo, Scuola Superiore Sant'Anna, Italy</i>	

On Verifying C++ Programs with Probabilities	1238
<i>Jiří Barnat, Masaryk University, Czech Republic</i>	
<i>Ivana Černá, Masaryk University, Czech Republic</i>	
<i>Petr Ročkal, Masaryk University, Czech Republic</i>	
<i>Vladimír Štill, Masaryk University, Czech Republic</i>	
<i>Kristína Zákopčanová, Masaryk University, Czech Republic</i>	

A High-Level and Scalable Approach for Generating Scale-Free Graphs using Active Objects 1244
Keyvan Azadbakht, Centrum Wiskunde en Informatica, The Netherlands
Nikolaos Bezirgiannis, Centrum Wiskunde en Informatica, The Netherlands
Frank S. de Boer, Centrum Wiskunde en Informatica, The Netherlands
Sadegh Aliakbary, Shahid Beheshti University, Iran

Poster Papers

Fast Error Detection with Hybrid Analyses of Future Accesses 1251
Pavel Parizek, Charles University in Prague, Czech Republic

Scalable Quantum Simulation by Reductions and Decompositions through the Id-Operator 1255
Anderson Braga de Avila, Federal University of Pelotas, Brazil
Renata Hax Sander Reiser, Federal University of Pelotas, Brazil
Adenauer Correa Yamin, Federal University of Pelotas, Brazil
Mauricio Lima Pilla, Federal University of Pelotas, Brazil

Requirement Engineering Track

Track Co-Chairs: *Jaelson Castro, Universidade Federal de Pernambuco, Brazil*
João Araújo, Universidade Nova de Lisboa, Portugal

Understanding How Power Influences Business and Requirements Decisions in Software Ecosystems 1258
George Valença, Universidade Federal Rural de Pernambuco, Brazil
Carina Alves, Universidade Federal de Pernambuco, Brazil

Retrospective, Relevance, and Trends of SAC Requirements Engineering Track 1264
Jéssyka Vilela, Universidade Federal de Pernambuco, Brazil
Enyo Gonçalves, Universidade Federal de Pernambuco, Universidade Federal do Ceará, Brazil
Ana Holanda, Universidade Federal de Pernambuco, Instituto Federal do Acre, Brazil
Bruno Figueiredo, Universidade Federal de Pernambuco, Brazil
Jaelson Castro, Universidade Federal de Pernambuco, Brazil

Usability of Requirements Techniques: A Systematic Literature Review 1270
Denise Bombonatti, IBM Brazil, Brazil
Catarina Gralha, Universidade NOVA de Lisboa, Portugal
Ana Moreira, Universidade NOVA de Lisboa, Portugal
João Araújo, Universidade NOVA de Lisboa, Portugal
Miguel Goulão, Universidade NOVA de Lisboa, Portugal

Eliciting Accessibility Requirements an Approach based on the NFR Framework 1276
Romeu Oliveira, Federal University of Rio Grande do Norte, Brazil
Lyrene Silva, Federal University of Rio Grande do Norte, Brazil
Julio Cesar Sampaio P. Leite, Catholic University of Rio de Janeiro, Brazil
Ana Moreira, Universidade NOVA de Lisboa, Portugal

Collaborative Requirements Elicitation in a European Research Project 1282
Guglielmo De Angelis, CNR-IASI, Italy
Alessio Ferrari, CNR-ISTI, Italy
Stefania Gnesi, CNR-ISTI, Italy
Andrea Polini, University of Camerino, Italy

Impacts of Agile Requirements Documentation Debt on Software Projects: A Retrospective Study	1290
<i>Thiago Souto Mendes, Federal Institute of Bahia and Federal University of Bahia, Brazil</i>	
<i>Henrique Frota Soares, Salvador University, Brazil</i>	
<i>Mário André de F. Farias, Federal Institute of Sergipe and Federal University of Bahia, Brazil</i>	
<i>Marcos Kalinowski, Fluminense Federal University, Brazil</i>	
<i>Manoel Mendonça, Fraunhofer Proj. Center at UFBA, Brazil</i>	
<i>Rodrigo Oliveira Spínola, UFBA and Salvador University, Brazil</i>	

Poster Papers

Quality-Centric Feature Model Configuration using Goal Models	1296
<i>Mahdi Noorian, University of New Brunswick, Canada</i>	
<i>Ebrahim Bagheri, Ryerson University, Canada</i>	
<i>Weichang Du, University of New Brunswick, Canada</i>	

Software Architecture: Theory, Technology and Applications Track

Track Co-Chairs: *Diego Perez-Palacin, Politecnico di Milano, Italy*
Patrizia Scandurra, University of Bergamo, Italy

Track Editorial	1300
------------------------------	------

ArchFeature: Integrating Features into Product Line Architecture	1302
<i>Gharib Gharibi, University of Missouri - Kansas City, USA</i>	
<i>Yongjie Zheng, University of Missouri - Kansas City, USA</i>	

Exploring the Combination of Software Visualization and Data Clustering in the Software Architecture Recovery Process	1309
<i>Renato Paiva, University of Brasília, Brazil</i>	
<i>Genaina N. Rodrigues, University of Brasilia, Brazil</i>	
<i>Rodrigo Bonifácio, University of Brasília, Brazil</i>	
<i>Marcelo Ladeira, University of Brasília, Brazil</i>	

SAMSON: Self-Adaptive Middleware for Wireless Sensor Networks	1315
<i>Jesus M.T. Portocarrero, Federal University of Rio de Janeiro, Brazil</i>	
<i>Flávia C. Delicato, Federal University of Rio de Janeiro, Brazil</i>	
<i>Paulo F. Pires, Federal University of Rio de Janeiro, Brazil</i>	
<i>Taniro C. Rodrigues, Federal University of Rio Grande do Norte, Brazil</i>	
<i>Thais V. Batista, Federal University of Rio Grande do Norte, Brazil</i>	

Case-Based Reasoning and Knowledge-Graph based Metamodel for Runtime Adaptive Architectural Modeling	1323
<i>Marina Mongiello, Politecnico di Bari, Italy</i>	
<i>Tommaso Di Noia, Politecnico di Bari, Italy</i>	
<i>Francesco Nocera, Politecnico di Bari, Italy</i>	
<i>Eugenio Di Sciascio, Politecnico di Bari, Italy</i>	

Squirrel: Architecture Driven Resource Management	1329
<i>Inti Gonzalez-Herrera, University of Rennes 1 - IRISA, France</i>	
<i>Johann Bourcier, University of Rennes 1 - IRISA, France</i>	
<i>Walter Rudametkin, University of Lille - INRIA, France</i>	
<i>Olivier Barais, University of Rennes 1 - IRISA, France</i>	
<i>Francois Fouquet, University of Luxembourg, Luxembourg</i>	

Deepening the Separation of Concerns in the Implementation of Multimedia Systems	1337
<i>Marcio Ferreira Moreno, IBM Research, Brazil</i>	
<i>Rodrigo Santos, Pontifical Catholic University of Rio de Janeiro, Brazil</i>	
<i>Guilherme Lima, Pontifical Catholic University of Rio de Janeiro, Brazil</i>	
<i>Marcelo Moreno, Universidade Federal de Juiz de Fora, Brazil</i>	
<i>Luiz F. Soares, Pontifical Catholic University of Rio de Janeiro, Brazil</i>	

Poster Papers

Towards a (De)composable Workflow Architecture to Define Data Collection Policies	1344
<i>Cyril Cecchinel, Université Nice Sophia-Antipolis, France</i>	
<i>Sébastien Mosser, Université Nice Sophia-Antipolis, France</i>	
<i>Philippe Collet, Université Nice Sophia-Antipolis, France</i>	

Tool Support for Evaluating Architectural Debt of an Existing System: An Experience Report	1347
<i>Francesca Arcelli Fontana, University of Milano-Bicocca, Italy</i>	
<i>Riccardo Roveda, University of Milano-Bicocca, Italy</i>	
<i>Marco Zanoni, University of Milano-Bicocca, Italy</i>	

From Product Architectures to a Managed Automotive Software Product Line Architecture	1350
<i>Benjamin Cool, Clausthal University of Technology, Germany</i>	
<i>Christoph Knieke, Clausthal University of Technology, Germany</i>	
<i>Andreas Rausch, Clausthal University of Technology, Germany</i>	
<i>Mirco Schindler, Clausthal University of Technology, Germany</i>	
<i>Arthur Strasser, Clausthal University of Technology, Germany</i>	
<i>Martin Vogel, Clausthal University of Technology, Germany</i>	
<i>Oliver Brox, Volkswagen AG, Germany</i>	
<i>Stefanie Jauns-Seyfried, Volkswagen AG, Germany</i>	

A Taxonomy for Architectural Stability	1354
<i>Maria Salama, University of Birmingham, UK</i>	
<i>Rami Bahsoon, University of Birmingham, UK</i>	

Decoupled Concurrency: A Self-Adaptive Software Architecture for Programming Multicores	1358
<i>Tai Nguyen, Washington State University, USA</i>	
<i>Xinghui Zhao, Washington State University, USA</i>	

Student Research Competition Paper

Student Research Abstract: Fuzzy Ontology-Driven Web-Based Framework for Supporting Architectural Design	1361
<i>Francesco Nocera, Polytechnic University of Bari, Italy</i>	

Software Engineering Track

Track Co-Chairs: Eunjee Song, Baylor University, United States
Byungjeong Lee, University of Seoul, South Korea

Track Editorial	1363
Toward Improving Ability to Repair Bugs Automatically – A Patch Candidate Location Mechanism using Code Similarity	1364
<i>Haruki Yokoyama, Osaka University, Japan</i>	
<i>Yoshiki Higo, Osaka University, Japan</i>	
<i>Keisuke Hotta, Osaka University, Japan</i>	
<i>Takafumi Ohta, Osaka University, Japan</i>	
<i>Kozo Okano, Osaka University, Japan</i>	
<i>Shinji Kusumoto, Osaka University, Japan</i>	
BPMiner: Mining Developers' Behavior Patterns from Screen-Captured Task Videos	1371
<i>Jing Li, Nanyang Technological University, Singapore</i>	
<i>Lingfeng Bao, Zhejiang University, China</i>	
<i>Zhenchang Xing, Nanyang Technological University, Singapore</i>	
<i>Xinyu Wang, Zhejiang University, China</i>	
<i>Bo Zhou, Zhejiang University, China</i>	
Software-Specific Part-of-Speech Tagging: An Experimental Study on Stack Overflow	1378
<i>Deheng Ye, Nanyang Technological University, Singapore</i>	
<i>Zhenchang Xing, Nanyang Technological University, Singapore</i>	
<i>Jing Li, Nanyang Technological University, Singapore</i>	
<i>Nachiket Kapre, Nanyang Technological University, Singapore</i>	
Automated Memory Leak Fixing on Value-Flow Slices for C Programs	1386
<i>Hua Yan, University of New South Wales, Australia</i>	
<i>Yulei Sui, University of New South Wales, Australia</i>	
<i>Shiping Chen, CSIRO, Australia</i>	
<i>Jingling Xue, University of New South Wales, Australia</i>	
Checking Linearizability with Fine-Grained Traces	1394
<i>Zhenyue Long, Guangdong Power Grid Co. Ltd., China</i>	
<i>Yu Zhang, Chinese Academy of Sciences, Jilin University, China</i>	
Optimization of Feature Interactions for Automotive Combustion Engines	1401
<i>Dominik Wagner, Robert Bosch AG, Austria</i>	
<i>Hermann Kaindl, Technische Universität Wien, Austria</i>	
<i>Sven Dominka, Robert Bosch AG, Austria</i>	
<i>Michael Dübner, Robert Bosch AG, Austria</i>	
A Methodology Towards the Adaptization of Legacy Systems using Agent-Oriented Software Engineering	1407
<i>Francois Wavresky, Ajou University, South Korea</i>	
<i>Seok-Won Lee, Ajou University, South Korea</i>	
Evaluating and Comparing Complexity, Coupling and a New Proposed Set of Coupling Metrics in Cross-Project Vulnerability Prediction	1415
<i>Sara Moshtari, Shiraz University, Iran</i>	
<i>Ashkan Sami, Shiraz University, Iran</i>	

Students' and Professionals' Perceptions of Test-Driven Development: A Focus Group Study	1422
<i>Giuseppe Scanniello, University of Basilicata, Italy</i>	
<i>Simone Romano, University of Basilicata, Italy</i>	
<i>Davide Fucci, University of Oulu Graduate School, Finland</i>	
<i>Burak Turhan, University of Oulu Graduate School, Finland</i>	
<i>Natalia Juristo, Universidad Politécnica de Madrid, Spain</i>	
Simple Function Points for Effort Estimation: A Further Assessment	1428
<i>Filomena Ferrucci, Università degli Studi di Salerno, Italy</i>	
<i>Carmine Gravino, Università degli Studi di Salerno, Italy</i>	
<i>Luigi Lavazza, Università degli Studi dell'Insubria, Italy</i>	
An Empirical Study on the Effect of Programming Languages on Productivity	1434
<i>Luigi Lavazza, Università degli Studi dell'Insubria, Italy</i>	
<i>Sandro Morasca, Università degli Studi dell'Insubria, Italy</i>	
<i>Davide Tosi, Università degli Studi dell'Insubria, Italy</i>	
Automated Procedure Clustering for Reverse Engineering PL/SQL Programs	1440
<i>Metin Altınışık, Turkcell Technology, Turkey</i>	
<i>Hasan Sözer, Ozyegin University, Turkey</i>	
EMF-REST: Generation of RESTful APIs from Models	1446
<i>Hamza Ed-douibi, Universitat Oberta de Catalunya, Spain</i>	
<i>Javier Luis Cánovas Izquierdo, Universitat Oberta de Catalunya, Spain</i>	
<i>Abel Gómez, Universidad de Zaragoza, Spain</i>	
<i>Massimo Tisi, AtlanMod team (Inria, Mines Nantes, LINA), France</i>	
<i>Jordi Cabot, ICREA - UOC, Spain</i>	
Software Testing in a Scientific Research Group	1454
<i>Matthew Patrick, University of Cambridge, UK</i>	
<i>James Elderfield, University of Cambridge, UK</i>	
<i>Richard O.J.H. Stutt, University of Cambridge, UK</i>	
<i>Andrew Rice, University of Cambridge, UK</i>	
<i>Christopher A. Gilligan, University of Cambridge, UK</i>	
Towards a Generic Framework for Automating Extensive Analysis of Android Applications	1460
<i>Li Li, University of Luxembourg, Luxembourg</i>	
<i>Daoyuan Li, University of Luxembourg, Luxembourg</i>	
<i>Alexandre Bartel, Technical University of Darmstadt, Germany</i>	
<i>Tegawendé F. Bissyandé, University of Luxembourg, Luxembourg</i>	
<i>Jacques Klein, University of Luxembourg, Luxembourg</i>	
<i>Yves Le Traon, University of Luxembourg, Luxembourg</i>	
Similarity Management of 'Cloned and Owned' Variants	1466
<i>Thomas Schmorleiz, University of Koblenz-Landau, Germany</i>	
<i>Ralf Lämmel, University of Koblenz-Landau, Germany</i>	
A Systematic Mapping Study on Mining Software Repositories	1472
<i>Mário André de Freitas Farias, Federal Institute of Sergipe and Federal University of Bahia, Brazil</i>	
<i>Renato Novais, Fraunhofer Project Center at UFBA and Federal Institute of Bahia, Brazil</i>	
<i>Methanias Colaço Jr., Federal University of Sergipe, Brazil</i>	
<i>Luís Paulo da Silva Carvalho, Federal Institute of Bahia, Brazil</i>	
<i>Manoel Mendonça, Federal University of Bahia, Brazil</i>	
<i>Rodrigo Oliveira Spínola, Fraunhofer Project Center at UFBA and Salvador University, Brazil</i>	

Architectural Clones: Toward Tactical Code Reuse	1480
<i>Daniel E. Krutz, Rochester Institute of Technology, USA</i>	
<i>Mehdi Mirakhorl, Rochester Institute of Technology, USA</i>	
A Meta-Learning Framework for Algorithm Recommendation in Software Fault Prediction	1486
<i>Silvia N. das Dôres, Pontifical Catholic University of Rio Grande do Sul, Brazil</i>	
<i>Luciano Alves, Pontifical Catholic University of Rio Grande do Sul, Brazil</i>	
<i>Duncan D. Ruiz, Pontifical Catholic University of Rio Grande do Sul, Brazil</i>	
<i>Rodrigo C. Barros, Pontifical Catholic University of Rio Grande do Sul, Brazil</i>	
Improving the Quality of Code Snippets in Stack Overflow	1492
<i>Mohammad Reza Tavakoli, Sharif University of Technology, Iran</i>	
<i>Abbas Heydarnoori, Sharif University of Technology, Iran</i>	
<i>Mohammad Ghafari, Politecnico di Milano, Italy</i>	
Reverse Engineering: A European IPR Perspective	1498
<i>Paolo Ciancarini, University of Bologna, Italy</i>	
<i>Daniel Russo, University of Bologna, Italy</i>	
<i>Alberto Sillitti, Center for Applied Software Engineering, Italy</i>	
<i>Giancarlo Succi, Innopolis University, Russia</i>	
Integrating Feature-Based Implementation Approaches using a Common Graph-Based Representation	1504
<i>Benjamin Behringer, University of Luxembourg, Luxembourg</i>	
<i>Steffen Rothkugel, University of Luxembourg, Luxembourg</i>	
Is Code Cloning in Games Really Different?	1512
<i>Farouq Al-omari, University of Saskatchewan, Canada</i>	
<i>Chanchal K. Roy, University of Saskatchewan, Canada</i>	
Integrated Analysis of Exception Flows and Handler Actions in Java Libraries: An Empirical Study	1520
<i>Demóstenes Sena, Federal University of Rio Grande do Norte, Brazil</i>	
<i>Roberta Coelho, Federal University of Rio Grande do Norte, Brazil</i>	
<i>Uirá Kulesza, Federal University of Rio Grande do Norte, Brazil</i>	
Model-Based Replay Testing for Event-Driven Software	1527
<i>Shakaiba Majeed, Hanyang University, South Korea</i>	
<i>Minsoo Ryu, Hanyang University, South Korea</i>	
Poster Papers	
Characterizing Non-Deadlock Concurrency Bug Fixes in Open-Source Java Programs	1534
<i>Misun Yu, Electronics and Telecommunications Research Institute, South Korea</i>	
<i>Yu-Seung Ma, Electronics and Telecommunications Research Institute, South Korea</i>	
<i>Doo-Hwan Bae, Korea Advanced Institute of Science and Technology, South Korea</i>	
A Graph-Based Approach to Detect Unreachable Methods in Java Software	1538
<i>Simone Romano, University of Basilicata, Italy</i>	
<i>Giuseppe Scanniello, University of Basilicata, Italy</i>	
<i>Carlo Sartiani, University of Basilicata, Italy</i>	
<i>Michele Risi, University of Salerno, Italy</i>	

Automatic Formal Specification Generation of APIs by Mining Unit Tests	1542
<i>Otmar M. Pereira Junior, Pontifical Catholic University of Minas Gerais, Brazil</i>	
<i>Wladimir C. Brandão, Pontifical Catholic University of Minas Gerais, Brazil</i>	
<i>Mark Alan J. Song, Pontifical Catholic University of Minas Gerais, Brazil</i>	
Consistency Checks of Design Specifications against Requirements using Graph-Based Linguistic Analysis	1546
<i>Kai Niklas, Talanx Systeme AG, Germany</i>	
<i>Stefan Gärtner, Leibniz Universität Hannover, Germany</i>	
<i>Kurt Schneider, Leibniz Universität Hannover, Germany</i>	
Empirical Investigation of Fault Predictors in Context of Class Membership Probability Estimation	1550
<i>Shahid Hussain, City University of Hong Kong, Hong Kong</i>	
<i>Arif Ali Khan, City University of Hong Kong, Hong Kong</i>	
<i>Kwabena Ebo Bennin, City University of Hong Kong, Hong Kong</i>	
A Review and Comparison of Methods for Determining the Best Analogies in Analogy-Based Software Effort Estimation	1554
<i>Bodin Chinthanet, Kasetsart University, Thailand</i>	
<i>Passakorn Phannachitta, Nara Institute of Science and Technology, Japan</i>	
<i>Yasutaka Kamei, Kyushu University, Japan</i>	
<i>Pattara Leelaprute, Kasetsart University, Thailand</i>	
<i>Arnon Rungsawang, Kasetsart University, Thailand</i>	
<i>Naoyasu Ubayashi, Kyushu University, Japan</i>	
<i>Kenichi Matsumoto, Nara Institute of Science and Technology, Japan</i>	
Evaluating the use of a General-Purpose Benchmark Suite for Domain-Specific SMT-Solving	1558
<i>Andrew Healy, Maynooth University, Ireland</i>	
<i>Rosemary Monahan, Maynooth University, Ireland</i>	
<i>James F. Power, Maynooth University, Ireland</i>	
A Formal Modeling and Analysis Framework for Software Product Line of Preemptive Real-Time Systems	1562
<i>Jin Hyun Kim, INRIA/IRISA, France</i>	
<i>Axel Legay, INRIA/IRISA, France</i>	
<i>Louis-Marie Traonouez, INRIA/IRISA, France</i>	
<i>Mathieu Acher, University of Rennes 1, France</i>	
<i>Sungwon Kang, KAIST, South Korea</i>	
Testability and Software Performance: A Systematic Mapping Study	1566
<i>Mohammad Mahdi Hassan, Karlstad University, Sweden</i>	
<i>Wasif Afzal, Mälardalen University, Sweden</i>	
<i>Birgitta Lindström, University of Skövde, Sweden</i>	
<i>Syed Muhammad Ali Shah, Swedish Institute of Computer Science, Sweden</i>	
<i>Sten F. Andler, University of Skövde, Sweden</i>	
<i>Martin Blom, Karlstad University, Sweden</i>	
Detecting Indirect Conflicts between Access Control Policies	1570
<i>Laura Costa Sarkis, Universidade Federal do Acre, Brazil</i>	
<i>Viviane Torres da Silva, IBM Research, Brazil</i>	
<i>Christiano Braga, Universidade Federal Fluminense, Brazil</i>	

Deriving UML-Based Specifications of Inter-Component Interactions from Runtime Tests	1573
<i>Thorsten Haendler, Vienna University of Economics and Business, Austria</i>	
<i>Stefan Sobernig, Vienna University of Economics and Business, Austria</i>	
<i>Mark Strembeck, Vienna University of Economics and Business, Austria</i>	
A Representation Structure for Software Process Tailoring based on BPMN High-Level Operations	1576
<i>Raquel M. Pillat, Federal University of Rio de Janeiro, Brazil</i>	
<i>Toacy C. Oliveira, Federal University of Rio de Janeiro, Brazil</i>	
Student Research Competition Paper	
Student Research Abstract: A Framework for Assisting Software Process Improvement Program in Global Software Development	1580
<i>Arif Ali Khan, City University of Hong Kong, Hong Kong</i>	
Student Research Abstract: Introspection of the Virtual Machines with System Calls Monitoring	1582
<i>Natalia Fursova, Novgorod State University, Russia</i>	
Student Research Abstract: Threshold Analysis of Design Metrics to Detect Design Flaws	1584
<i>Shahid Hussain, City University of Hong Kong, Hong Kong</i>	
Student Research Abstract: MDE as Service, Overview and Research Progress	1586
<i>Fábio Paulo Basso, Federal University of Rio de Janeiro, Brazil</i>	
Service-Oriented Architecture and Programming Track	
Track Co-Chairs: <i>Maurice ter Beek, ISTI-CNR, Italy</i>	
<i>Hernán Melgratti, University of Buenos Aires, Argentina</i>	
<i>Hugo Torres Vieira, IMT Lucca, Italy</i>	
Track Editorial	1588
Improving QoS Delivered by WS-BPEL Scenario Adaptation through Service Execution Parallelization	1590
<i>Dionisis Margaritis, University of Athens, Greece</i>	
<i>Costas Vassilakis, University of the Peloponnese, Greece</i>	
<i>Panagiotis Georgiadis, University of Athens, Greece</i>	
QoS-Aware Adaptation for Complex Event Service	1597
<i>Feng Gao, National University of Ireland, Galway, Ireland</i>	
<i>Muhammad Intizar Ali, National University of Ireland, Galway, Ireland</i>	
<i>Edward Curry, National University of Ireland, Galway, Ireland</i>	
<i>Alessandra Mileo, National University of Ireland, Galway, Ireland</i>	
Service Functional Testing Automation with Intelligent Scheduling and Planning	1605
<i>Lom Messan Hillah, Université Paris Ouest, and Sorbonne Universités,</i>	
<i>UPMC Univ. Paris 06, CNRS, LIP6 UMR7606, France</i>	
<i>Ariele-Paolo Maesano, Simple Engineering France, France</i>	
<i>Libero Maesano, Simple Engineering France, France</i>	
<i>Fabio De Rosa, Simple Engineering France, France</i>	
<i>Fabrice Kordon, Sorbonne Universités, UPMC Univ. Paris 06, CNRS, LIP6 UMR7606, France</i>	
<i>Pierre-Henri Wuillemin, Sorbonne Universités, UPMC Univ. Paris 06, CNRS, LIP6 UMR7606, France</i>	

JxActinium: A Runtime Manager for Secure REST-Ful CoAP Applications	
Working over JXTA	1611
<i>Filippo Battaglia, University of Catania, Italy</i>	
<i>Giancarlo Iannizzotto, University of Messina, Italy</i>	
<i>Lucia Lo Bello, University of Catania, Italy</i>	
Software Verification and Testing Track	
Track Co-Chairs:	<i>Mercedes G. Merayo, University Complutense of Madrid, Spain</i>
	<i>Gwen Salaün, Grenoble INP, France</i>
Track Editorial	1619
Dead Variable Analysis for Multi-Threaded Heap Manipulating Programs	1620
<i>Pavel Jančík, Charles University in Prague, Czech Republic</i>	
<i>Jan Kofroň, Charles University in Prague, Czech Republic</i>	
Predictive Runtime Enforcement	1628
<i>Srinivas Pinisetty, Aalto University, Finland</i>	
<i>Viorel Preoteasa, Aalto University, Finland</i>	
<i>Stavros Tripakis, Aalto University, University of California, Berkeley, Finland</i>	
<i>Thierry Jéron, INRIA Rennes - Bretagne Atlantique, France</i>	
<i>Yliès Falcone, Université Grenoble Alpes, France</i>	
<i>Hervé Marchand, INRIA Rennes - Bretagne Atlantique, France</i>	
Time Optimal Reachability Analysis using Swarm Verification	1634
<i>Zhengkui Zhang, Aalborg University, Denmark</i>	
<i>Brian Nielsen, Aalborg University, Denmark</i>	
<i>Kim G. Larsen, Aalborg University, Denmark</i>	
Testing Access Control Policies against Intended Access Rights	1641
<i>Antonia Bertolino, CNR-ISTI, Italy</i>	
<i>Said Daoudagh, CNR-ISTI, Italy</i>	
<i>Francesca Lonetti, CNR-ISTI, Italy</i>	
<i>Eda Marchetti, CNR-ISTI, Italy</i>	
Verifying CUDA Programs using SMT-Based Context-Bounded Model Checking	1648
<i>Phillipe Pereira, Federal University of Amazonas, Brazil</i>	
<i>Higo Albuquerque, Federal University of Amazonas, Brazil</i>	
<i>Hendrio Marques, Federal University of Amazonas, Brazil</i>	
<i>Isabela Silva, Federal University of Amazonas, Brazil</i>	
<i>Celso Carvalho, Federal University of Amazonas, Brazil</i>	
<i>Lucas Cordeiro, Federal University of Amazonas, Brazil</i>	
<i>Vanessa Santos, Federal University of Amazonas, Brazil</i>	
<i>Ricardo Ferreira, Federal University of Viçosa, Brazil</i>	
Reducing Locating Sequences for Testing from Finite State Machines	1654
<i>Guy Vincent Jourdan, University of Ottawa, Canada</i>	
<i>Hasan Ural, University of Ottawa, Canada</i>	
<i>Hüsnü Yenigün, Sabanci University, Turkey</i>	

Performance Testing Modeling: An Empirical Evaluation of DSL and UML-Based Approaches	1660
<i>Maicon Bernardino, Pontifical Catholic University of Rio Grande do Sul, Brazil</i>	
<i>Elder M. Rodrigues, Pontifical Catholic University of Rio Grande do Sul, Brazil</i>	
<i>Avelino F. Zorzo, Pontifical Catholic University of Rio Grande do Sul, Brazil</i>	
How Bit-Vector Logic Can Help Improve the Verification of LTL Specifications over Infinite Domains	1666
<i>Luciano Baresi, Politecnico di Milano, Italy</i>	
<i>Mohammad Mehdi Pourhashem Kallehbasti, Politecnico di Milano, Italy</i>	
<i>Matteo Rossi, Politecnico di Milano, Italy</i>	
Termination Analysis of Floating-Point Programs using Parameterizable Rational Approximations	1674
<i>Fonenantsoa Maurica, Université de La Réunion, France</i>	
<i>Frédéric Mesnard, Université de La Réunion, France</i>	
<i>Étienne Payet, Université de La Réunion, France</i>	
Some Classes of Finite State Machines with Polynomial Length of Distinguishing Test Cases	1680
<i>Hüsniü Yenigün, Sabanci University, Turkey</i>	
<i>Nina Yevtushenko, Tomsk State University, Russia</i>	
<i>Natalia Kushik, Tomsk State University, Russia</i>	
Session Types for Communicating Systems in Event-B	1686
<i>Carlos Olarte, Universidade Federal do Rio Grande do Norte, Brazil</i>	
<i>Camilo Rueda, Pontificia Universidad Javeriana-Cali, Colombia</i>	
Invariant Generation for Linearizability Proofs	1694
<i>Graeme Smith, The University of Queensland, Australia</i>	
<i>John Derrick, University of Sheffield, UK</i>	
Formal Modeling and Analysis of RAMP Transaction Systems	1700
<i>Si Liu, University of Illinois Urbana-Champaign, USA</i>	
<i>Peter Csaba Ölveczky, University of Oslo, Norway</i>	
<i>Muntasir Raihan Rahman, University of Illinois Urbana-Champaign, USA</i>	
<i>Jatin Ganhotra, University of Illinois Urbana-Champaign, USA</i>	
<i>Indranil Gupta, University of Illinois Urbana-Champaign, USA</i>	
<i>José Meseguer, University of Illinois Urbana-Champaign, USA</i>	
Student Research Competition Paper	
Student Research Abstract: Towards a Combinatorial Approach for Undiscounted MDPs	1708
<i>Vahid Hashemi, Max Planck Institute for Informatics, Germany</i>	

Embedded Systems Track

Track Co-Chairs: *Marco Di Natale, Scuola Superiore S. Anna, Italy*
 Li-Pin Chang, National Chiao-Tung University, Taiwan

Balanced Loop Retiming to Effectively Architect STT-RAM-Based Hybrid Cache for VLIW Processors 1710

Keni Qiu, Capital Normal University, China
Weigong Zhang, Capital Normal University, China
Xiaoqiang Wu, Guangdong Electronics Industry Institute, China
Xiaoyan Zhu, Capital Normal University, China
Jing Wang, Capital Normal University, China
Yuanchao Xu, Capital Normal University, China
Chun Jason Xue, City University of Hong Kong, Hong Kong

Co-Cap: Energy-Efficient Cooperative CPU-GPU Frequency Capping for Mobile Games 1717

Jurn-Gyu Park, University of California, Irvine, USA
Chen-Ying Hsieh, University of California, Irvine, USA
Nikil Dutt, University of California, Irvine, USA
Sung-Soo Lim, Kookmin University, South Korea

ARTE: Arduino Real-Time Extension for Programming Multitasking Applications 1724

Pasquale Buonocunto, Scuola Superiore Sant'Anna, Italy
Alessandro Biondi, Scuola Superiore Sant'Anna, Italy
Marco Pagani, Scuola Superiore Sant'Anna, Italy
Mauro Marinoni, Scuola Superiore Sant'Anna, Italy
Giorgio Buttazzo, Scuola Superiore Sant'Anna, Italy

A Low Power STT-RAM based Register File for GPGPUs 1732

Ehsan Atoofian, Lakehead University, Canada

Static Energy Efficient Cache Reconfiguration for Dynamic NUCA in Tiled CMPs 1739

Shounak Chakraborty, Indian Institute of Technology Guwahati, India
Shirshendu Das, Indian Institute of Technology Guwahati, India
Hemangee K. Kapoor, Indian Institute of Technology Guwahati, India

Dynamic Associativity Enabled DNUCA to Improve Block Localisation in Tiled CMPs 1745

Shirshendu Das, Indian Institute of Information Technology Guwahati, India
Hemangee K. Kapoor, Indian Institute of Technology Guwahati, India

Probabilistic Analysis of Bufferless Pipelines of Real-Time Tasks 1751

Luca Abeni, University of Trento, Italy
Daniele Fontanelli, University of Trento, Italy
Luigi Palopoli, University of Trento, Italy
Bernardo Villalba Frias, University of Trento, Italy

FIDE – An FMI Integrated Development Environment 1759

Fabio Cremona, University of California, Berkeley, and Scuola Superiore Sant'Anna, USA
Marten Lohstroh, University of California, Berkeley, USA
Stavros Tripakis, University of California, Berkeley, and Aalto University, USA
Christopher Brooks, University of California, Berkeley, USA
Edward A. Lee, University of California, Berkeley, USA

Poster Papers

Scheduling Algorithm Considering Response Time for Mixed Tasks on Multiprocessor Systems 1767

Chin-Fu Kuo, National University of Kaohsiung, Taiwan

Yu-Hao Huang, National University of Kaohsiung, Taiwan

Yung-Feng Lu, National Taichung University of Science and Technology, Taiwan

Shih-Chun Chou, Institute for Information Industry, Taiwan

Combined Data Caching and Delayed Parity Update in RAID with SSD Cache 1771

Sophal Minh, University of Seoul, South Korea

Donghee Lee, University of Seoul, South Korea

Parity Management Scheme for a Hybrid-Storage RAID 1774

Jen-Wei Hsieh, National Taiwan University of Science and Technology, Taiwan

Che-Jen Su, National Taiwan University of Science and Technology, Taiwan

Safety Analysis Generation from Prototyping Models for Transportation Systems 1777

Jean Godot, FAAR Industry, France

Sebastien Saudrais, ESTACA'Lab, France

Adil Alif, FAAR Industry, France

Bertrand Barbedette, ESTACA'Lab, France

Cherif Larouci, ESTACA'Lab, France

Software for Embedded Systems: A Quality Assessment based on Improved ODC Taxonomy ... 1780

Nuno Silva, University of Coimbra, Portugal

Marco Vieira, University of Coimbra, Portugal

Object Oriented Programming Languages and Systems Track

Track Co-Chairs: *Davide Ancona, Universita` di Genova, Italy*

Structured Gotos are (Slightly) Harmful 1784

Eli Sennesh, Technion, Israel

Yossi Gil, Technion, Israel

Embedding Goal-Directed Evaluation through Transformation 1790

Peter Mills, University of Idaho, USA

Clinton Jeffery, University of Idaho, USA

Optimizing Record Data Structures in Racket 1798

Tobias Pape, University of Potsdam, Germany

Vasily Kirilichev, University of Potsdam, Germany

Robert Hirschfeld, University of Potsdam, Germany

From Atomic Variables to Data-Centric Concurrency Control 1806

Hervé Paulino, NOVA University of Lisbon, Portugal

Daniel Parreira, NOVA University of Lisbon, Portugal

Nuno Delgado, NOVA University of Lisbon, Portugal

António Ravara, NOVA University of Lisbon, Portugal

Ana Matos, University of Lisbon, Portugal

Poster Papers

On the Criteria for Prioritizing Code Anomalies to Identify Architectural Problems 1812

Santiago Vidal, ISISTAN-CONICET, Argentina

Everton Guimaraes, UNIFOR, Brazil

Willian Oizumi, Pontifical Catholic University of Rio de Janeiro, Brazil

Alessandro Garcia, Pontifical Catholic University of Rio de Janeiro, Brazil

Andrés Díaz Pace, ISISTAN-CONICET, Argentina

Claudia Marcos, ISISTAN-CIC, Argentina

Using Field Access Frequency to Optimize Layout of Objects in the JVM 1815

Taees Eimouri, University of New Brunswick, Canada

Kenneth B. Kent, University of New Brunswick, Canada

Aleksandar Micic, IBM, Canada

Karl Taylor, IBM, Canada

Initialize-and-Catch 1819

Paola Giannini, Università del Piemonte, Italy

Marco Servetto, Victoria University of Wellington, New Zealand

Elena Zucca, Università di Genova, Italy

Operating Systems Track

Track Co-Chairs: *Bongjae Kim, Korea Electronics Technology Institute, South Korea*

George Hamer, South Dakota State University, United States

Track Editorial 1823

i-RAID: A Novel Redundant Storage Architecture for Improving Reliability, Performance, and Life-Span of Solid-State Disk Systems 1824

Mingyang Wang, University of Cincinnati, USA

Yiming Hu, University of Cincinnati, USA

mmapcopy: Efficient Memory Footprint Reduction using Application Knowledge 1832

Ingo Korb, Technical University of Dortmund, Germany

Helena Kotthaus, Technical University of Dortmund, Germany

Peter Marwedel, Technical University of Dortmund, Germany

OS-Level Virtualization for Industrial Automation Systems: Are We There Yet? 1838

Alexandru Moga, ABB Corporate Research, Switzerland

Thanikesavan Sivanthi, ABB Corporate Research, Switzerland

Carsten Franke, ABB Corporate Research, Switzerland

Load-Aware Scheduling for Heterogeneous Multi-Core Systems 1844

Mohannad Nabelsee, Technische Universität Berlin, Germany

Anselm Busse, Technische Universität Berlin, Germany

Helge Parzyjegl, Rostock University, Germany

Gero Mühl, Rostock University, Germany

Improving I/O Performance of NVMe SSD on Virtual Machines 1852

Jungkil Kim, Samsung Electronics Co., Ltd., South Korea

Sungyong Ahn, Samsung Electronics Co., Ltd., South Korea

Kwanghyun La, Samsung Electronics Co., Ltd., South Korea

Wooseok Chang, Samsung Electronics Co., Ltd., South Korea

Testing Device Drivers against Hardware Failures in Real Environments	1858
<i>Satoru Takekoshi, University of Tsukuba, Japan</i>	
<i>Takahiro Shinagawa, The University of Tokyo, Japan</i>	
<i>Kazuhiko Kato, University of Tsukuba, Japan</i>	
Collaborative Processing of Data-Intensive Algorithms with CPU, Intelligent SSD, and GPU	1865
<i>Yong-Yeon Jo, Hanyang University, South Korea</i>	
<i>SungWoo Cho, Hanyang University, South Korea</i>	
<i>Sang-Wook Kim, Hanyang University, South Korea</i>	
<i>Hyunok Oh, Hanyang University, South Korea</i>	
Analysis of Micro-Architecture Resources Interference on Multicore NUMA Systems	1871
<i>Haecheon Kim, Dankook University, South Korea</i>	
<i>Seungmin Lim, Dankook University, South Korea</i>	
<i>Junkee Yoon, Dankook University, South Korea</i>	
<i>Seungjae Baek, Dankook University, South Korea</i>	
<i>Jongmoo Choi, Dankook University, South Korea</i>	
<i>Seongje Cho, Dankook University, South Korea</i>	
Multicore CPU Reclaiming: Parallel or Sequential?	1877
<i>Luca Abeni, University of Trento, Italy</i>	
<i>Giuseppe Lipari, University of Lille 1, France</i>	
<i>Andrea Parri, Scuola Superiore Sant'Anna, Italy</i>	
<i>Youcheng Sun, Scuola Superiore Sant'Anna, Italy</i>	
Plate: Persistent Memory Management for Nonvolatile Main Memory	1885
<i>Toshihiro Yamauchi, Okayama University, Japan</i>	
<i>Yuta Yamamoto, Okayama University, Japan</i>	
<i>Kengo Nagai, Okayama University, Japan</i>	
<i>Tsukasa Matono, Kyushu University, Japan</i>	
<i>Shinji Inamoto, Kyusyu University, Japan</i>	
<i>Masaya Ichikawa, Kyushu University, Japan</i>	
<i>Masataka Goto, Kyushu University, Japan</i>	
<i>Hideo Taniguchi, Okayama University, Japan</i>	
Poster Papers	
zf-FTL: A Zero-Free Flash Translation Layer	1893
<i>Dongwook Kim, Hanyang University, South Korea</i>	
<i>Sooyong Kang, Hanyang University, South Korea</i>	
Virtual Machine Scheduling based on Task Characteristic	1897
<i>Taegyung Hwang, Soongsil University, South Korea</i>	
<i>Kisu Kim, Soongsil University, South Korea</i>	
<i>Jeonghwan Lee, Soongsil University, South Korea</i>	
<i>Jiman Hong, Soongsil University, South Korea</i>	
<i>Dongwan Shin, New Mexico Tech, USA</i>	

NKE – An Embedded Nanokernel for Educational Purpose	1900
<i>Celso M. da Costa, State University of Rio Grande do Sul, Brazil</i>	
<i>Cassio Brasil, State University of Rio Grande do Sul, Brazil</i>	
<i>Leonardo L. Silva, State University of Rio Grande do Sul, Brazil</i>	
<i>Lucas Murliky, State University of Rio Grande do Sul, Brazil</i>	
<i>João Leonardo Fragoso, State University of Rio Grande do Sul, Brazil</i>	
<i>Guilherme Debom, State University of Rio Grande do Sul, Brazil</i>	
<i>Rivalino Matias Jr., Federal University of Uberlandia, Brazil</i>	
<i>Aline Fracalossi, State University of Rio Grande do Sul, Brazil</i>	
<i>Margrit Reni Krug, University of Vale do Rio dos Sinos, Brazil</i>	

Virtual Machine Halt	1903
<i>Simão Reis, University of Aveiro, Portugal</i>	
<i>André Zúquete, University of Aveiro, Portugal</i>	
<i>José Vieira, University of Aveiro, Portugal</i>	

Practical Aspects of High-Level Parallel Programming Track

Track Co-Chairs: *Frédéric Loulergue, Université d'Orléans, France*

Transforming Javascript Event-Loop into a Pipeline	1906
<i>Etienne Brodu, Université de Lyon, France</i>	
<i>Stéphane Frénot, Université de Lyon, France</i>	
<i>Frédéric Oblé, Worldline, France</i>	

Distributed Graph Processing: An Approach based on Overlay Composition	1912
<i>Emanuele Carlini, ISTI-CNR, Italy</i>	
<i>Patrizio Dazzi, ISTI-CNR, Italy</i>	
<i>Alessandro Lulli, University of Pisa, Italy</i>	
<i>Laura Ricci, University of Pisa, Italy</i>	

Poster Papers

Sharing Memory in Modern Distributed Applications	1918
<i>Claudio Scordino, Evidence Srl, Italy</i>	
<i>Bruno Morelli, Evidence Srl, Italy</i>	

Derivation of Parallel-Efficient Structural Recursive Functions from Declarative Graph Queries	1922
<i>Chong Li, National Institute of Informatics, Japan</i>	
<i>Le-Duc Tung, SOKENDAI, Japan</i>	
<i>Xiaodong Meng, Shanghai Jiao Tong University, China</i>	
<i>Zhenjiang Hu, National Institute of Informatics, Japan</i>	

Programming Languages Track

Track Co-Chairs: *Marjan Mernik, University of Maribor, Slovenia*
Barrett Bryant, University of North Texas, United States

Track Editorial	1926
Using CSP for Coordinating Undo-Based Collaborative Applications	1928
<i>Asma Cherif, Umm al-Qura University, Saudi Arabia</i>	
<i>Abdessamad Imine, Loria University, France</i>	

Integrating Lua into C for Embedding Lua Interpreters in a C Application	1936
<i>Akira Tanimura, The University of Electro-communications, Japan</i>	
<i>Hideya Iwasaki, The University of Electro-communications, Japan</i>	
A Performant Scheme Interpreter in asm.js	1944
<i>Noah Van Es, Vrije Universiteit Brussel, Belgium</i>	
<i>Jens Nicolay, Vrije Universiteit Brussel, Belgium</i>	
<i>Quentin Stievenart, Vrije Universiteit Brussel, Belgium</i>	
<i>Theo D'Hondt, Vrije Universiteit Brussel, Belgium</i>	
<i>Coen De Roover, Vrije Universiteit Brussel, Belgium</i>	
Stella: A Python-Based Domain-Specific Language for Simulations	1952
<i>David Mohr, University of New Mexico, USA</i>	
<i>Darko Stefanovic, University of New Mexico, USA</i>	
A Parsing Machine for Parsing Expression Grammars with Labeled Failures	1960
<i>Sérgio Medeiros, Federal University of Rio Grande do Norte, Brazil</i>	
<i>Fabio Mascarenhas, Universidade Federal do Rio de Janeiro, Brazil</i>	
Wodel: A Domain-Specific Language for Model Mutation	1968
<i>Pablo Gómez-Abajo, Universidad Autónoma de Madrid, Spain</i>	
<i>Esther Guerra, Universidad Autónoma de Madrid, Spain</i>	
<i>Juan de Lara, Universidad Autónoma de Madrid, Spain</i>	
Integrating Regular Expressions and SNOBOL Patterns into String Scanning: A Unifying Approach	1974
<i>Clinton Jeffery, University of Idaho, USA</i>	
<i>Phillip Thomas, National Library of Medicine, USA</i>	
<i>Sudarshan Gaikawai, Yelp, USA</i>	
<i>John Goettsche, University of Idaho, USA</i>	
An Embedded Domain Specific Language for Distributed Memory Transactions in Java	1980
<i>Jeronimo da Cunha Ramos, Federal University of Pelotas, Brazil</i>	
<i>André Rauber Du Bois, Federal University of Pelotas, Brazil</i>	
<i>Mauricio Lima Pilla, Federal University of Pelotas, Brazil</i>	
An Object Model for a Dynamic Mixin based Language	1986
<i>Eden Burton, McMaster University, Canada</i>	
<i>Emil Sekerinski, McMaster University, Canada</i>	
Poster Papers	
Automated Adaptation via Quantitative Partial Model Checking	1993
<i>Stefano Bistarelli, Università di Perugia, Italy</i>	
<i>Francesco Santini, Università di Perugia, Italy</i>	
<i>Fabio Martinelli, Institute of Informatics and Telematics of CNR, Italy</i>	
<i>Ilaria Matteucci, Institute of Informatics and Telematics of CNR, Italy</i>	
Principles for Reuse in Formal Language Tools	1997
<i>Luis Diogo Couto, Aarhus University, Denmark</i>	
<i>Peter W.V. Tran-Jørgensen, Aarhus University, Denmark</i>	
<i>Kenneth Lausdahl, Aarhus University, Denmark</i>	

Maintainability of Functional Reactive Programs in a Telecom Server Software	2001
<i>Klervie Toczé, Ericsson AB, Sweden</i>	
<i>Maria Vasilevskaya, Linköping University, Sweden</i>	
<i>Patrik Sandahl, Ericsson AB, Sweden</i>	
<i>Simin Nadjm-Tehrani, Linköping University, Sweden</i>	
Futex based Locks for C11's Generic Atomics (Extended Abstract)	2004
<i>Jens Gustedt, INRIA, France</i>	
A DSL for Executable 'How To' Manuals	2007
<i>Marcel Heinz, University of Koblenz-Landau, Germany</i>	
<i>Philipp Helsper, University of Koblenz-Landau, Germany</i>	
<i>Ralf Lämmel, University of Koblenz-Landau, Germany</i>	
<i>Tobias M. Schmidt, University of Koblenz-Landau, Germany</i>	
Extensible Modules for JavaScript	2010
<i>Florent Marchand de Kerchove, ASCOLA (Mines Nantes, Inria, LINA), France</i>	
<i>Jacques Noyé, ASCOLA (Mines Nantes, Inria, LINA), France</i>	
<i>Mario Südholt, ASCOLA (Mines Nantes, Inria, LINA), France</i>	
Reliable Software Technologies and Communication Middleware Track	
Track Co-Chairs:	<i>Marisol García-Valls, Universidad Carlos III de Madrid, Spain</i>
	<i>Aniruddha Gokhale, Vanderbilt University, United States</i>
	<i>Paolo Bellavista, Università di Bologna, Italy</i>
Track Editorial	2013
Scalable Monitoring and Dependable Job Scheduling Support for Multi-Domain Grid Infrastructures	2015
<i>Marcello Cinque, Università di Napoli Federico II, Italy</i>	
<i>Antonio Corradi, University of Bologna, Italy</i>	
<i>Luca Foschini, University of Bologna, Italy</i>	
<i>Flavio Frattini, Università di Napoli Federico II, Italy</i>	
<i>Javier Povedano-Molina, Universidad de Granada, Spain</i>	
Exploiting User Feedback for Online Filtering in Event-Based Systems	2021
<i>Fabio Petroni, Sapienza University of Rome, Italy</i>	
<i>Leonardo Querzoni, Sapienza University of Rome, Italy</i>	
<i>Roberto Beraldi, Sapienza University of Rome, Italy</i>	
<i>Mario Paolucci, Institute of Cognitive Sciences and Technologies, CNR, Italy</i>	
Poster Papers	
Adjusting Middleware Knobs to Suit CPS Domains	2027
<i>Marisol García-Valls, Universidad Carlos III de Madrid, Spain</i>	
<i>Cristian Calva-Urrego, Universidad Carlos III de Madrid, Spain</i>	
<i>Alejandro Alonso, Universidad Politécnica de Madrid, Spain</i>	
<i>Juan A. de la Puente, Universidad Politécnica de Madrid, Spain</i>	

Computer Security Track

Track Co-Chairs: *Giampaolo Bella, Università di Catania, Italy*
Sergio Maffèis, Imperial College London, UK

Track Editorial	2031
Slick: An Intrusion Detection System for Virtualized Storage Devices	2033
<i>Andrei Bacs, Vrije Universiteit Amsterdam, The Netherlands</i> <i>Cristiano Giuffrida, Vrije Universiteit Amsterdam, The Netherlands</i> <i>Bernhard Grill, Technische Universität Wien, Austria</i> <i>Herbert Bos, Vrije Universiteit Amsterdam, The Netherlands</i>	
Implementing a Secure Abstract Machine	2041
<i>Adriaan Larmuseau, Uppsala University, Sweden</i> <i>Marco Patrignani, iMinds-Distrinet, KULeuven, Belgium</i> <i>Dave Clarke, Uppsala University, Sweden</i>	
Enhancing Android Permission through Usage Control: A BYOD Use-Case	2049
<i>Fabio Martinelli, Institute of Informatics and Telematics of CNR, Italy</i> <i>Paolo Mori, Institute of Informatics and Telematics of CNR, Italy</i> <i>Andrea Saracino, Institute of Informatics and Telematics of CNR, Italy</i>	
Out-of-Band Discovery and Evaluation for Tor Hidden Services	2057
<i>Kang Li, Chinese Academy of Sciences, China</i> <i>Peipeng Liu, Chinese Academy of Sciences, China</i> <i>Qingfeng Tan, Chinese Academy of Sciences, China</i> <i>Jinqiao Shi, Chinese Academy of Sciences, China</i> <i>Yue Gao, Chinese Academy of Sciences, China</i> <i>Xuebin Wang, Chinese Academy of Sciences, China</i>	
Reading Between the Fields: Practical, Effective Intrusion Detection for Industrial Control Systems	2063
<i>Ömer Yüksel, Eindhoven University of Technology, The Netherlands</i> <i>Jerry den Hartog, Eindhoven University of Technology, The Netherlands</i> <i>Sandro Etalle, Eindhoven Univ. of Technology, Univ. of Twente, SecurityMatters BV, The Netherlands</i>	
Implementation-Level Analysis of the JavaScript Helios Voting Client	2071
<i>Michael Backes, Saarland University, Germany</i> <i>Christian Hammer, Saarland University, Germany</i> <i>David Pfaff, Saarland University, Germany</i> <i>Malte Skoruppa, Saarland University, Germany</i>	
Accurate Spear Phishing Campaign Attribution and Early Detection	2079
<i>Yufei Han, Symantec Research Labs, France</i> <i>Yun Shen, Symantec Research Labs, Ireland</i>	
MalFlow: Identification of C&C Servers through Host-Based Data Flow Profiling	2087
<i>Tobias Wüchner, Technische Universität München, Germany</i> <i>Martín Ochoa, Singapore University of Technology and Design, Singapore</i> <i>Mojdeh Golagha, Technische Universität München, Germany</i> <i>Gaurav Srivastava, Technische Universität München, Germany</i> <i>Thomas Schreck, Siemens CERT, Germany</i> <i>Alexander Pretschner, Technische Universität München, Germany</i>	

**An Automated Approach for Testing the Security of Web Applications
against Chained Attacks** 2095
Alberto Calvi, Università degli Studi di Verona, Italy
Luca Viganò, King's College London, UK

Ensuring Endpoint Authenticity in WebRTC Peer-to-Peer Communication 2103
Willem De Groef, iMinds-Distrinet, KU Leuven, Belgium
Deepak Subramanian, CentraleSupélec, France
Martin Johns, SAP SE, Germany
Frank Piessens, iMinds-Distrinet, KU Leuven, Belgium
Lieven Desmet, iMinds-Distrinet, KU Leuven, Belgium

Student Research Competition Paper

**Student Research Abstract: A 3D-Cellular Automata based Pseudo-Random
Number Generator** 2111
Rosemary Koikara, Kyungpook National University, South Korea

Smart Grid and Smart Technologies Track

Track Co-Chairs: *Gail-Joon Ahn, Arizona State University, United States*
 Seong-Je Cho, Dankook University, South Korea
 Dongwan Shin, New Mexico Tech, United States

**Sensor Network based Solar Forecasting using a Local Vector Autoregressive
Ridge Framework** 2113
Jin Xu, Stony Brook University, USA
Shinjae Yoo, Brookhaven National Lab, USA
John Heiser, Brookhaven National Lab, USA
Paul Kalb, Brookhaven National Lab, USA

**Near Real-Time Electric Load Approximation in Low Voltage Cables of
Smart Grids with Models@run.time** 2119
Thomas Hartmann, University of Luxembourg, Luxembourg
Assaad Moawad, University of Luxembourg, Luxembourg
Francois Fouquet, University of Luxembourg, Luxembourg
Yves Reckinger, Creos Luxembourg S.A., Luxembourg
Jacques Klein, University of Luxembourg, Luxembourg
Yves Le Traon, University of Luxembourg, Luxembourg

**Tailor your Curves after your Costume: Supply-Following Demand in
Smart Grids through the Adwords Problem** 2127
Giorgos Georgiadis, Chalmers University of Technology, Sweden
Iosif Salem, Chalmers University of Technology, Sweden
Marina Papatriantafilou, Chalmers University of Technology, Sweden

BayesForSG: A Bayesian Model for Forecasting Thermal Load in Smart Grids 2135
Rohan Nanda, Luleå University of Technology, Sweden
Saguna Saguna, Luleå University of Technology, Sweden
Karan Mitra, Luleå University of Technology, Sweden
Christer Åhlund, Luleå University of Technology, Sweden

Poster Papers

Cascading Attacks against Smart Grid using Control Command Disaggregation and Services	2142
---	------

Byungho Min, Macquarie University, Australia
Vijay Varadharajan, Macquarie University, Australia

Real-World User Flexibility of Energy Consumption: Two-Stage Generative Model Construction	2148
---	------

Nasrin Sadeghianpourhamami, Ghent University - iMinds, Belgium
Matthias Strobbe, Ghent University - iMinds, Belgium
Chris Develder, Ghent University - iMinds, Belgium

Solving the Environmental Economic Dispatch Problem with Prohibited Operating Zones in Microgrids using NSGA-II and TOPSIS	2154
---	------

Marco Cococcioni, University of Pisa, Italy
Beatrice Lazzerini, University of Pisa, Italy
Francesco Marcelloni, University of Pisa, Italy
Francesco Pistolesi, University of Pisa, Italy

Software Platforms Track

Track Co-Chairs: *Jinman Jung, Hannam University, South Korea*
 Jun Huang, Chongqing University of Post & Telecommunications, China

Track Editorial	2158
------------------------------	------

Evaluation of Smart Scheduling Technologies: Static versus Dynamic Approaches	2159
--	------

Shaza Hanif, Sharjah, UAE
Shahab ud Din, Higher Colleges of Technology, UAE

Experimental Approach: Two-Stage Spectrum Sensing using GNU Radio and USRP to Detect Primary User's Signal	2165
---	------

Yanxiao Zhao, South Dakota School of Mines and Technology, USA
Jems Pradhan, South Dakota School of Mines and Technology, USA
Guodong Wang, South Dakota School of Mines and Technology, USA
Jun Huang, South Dakota School of Mines and Technology, USA

Optimized Multilayer Perceptron using Dynamic Learning Rate based Microwave Tomography Breast Cancer Screening	2171
---	------

Chulwoo Pack, South Dakota State University, USA
Sung Shin, South Dakota State University, USA
Hyung-do Choi, Radio Technology and Telecommunications Research, South Korea
Soon Ik Jeon, Radio Technology and Telecommunications Research, South Korea
John Kim, Utica College, USA

Poster Papers

Similarity Measurement with Combination of Mesh Distance Fourier Transform and Global Features in 2D Binary Image	2176
--	------

Ravi Kasaudhan, South Dakota State University, USA
Sung Y. Shin, South Dakota State University, USA
Soon Ik Jeon, Telecommunications Research Institute, South Korea
Seong Ho Son, Telecommunications Research Institute, South Korea

An Efficient Hadoop Data Replication Method Design for Heterogeneous Clusters	2182
<i>Daeshin Park, Soongsil University, South Korea</i>	
<i>Kiwook Kang, Soongsil University, South Korea</i>	
<i>Jiman Hong, Soongsil University, South Korea</i>	
<i>Yookun Cho, Seoul National University, South Korea</i>	
Delay-Based Scheduling to Enhance Fairness in a Virtual Machine Environment	2185
<i>Donghee Min, Soongsil University, South Korea</i>	
<i>Seonguk Lee, Soongsil University, South Korea</i>	
<i>Gibeom Byeon, Soongsil University, South Korea</i>	
<i>Jiman Hong, Soongsil University, South Korea</i>	
 Trust, Reputation, Evidence and other Collaboration Know-How Track	
<i>Track Co-Chairs: Ronald Petrlc, Saarland University, Germany</i>	
<i>Jean-Marc Seigneur, University of Geneva, Switzerland</i>	
Track Editorial	2188
Defining Measurements for Analyzing Information Security Risk Reports in the Telecommunications Sector	2189
<i>Yves Le Bray, Luxembourg Institute of Science and Technology, Luxembourg</i>	
<i>Nicolas Mayer, Luxembourg Institute of Science and Technology, Luxembourg</i>	
<i>Jocelyn Aubert, Luxembourg Institute of Science and Technology, Luxembourg</i>	
Solving Sybil Attacks using Evolutionary Game Theory	2195
<i>Farah Saab, American University of Beirut, Lebanon</i>	
<i>Ayman Kayssi, American University of Beirut, Lebanon</i>	
<i>Imad Elhadj, American University of Beirut, Lebanon</i>	
<i>Ali Chehab, American University of Beirut, Lebanon</i>	
Feasibility Study of Context-Awareness Device Comfort Calculation Methods and their Application to Comfort-Based Access Control	2202
<i>Jingjing Guo, Xidian University, China</i>	
<i>Christian D. Jensen, Denmark Technical University, Denmark</i>	
<i>Jianfeng Ma, Xidian University, China</i>	