

# Table of Contents

## Keynotes

|                                                                       |   |
|-----------------------------------------------------------------------|---|
| Search Computing Systems .....                                        | 1 |
| <i>Stefano Ceri and Marco Brambilla</i>                               |   |
| The Influence of IT Systems on the Use of the Earth's Resources ..... | 7 |
| <i>Jurij Paraszczak</i>                                               |   |

## Session 1: Business Process Modeling

|                                                                                                              |    |
|--------------------------------------------------------------------------------------------------------------|----|
| Design and Verification of Instantiable Compliance Rule Graphs in<br>Process-Aware Information Systems ..... | 9  |
| <i>Linh Thao Ly, Stefanie Rinderle-Ma, and Peter Dadam</i>                                                   |    |
| Success Factors of e-Collaboration in Business Process Modeling .....                                        | 24 |
| <i>Peter Rittgen</i>                                                                                         |    |
| Beyond Process Mining: From the Past to Present and Future .....                                             | 38 |
| <i>Wil M.P. van der Aalst, Maja Pesic, and Minseok Song</i>                                                  |    |

## Session 2: Information Systems Quality

|                                                                                      |    |
|--------------------------------------------------------------------------------------|----|
| Dependency Discovery in Data Quality .....                                           | 53 |
| <i>Daniele Barone, Fabio Stella, and Carlo Batini</i>                                |    |
| Rationality of Cross-System Data Duplication: A Case Study .....                     | 68 |
| <i>Wiebe Hordijk and Roel Wieringa</i>                                               |    |
| Probabilistic Models to Reconcile Complex Data from Inaccurate Data<br>Sources ..... | 83 |
| <i>Lorenzo Blanco, Valter Crescenzi, Paolo Meriardo, and Paolo Papotti</i>           |    |

## Session 3: Service Modelling

|                                                                                                            |     |
|------------------------------------------------------------------------------------------------------------|-----|
| Monitoring and Analyzing Service-Based Internet Systems through a<br>Model-Aware Service Environment ..... | 98  |
| <i>Ta'ïd Holmes, Uwe Zdun, Florian Daniel, and Schahram Dustdar</i>                                        |     |
| Modeling and Reasoning about Service-Oriented Applications via Goals<br>and Commitments .....              | 113 |
| <i>Amit K. Chopra, Fabiano Dalpiaz, Paolo Giorgini, and<br/>John Mylopoulos</i>                            |     |

|                                                                                                                             |     |
|-----------------------------------------------------------------------------------------------------------------------------|-----|
| Conceptualizing a Bottom-Up Approach to Service Bundling . . . . .                                                          | 129 |
| <i>Thomas Kohlborn, Christian Luebeck, Axel Korthaus, Erwin Fieft, Michael Rosemann, Christoph Riedl, and Helmut Krcmar</i> |     |

## Session 4: Security and Management

|                                                                                      |     |
|--------------------------------------------------------------------------------------|-----|
| Dynamic Authorisation Policies for Event-Based Task Delegation . . . . .             | 135 |
| <i>Khaled Gaaloul, Ehtesham Zahoor, François Charoy, and Claude Godart</i>           |     |
| A New Approach for Pattern Problem Detection . . . . .                               | 150 |
| <i>Nadia Bouassida and Hanène Ben-Abdallah</i>                                       |     |
| Comparing Safety Analysis Based on Sequence Diagrams and Textual Use Cases . . . . . | 165 |
| <i>Tor Stålhane, Guttorm Sindre, and Lydie du Bousquet</i>                           |     |

## Session 5: Matching and Mining

|                                                                                     |     |
|-------------------------------------------------------------------------------------|-----|
| Feature-Based Entity Matching: The FBEM Model, Implementation, Evaluation . . . . . | 180 |
| <i>Heiko Stoermer, Nataliya Rassadko, and Nachiket Vaidya</i>                       |     |
| Dealing with Matching Variability of Semantic Web Data Using Contexts . . . . .     | 194 |
| <i>Silvana Castano, Alfio Ferrara, and Stefano Montanelli</i>                       |     |
| GRUVe: A Methodology for Complex Event Pattern Life Cycle Management . . . . .      | 209 |
| <i>Sinan Sen and Nenad Stojanovic</i>                                               |     |
| Supporting Semantic Search on Heterogeneous Semi-structured Documents . . . . .     | 224 |
| <i>Yassine Mrabet, Nacéra Bennacer, Nathalie Pernelle, and Mouhamadou Thiam</i>     |     |
| Query Ranking in Information Integration . . . . .                                  | 230 |
| <i>Rodolfo Stecher, Stefania Costache, Claudia Niederée, and Wolfgang Nejdl</i>     |     |

## Session 6: Case Studies and Experiences

|                                                                                                               |     |
|---------------------------------------------------------------------------------------------------------------|-----|
| Validity of the Documentation Availability Model: Experimental Definition of Quality Interpretation . . . . . | 236 |
| <i>Raimundas Matulevičius, Naji Habra, and Flora Kamseu</i>                                                   |     |

|                                                                                                    |     |
|----------------------------------------------------------------------------------------------------|-----|
| Emerging Challenges in Information Systems Research for Regulatory Compliance Management .....     | 251 |
| <i>Norris Syed Abdullah, Shazia Sadiq, and Marta Indulska</i>                                      |     |
| Experience-Based Approach for Adoption of Agile Practices in Software Development Projects .....   | 266 |
| <i>Iva Krasteva, Sylvia Ilieva, and Alexandar Dimov</i>                                            |     |
| Coordinating Global Virtual Teams: Building Theory from a Case Study of Software Development ..... | 281 |
| <i>Gaye Kiely, Tom Butler, and Patrick Finnegan</i>                                                |     |
| Information Systems Evolution over the Last 15 Years .....                                         | 296 |
| <i>Magne Davidsen and John Krogtstie</i>                                                           |     |

## Session 7: Conceptual Modelling

|                                                                                                                                                                                                                                     |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| From Web Data to Entities and Back .....                                                                                                                                                                                            | 302 |
| <i>Zoltán Miklós, Nicolas Bonvin, Paolo Bouquet, Michele Catasta, Daniele Cordioli, Peter Fankhauser, Julien Gaugaz, Ekaterini Ioannou, Hristo Koshutanski, Antonio Maña, Claudia Niederée, Themis Palpanas, and Heiko Stoermer</i> |     |
| Transformation-Based Framework for the Evaluation and Improvement of Database Schemas .....                                                                                                                                         | 317 |
| <i>Jonathan Lemaitre and Jean-Luc Hainaut</i>                                                                                                                                                                                       |     |
| Reverse Engineering User Interfaces for Interactive Database Conceptual Analysis .....                                                                                                                                              | 332 |
| <i>Ravi Ramdoyal, Anthony Cleve, and Jean-Luc Hainaut</i>                                                                                                                                                                           |     |
| Towards Automated Inconsistency Handling in Design Models .....                                                                                                                                                                     | 348 |
| <i>Marcos Aurélio Almeida da Silva, Alix Mougenot, Xavier Blanc, and Reda Bendraou</i>                                                                                                                                              |     |

## Session 8: Adaptation

|                                                                                         |     |
|-----------------------------------------------------------------------------------------|-----|
| Dynamic Metamodel Extension Modules to Support Adaptive Data Management .....           | 363 |
| <i>Michael Grossniklaus, Stefania Leone, Alexandre de Spindler, and Moira C. Norrie</i> |     |
| Supporting Runtime System Evolution to Adapt to User Behaviour ....                     | 378 |
| <i>Estefanía Serral, Pedro Valderas, and Vicente Pelechano</i>                          |     |
| Interaction-Driven Self-adaptation of Service Ensembles .....                           | 393 |
| <i>Christoph Dorn and Schahram Dustdar</i>                                              |     |

**Session 9: Requirements**

|                                                                                                                 |     |
|-----------------------------------------------------------------------------------------------------------------|-----|
| On the Semantics of the Extend Relationship in Use Case Models:<br>Open-Closed Principle or Clairvoyance? ..... | 409 |
| <i>Miguel A. Laguna, José M. Marqués, and Yania Crespo</i>                                                      |     |
| Situational Evaluation of Method Fragments: An Evidence-Based<br>Goal-Oriented Approach .....                   | 424 |
| <i>Hesam Chiniforooshan Esfahani, Eric Yu, and Jordi Cabot</i>                                                  |     |
| Incorporating Modules into the $\tau^*$ Framework .....                                                         | 439 |
| <i>Xavier Franch</i>                                                                                            |     |
| Ahab's Leg: Exploring the Issues of Communicating Semi-formal<br>Requirements to the Final Users .....          | 455 |
| <i>Chiara Leonardi, Luca Sabatucci, Angelo Susi, and<br/>Massimo Zancanaro</i>                                  |     |
| The Brave New World of Design Requirements: Four Key Principles ....                                            | 470 |
| <i>Matthias Jarke, Pericles Loucopoulos, Kalle Lyytinen,<br/>John Mylopoulos, and William Robinson</i>          |     |

**Session 10: Process Analysis**

|                                                                                                              |     |
|--------------------------------------------------------------------------------------------------------------|-----|
| The ICoP Framework: Identification of Correspondences between<br>Process Models .....                        | 483 |
| <i>Matthias Weidlich, Remco Dijkman, and Jan Mendling</i>                                                    |     |
| Process Compliance Measurement Based on Behavioural Profiles .....                                           | 499 |
| <i>Matthias Weidlich, Artem Polyvyanyy, Nirmal Desai, and<br/>Jan Mendling</i>                               |     |
| Business Trend Analysis by Simulation .....                                                                  | 515 |
| <i>Helen Schonenberg, Jingrui Jian, Natalia Sidorova, and<br/>Wil van der Aalst</i>                          |     |
| Workflow Soundness Revisited: Checking Correctness in the Presence<br>of Data While Staying Conceptual ..... | 530 |
| <i>Natalia Sidorova, Christian Stahl, and Nikola Trčka</i>                                                   |     |

**Panel**

|                                                                                        |     |
|----------------------------------------------------------------------------------------|-----|
| Octavian Panel on Intentional Perspectives on Information Systems<br>Engineering ..... | 545 |
| <i>Arne Sølvberg</i>                                                                   |     |

|                           |     |
|---------------------------|-----|
| <b>Author Index</b> ..... | 547 |
|---------------------------|-----|