Contents

Message from the Chairs ...................................................................................................................................... xi

Xavier Franch, Emmanuel Letier, Carlos Henrique C. Duarte, Christof Ebert, Travis Breaux, Anna Perini, and Zhi Jin

Organization ............................................................................................................................................... xiii

Donors and Sponsors ........................................................................................................................................ xviii

Keynotes

Delivering Customer Value in the Age of Autonomous, Continuously Evolving Systems (Keynote) ........................................................................................................................................... 1

Jan Bosch

Chalmers University Technology, Sweden

Requirements for Molecular Programmed Nanosystems (Keynote) ................................................................ 2

Robyn R. Lutz

Iowa State University, USA

Urban Computing: Tackling Urban Challenges Using Big Data (Keynote) .......................................................... 3

Yu Zheng

Microsoft Research, China

Panel Paper

Requirements Engineering for the Digital Transformation (Industry Panel) ............................................................. 4

Christof Ebert and Carlos Henrique C. Duarte

Vector Consulting Services, Brazilian Development Bank, BNDES

Research Track

Requirements Engineering Visualization: A Systematic Literature Review ........................................................... 6

Zahra Shakeri Hossein Abad, Mohammad Noaeen, and Guenther Ruhe

University of Calgary, Canada

A Serious Game for Eliciting Social Engineering Security Requirements ................................................................ 16

Kristian Beckers and Sebastian Pape

Technische Universität München (TUM), Germany; Goethe University Frankfurt, Germany

A Theory of Vagueness and Privacy Risk Perception .............................................................................................. 26

Jaspreet Bhatia, Travis D. Breaux, Joel R. Reidenberg, and Thomas B. Norton

Carnegie Mellon University, United States; Fordham University School of Law, United States

Stimulating Stakeholders’ Imagination: New Creativity Triggers for Eliciting Novel Requirements ........................................ 36

Corentin Burnay, Jennifer Horkoff, and Neil Maiden

University of Namur, Belgium; City University London, United Kingdom

Challenging Incompleteness of Performance Requirements by Sentence Pattern .................................................... 46

Jonas Eckhardt, Andreas Vogelsang, Henning Femmer, and Philipp Mager

Technical University of Munich, Germany
Ambiguity Cues in Requirements Elicitation Interviews
Alessio Ferrari, Paola Spoletini, and Stefania Gnesi
ISTI-CNR, Italy; Kennesaw State University, Marietta campus, United States

Trace++: A Traceability Approach to Support Transitioning to Agile Software Engineering
Felipe Furtado, and Andrea Zisman
Computing Department, The Open University, United Kingdom

An Exploratory Study on User Interaction Challenges When Handling Interconnected Requirements Artifacts of Various Sizes
Parisa Ghazi and Martin Glinz
University of Zurich, Department for Informatics, Switzerland

Looking into the Crystal Ball: Requirements Evolution over Time
Alicia M. Grubb and Marsha Chechik
University of Toronto, Canada

A Needle in a Haystack: What Do Twitter Users Say about Software?
Emitza Guzman, Rana Alkadhi, and Norbert Seyff
University of Zurich, Switzerland; Technische Universität München and King Saud University, Germany; University of Applied Sciences and Arts Northwestern Switzerland and University of Zurich, Switzerland

Goal-Oriented Requirements Engineering: A Systematic Literature Map
Jennifer Horkoff, Fatma Başak Aydemir, Evellin Cardoso, Tong Li, Alejandro Maté, Elda Paja, Mattia Salnitri, John Mylopoulos, and Paolo Giorgini
City University London, United Kingdom; University of Trento, Italy; University of Alicante, Spain

An Exploratory Study on Handling Requirements and Acceptance Test Documentation in Industry
Sofija Hotomski, Eya Ben Charrada, and Martin Glinz
University of Zurich, Department for Informatics, Switzerland

Managing Requirements Change the Informal Way: When Saying ‘No’ is Not an Option
Waqar Hussain, Didar Zowghi, Tony Clear, Stephen MacDonell, and Kelly Blincoe
Auckland University of Technology, New Zealand; University of Technology Sydney, Australia

NANE: Identifying Misuse Cases Using Temporal Norm Enactments
Ozgur Kafali, Munindar Singh, and Laurie Williams
North Carolina State University, United States

Supporting Requirements Elicitation by Tool-Supported Video Analysis
Oliver Karras, Stephan Kiesling, Kurt Schneider
Leibniz Universität Hannover, Software Engineering Group, Germany

Mining Requirements Knowledge from Collections of Domain Documents
Xiaoli Lian, Mona Rahimi, Jane Cleland-Huang, Li Zhang, Remo Ferrari, and Michael Smith
Beihang University, China; DePaul University, United States; Rail Automation, Siemens Industry, New York, United States

Software Feature Request Detection in Issue Tracking Systems
Thorsten Merten, Matiš Falis, Paul Hübner, Thomas Quirchmayr, Simone Bürsner and Barbara Paech
Bonn-Rhein-Sieg University of Applied Sciences, Germany; The University of Edinburgh, United Kingdom; University of Heidelberg, Germany; University of Heidelberg, Germany; Bonn-Rhein-Sieg University of Applied Sciences, Germany; University of Heidelberg, Germany
RE@Next! Track

Towards Improved Requirements Engineering with SysML and the User
Requirements Notation ................................................................. 329
Daniel Amyot, Amal Ahmed Anda, Malak Baslyman, Lysanne Lessard,
and Jean-Michel Bruel
University of Ottawa, Canada; University of Ottawa and IRHM, Canada; Université
de Toulouse and IRIT, France
Requirements Engineering as Innovation Journalism: A Research Preview ......................... 335
Samuel A. Fricker, Ernest Wallmüller, and Ina Paschen
FHNW, Switzerland: Qualität & Informatik, Switzerland
AnalyticGraph.com: Toward Next Generation Requirements Modeling and Reasoning Tools........ 341
Joseph Gillain, Corentin Burnay, Ivan Jureta, and Stéphane Faulkner
University of Namur, Belgium
Continuous Requirements Engineering Using Model Federation ................................................. 347
Fahad Rafique Golra, Antoine Beugnard, Fabien Dagnat, Sylvain Guerin,
and Christophe Guycgard
Telecom Bretagne, France; Openflexo and France
Towards a Marketplace of Visual Elements for Notation Design ............................................ 353
Dirk van der Linden, Irit Hadar, and Anna Zamansky
University of Haifa, Israel
Complete Traceability for Requirements in Satisfaction Arguments ......................................... 359
Anitha Murugesan, Michael Whalen, Elaheh Ghassabani, and Mats Heimdahl
University of Minnesota, United States
Acceptance Requirements and Their Gamification Solutions .................................................. 365
Luca Piras, Paolo Giorgini, and John Mylopoulos
University of Trento, Italy
Empowering Requirements Elicitation Interviews with Vocal and Biofeedback Analysis .......... 371
Paola Spoletini, Casey Brock, Rahat Shahwar, and Alessio Ferrari
Kennesaw State University, United States; ISTI-CNR, Italy
Is it a New Feature or Simply “Don’t Know Yet”? On Automated Redundant OSS Feature Requests Identification

Lin Shi, Celia Chen, Qing Wang, and Barry Boehm

Laboratory for Internet Software Technologies, Institute of Software, Chinese Academy of Sciences, China; Center for Systems and Software Engineering, University of Southern California, United States

Beyond Awareness Requirements

Alistair Sutcliffe and Pete Sawyer

University of Lancaster, United Kingdom

Towards Modelling and Analysis of Spatial and Temporal Requirements

Mounir Touzani and Christophe Ponsard

LIRMM, France; CETIC, Belgium

Demos and Posters

Application of Artifact-Based RE in Fortified Cards

Sayli Pradhan, Aniket Patil, and Birgit Penzenstadler

California State University Long Beach, USA

i*ToNuSMV: A Prototype for Enabling Model Checking of i* Models

Novarun Deb, Nabendu Chaki, and Aditya Ghose

University of Calcutta, India; University of Wollongong, Australia

Generating Test Cases for Behavior-Driven Development from Problem Diagrams: A Tool-Based Approach

Ning Gao and Zhi Li

College of Computer Science and Information Technology, Guangxi Normal University, China

SCCMT: A Stigmergy-Based Collaborative Conceptual Modeling Tool

Yi Jiang, Shijun Wang, Kai Fu, Wei Zhang, and Haiyan Zhao

Peking University, China; PKU, China

A Modular Requirements Engineering Framework for Web-Based Toolchain Integration

Robert Darimont, Wei Zhao, Christophe Ponsard and Arnaud Michot

Respect-IT, Belgium; CETIC, Belgium

Capra: A Configurable and Extendable Traceability Management Tool

Salome Maro and Jan-Philipp Steghöfer

Chalmers | University of Gothenburg, Sweden

Mobility Requirements Engineering Tool (MoRE)

Xiaozhou Li, Biswa Upreti, and Zheying Zhang

University of Tampere, Finland


Luis Garcia Paucar and Nelly Bencomo

ALICE - ASTON UNIVERSITY, United Kingdom
Doctoral Symposium

Towards a Regulator-Oriented Regulatory Intelligence Framework ................................................. 415
   Okhaide Akhigbe
   University of Ottawa, Canada
Towards an Approach to Stimulate Architectural Thinking during
Requirements Engineering Phase ........................................................................................................ 421
   Preethu Rose Anish
   Tata Consultancy Services, India
Quality-Impact Assessment of Software Systems ............................................................................... 427
   Farnaz Fotrousi
   BTH, Sweden
Evaluation of Requirements Models .................................................................................................... 432
   Catarina Gralha
   FCT-UNL, Portugal
Exact Analysis for Next Release Problem ............................................................................................ 438
   Lingbo Li
   University College London, United Kingdom
Definition of a Behavior-Driven Model for Requirements Specification and Testing
of Interactive Systems .......................................................................................................................... 444
   Thiago Rocha Silva
   ICS-IRIT, Université Paul Sabatier, France
Requirements Traceability Technologies Selection for Industry ....................................................... 450
   Bangchao Wang
   State Key Lab of Software Engineering, Wuhan University, China
The Generation and Evolution of Adaptation Rules in Requirements Driven
Self-Adaptive Systems ............................................................................................................................ 456
   Tianqi Zhao
   Peking University, China

Author Index ........................................................................................................................................ 462