

20th Conferencia Iberoamericana en Software Engineering (CibSE 2017)

SET – Software Engineering Track

Buenos Aires, Argentina
22-23 May 2017

Editors:

**Oscar Pastor
Gladys Kaplan
Ana Moreira
Fabio da Silva
Jose Luis de la Vara**

**Renata Guizzardi
Jesus Garcia Molina
Marcela Genero
Isabel Sofia Brito
Luca Cernuzzi**

ISBN: 978-1-5108-5098-9

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2017) by the authors
All rights reserved.

Printed by Curran Associates, Inc. (2018)

For permission requests, please contact CibSE - IberoAmerican Conference on Software Engineering at the address below.

CibSE - IberoAmerican Conference on Software Engineering
c/o Luca Cernuzzi
Universidad Católica "Nuestra Señora de la Asunción",
Campus Universitario, Asunción
Barrio Santa Ana, C.C.1683, C.P. 1364
Asunción - Paraguay

Phone: +595 21 334650
Fax: +595 21 310587

lcernuzz@uca.edu.py

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

Table of Contents

Session: Software Testing - SET (S1)	
Generación automática de casos de prueba basados en modelos UML.....	1
<i>Constanza Pérez and Beatriz Marín</i>	
Automated Structural Software Testing of Autonomous Vehicles.....	15
<i>Vânia Neves, Marcio Delamaro and Masiero Paulo</i>	
Session: Model-Driven Engineering - SET (S2)	
Un enfoque para controlar la extensión de meta-modelos en el ámbito de la Ingeniería dirigida por Modelos.....	29
<i>Santiago Jácome-Guerrero and Juan de Lara</i>	
Supporting Assessment and Improvement of Software Development Processes Using Model Transformations.....	43
<i>Daniel F. G. Feloni and Rosana Braga</i>	
Modeling Framework for NoSQL Systems.....	57
<i>Amal Ait Brahim, Fatma Abdelhedi, Gilles Zurfluh and Faten Atigui</i>	
Vistas arquitectónicas independientes de tecnología para comprensión de software.....	71
<i>Luis Felipe Mendivelso Osorio, Kelly Garcés and Rubby Casallas</i>	
Session: Software Modeling - SET (S3)	
Using Voice Commands for UML Modelling Support on Interactive Whiteboards: Insights and Experiences.....	85
<i>Rodi Jolak, Boban Vesin and Michel R.V. Chaudron</i>	
Toward Technical Debt Aware Software Modeling.....	99
<i>Gonzalo Rojas, Clemente Izurieta and Isaac Griffith</i>	
Ontology for Agile knowledge: A Systematic Review.....	113
<i>Noemi N. Sánchez, Veronica Andrea Bollati and Javier Garzás Parra</i>	
Teaching of Agile UML Modelling: Recommendations from Students' Reflections.....	127
<i>Dave Stikkolorum and Michel Chaudron</i>	
Session: Software Metrics - SET (S4)	
Procedimientos de medición del tamaño funcional: un mapeo sistemático de literatura....	141
<i>Christian Quesada-López and Marcelo Jenkins</i>	
An Enhanced Evaluation Model for Search-based Product Line Architecture Design.....	155
<i>Yenisei Delgado, Thelma Elita Colanzi and Silvia Regina Vergilio</i>	
Towards the predictive analysis of cloud systems with e-Motions.....	169
<i>Patrícia Araújo de Oliveira, Antonio Moreno-Delgado, Francisco Durán and Ernesto Pimentel</i>	
Session: Automated Software Engineering - SET (S5)	

Systematic selection of software components through architectural tactics. Is a relationship between tactics and NFRs possible?.....	183
<i>Diego Gatica, Gaston Marquez and Hernan Astudillo</i>	
Automatic Detection of Cross-Browser Incompatibilities: Machine Learning Techniques and Screenshot Similarity	196
<i>Fagner Christian Paes and Willian Massami Watanabe</i>	
Tanchella: una herramienta para la recolección de datos de la Web	207
<i>Gabriela Robiolo, Ricardo Pasquini, Javier Isoldi, Kevin Stessens, Martin Salaberry, Carolina Dams and Virginia Sarria</i>	
<hr/> Session: Software Quality - SET (S6) <hr/>	
Family of Strategies for different Evaluation Purposes	221
<i>Luis Olsina and Pablo Becker</i>	
Time to Pay Up - Technical Debt From a Software Quality Perspective	235
<i>Terese Besker, Antonio Martini and Jan Bosch</i>	
So Much Data; So Little Value A multi-case study on improving the impact of data-driven development practices	249
<i>Helena Holmström Olsson and Jan Bosch</i>	
Eficiência de Aplicativos Android: Um Comparativo entre Aplicativos Nativos e Aplicativos Baseados na Web.....	N/A
<i>Jean Antunes, Jonathan Gonczoroski, Felipe Zanini, Lisane Brisolara and Paulo Ferreira Jr.</i>	
<hr/> Session: Software Process - SET (S7) <hr/>	
Um Modelo sobre as Dificuldades para Especificar Casos de Uso	264
<i>Elizamary Nascimento, Williamson Silva, Breno Bernard Nicolau de França, Bruno Gadelha and Tayana Conte</i>	
Técnicas de Usabilidad Relacionadas con el Diseño Adoptadas en los Procesos de Desarrollo Ágil	278
<i>Daniel A. Magües, John W. Castro and Silvia T. Acuña</i>	
Gamificação como Estratégia para a Motivação de Equipe de Desenvolvimento de Software	292
<i>Ana Lucia Shibata, Sheila Reinehr and Andreia Malucelli</i>	

20th Conferencia Iberoamericana en Software Engineering (CibSE 2017)

WER – Requirements Engineering Track

**Buenos Aires, Argentina
22-23 May 2017**

Editors:

**Oscar Pastor
Gladys Kaplan
Ana Moreira
Fabio da Silva
Jose Luis de la Vara**

**Renata Guizzardi
Jesus Garcia Molina
Marcela Genero
Isabel Sofia Brito
Luca Cernuzzi**

ISBN: 978-1-5108-5098-9

Table of Contents

Session WER 1 - RE for Specific System Types	
A Survey on Preferences of Quality Attributes in the Decision-making for Self-Adaptive and Self-Managed Systems: the Bad, the Good and the Ugly	1
<i>Luis Garcia Paucar and Nelly Bencomo</i>	
Rastreamento e Gerenciamento de Requisitos em Busca da Conformidade Legal	15
<i>Ilueny Santos, Erica Cunha and Marcia Lucena</i>	
Requirements Engineering for Robotic System: A Systematic Mapping Study	29
<i>Danyllo Albuquerque, Jaelson Castro, Sarah Moniky and Thiago Heineck</i>	
Session WER 2 - Textual Requirements	
Uma Notação Textual Modular e Escalável para Modelos de Requisitos IStar	43
<i>Fabio Penha, Marcia Lucena, Leonardo Lucena, Fernanda Alencar and Celso Sá Filho</i>	
Un Enfoque Inteligente para Derivar Use Case Maps a partir de Requerimientos de Software	57
<i>Brian Caimmi, Guillermo Rodriguez and Álvaro Soria</i>	
Inspección centrada en Omisiones y Ambigüedades de un Modelo Léxico	71
<i>Alberto Sebastián, Graciela Dora Susana Hadad and Ezequiel Robledo</i>	
Session WER 3 - RE Practice	
Requirements Engineering Practice and Problems in Agile Projects: Results from an International Survey	85
<i>Stefan Wagner, Daniel Méndez Fernández, Michael Felderer and Marcos Kalinowski</i>	
O perfil do analista de requisitos de software: uma comparação entre a academia e o mercado de trabalho	99
<i>Angelica Toffano Seidel Calazans, Roberto Avila Paldês, Kiane Mabel Rezende, Emeli Braosi and Nathácia Indayara Pereira</i>	
A qualificação profissional do Engenheiro de Requisitos no Brasil	113
<i>Vinícius Dias Paldês, Janaína Dos Reis Lopes, André Luiz Coelho Da Silva, Roberto Avila Paldês and Angélica Toffano Seidel Calazans</i>	
Retrospective and Trends in Requirements Engineering for Embedded Systems: A Systematic Literature Review	123
<i>Tarcísio Pereira, Devson Albuquerque, Aêda Sousa, Fernanda Alencar and Jaelson Castro</i>	
Session WER 4 - - Requirements Knowledge	
Jerarquías Naturales en el Contexto del Proceso de Requisitos	137
<i>Gladys Noemí Kaplan and Jorge Horacio Doorn</i>	
Usando KIPO para Modelar Problemas e Socialização na Elicitação de Requisitos	151
<i>Denize Pimenta, Gleison Santos and Fernanda Baião</i>	

Towards an Ontology of Goal-Oriented Requirements.....	165
<i>Pedro Pignaton Negri, Vitor E. Silva Souza, André Luiz de Castro Leal, Ricardo de Almeida Falbo and Giancarlo Guizzardi</i>	
Limiting the Scope of the Domain Language to Describe the Application Language.....	179
<i>Leandro Antonelli, Gustavo Rossi, Julio Cesar Leite and Alejandro Oliveros</i>	

20th Conferencia Iberoamericana en Software Engineering (CibSE 2017)

ESELAW – Experimental Software Engineering Track

Buenos Aires, Argentina
22-23 May 2017

Editors:

**Oscar Pastor
Gladys Kaplan
Ana Moreira
Fabio da Silva
Jose Luis de la Vara**

**Renata Guizzardi
Jesus Garcia Molina
Marcela Genero
Isabel Sofia Brito
Luca Cernuzzi**

ISBN: 978-1-5108-5098-9

Table of Contents

ESELAW1: Methodological Issues in Empirical Software Engineering	
Analysing the use of Graphical Abstracts to Support Study Selection in Secondary Studies	1
<i>Katia Felizardo, Érica Souza, Stephane Hesae, Nandamudi Vijaykumar and Elisa Nakagawa</i>	
SciAgile: Aplicação de Metodologias Ágeis em Experimentos Científicos Baseados em Simulação	15
<i>Augusto Romeiro, Kary Ocaña, Marcos Kalinowski and Daniel de Oliveira</i>	
Desafios para o planejamento e execução de experimentos utilizando Melhoramento Genético em JavaScript	29
<i>Fabio Farzat, Guilherme Travassos and Marcio Barros</i>	
ESELAW 2: Coding and Testing	
How Clear is Your Code? An Empirical Study with Programming Challenges	43
<i>Eduardo Fernandes, Luiz Paulo Ferreira, Eduardo Figueiredo and Marco Tulio Valente</i>	
Experience Does Not Predict Performance: The Case of the Students' Academic Levels	57
<i>Oscar Dieste, Efraín R. Fonseca C., Jorge Raura and Alejandra Ponce</i>	
Model-Based Testing for Mobile Applications: A Systematic Mapping Study	71
<i>Silvia Ascate, Ingrid Mendes, Kariny Oliveira, Awdren Fontão, Isabel Villanes and Arilo Dias-Neto</i>	
Aplicación e Importancia de las Pruebas de Software: una Encuesta Realizada en Buenos Aires en el Ámbito Público	85
<i>Gabriela Robiolo, Martin Ignacio Melani, Bibiana Rossi and Guilherme H. Travassos</i>	
ESELAW 3: Quality and Requirements	
Who is Right? Evaluating Empirical Contradictions in the Readability and Comprehensibility of Source Code	99
<i>Talita Ribeiro and Guilherme Travassos</i>	
Evaluación de la Confiabilidad de Estudios Empíricos en Educación de Requisitos Software	113
<i>Dante Carrizo and Jacqueline Manriquez</i>	
Um Estudo baseado em Evidências sobre Abordagens Ágeis de apoio ao Desenvolvimento de Requisitos de Software	127
<i>Kleeson Santos and Sandro Oliveira</i>	
Investigating Model Quality Assurance with a Distributed and Scalable Inspection Process	141
<i>Dietmar Winkler, Marta Sabou, Sanja Petrovic, Gisele Carneiro, Marcos Kalinowski and Stefan Biff</i>	
ESELAW 4: Miscellaneous	
Pagos Móviles desde la Perspectiva de los Usuarios	N/A
<i>Juan José Manzl and Bibiana Delmira Rossi</i>	

Un estudio sobre las prácticas de la ingeniería del software en Costa Rica: Resultados preliminares	169
---	-----

Christian Quesada-López and Marcelo Jenkins

Applying Kanban to Manage Outsourced Maintenance Services: An Action Research in a Brazilian Government Agency	183
--	-----

Ana Paula Vargas de Noronha, Elaine Venson, Rejane Figueiredo and Augusto Modesto

ESELAW 5: Human Factors

A Controlled Experiment on Productivity of Pair Programming Gender Combinations: Preliminary Results	197
--	-----

Omar S. Gómez, Martin Solari, César Pardo and A. Carolina Ledezma

Influential Factors for Interdisciplinary Software Development Teams in Industrial Settings: The Case of Informatics Lab	211
--	-----

Aiko Yamashita and Alberto Arribas

Investigating the Influence of Inspector Learning Styles on Design Inspections: Findings of a Quasi-Experiment	222
--	-----

Gisele Carneiro, Rodrigo Laigner, Marcos Kalinowski, Dietmar Winkler and Stefan Biffel

Aplicando Design Thinking em Engenharia de Software: Um Mapeamento Sistemático....	236
--	-----

Anderson Souza, Bruna Moraes Ferreira and Tayana Conte

ESELAW 6: BI and Big Data

Um Survey com Empresas Brasileiras acerca da Utilização de Business Intelligence (BI) e um diagnóstico sobre a infraestrutura e metodologias associadas	250
---	-----

Adriano Lima, Methanias Colaço Júnior and Andre Nascimento

Estudio de Mapeo Sistemático sobre Arquitecturas de Software para Big Data	264
--	-----

Juan Pablo Russo and Martin Solari

20th Conferencia Iberoamericana en Software Engineering (CibSE 2017)

DS – Doctoral Symposium

Buenos Aires, Argentina
22-23 May 2017

Editors:

**Oscar Pastor
Gladys Kaplan
Ana Moreira
Fabio da Silva
Jose Luis de la Vara**

**Renata Guizzardi
Jesus Garcia Molina
Marcela Genero
Isabel Sofia Brito
Luca Cernuzzi**

ISBN: 978-1-5108-5098-9

Table of Contents

Software Engineering (DS SET)	
Cloud platform for collaborative business process implementation and execution	1
<i>Diego Cocconi</i>	
A Dinâmica do Processo de Software em Programas de Melhoria de Processos de Software	9
<i>Regina Albuquerque, Andreia Malucelli and Sheila Reinehr</i>	
Requirements Engineering (DS WER)	
Una propuesta para aplicar Design Thinking a los requisitos de diseño	17
<i>Ezequiel Kahan</i>	
Uma Abordagem para Integração de BPM e Engenharia de Requisitos Considerando os Conceitos de Agilidade	25
<i>Helena Cristina De Albuquerque Bastos</i>	
Experimental Software Engineering (DS ESELAW 1)	
Supporting Researchers to Transfer Knowledge from Systematic Reviews to Software Engineering Practice	33
<i>Bruno Cartaxo</i>	
La replicación de experimentos en ingeniería de software, un dilema asociado con la generación de conocimiento	41
<i>Carlos E. Anchundia and Efraín R. Fonseca C.</i>	
Experimental Software Engineering (DS ESELAW 2)	
Defectos Metodológicos de la Práctica Experimental en Ingeniería de Software: Causas, Consecuencias y Algunas Direcciones para su Solución	49
<i>Rolando P. Reyes Ch.</i>	
Modelo para Predição de Evasão de Estudantes de Computação Baseado na Motivação . . .	57
<i>Pablo Schoeffel</i>	