

Studies in Computational Intelligence

Volume 851

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Integrating Research and Practice in Software Engineering

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Preface

The term “software engineering” was coined in 1968 at the NATO Software Engineering Conference by Bauer (the chairman of the conference) in his famous statement “What we need, is software engineering”. Since then the discipline has made a long way. It would not be possible without the hard work of both practitioners and researchers.

However, software engineering is now facing grand challenges including increasingly critical role software plays in our daily lives and the increasing size and complexity of software systems. With that, defect-free and rapidly developed software fulfilling user requirements may seem like distant goals. These challenges need to be addressed using new software engineering concepts, methods, processes, technologies, or tools. That is why, in this book, we emphasize the need for tight collaboration and integration of research and practice, to overcome the posed challenges in software engineering, which one would argue that never were greater than today. Authors of the chapters in this book worked in industry on the frontiers of innovation that grows from practice, as well as made important academic contributions in their labs. Thus, we believe they are well prepared to bridge research and practice as suggested by the title of this book. Chapters cover a wide range of topics from mining software repositories (including GitHub), software quality, safety, security and vulnerability to business modeling, requirements engineering (also in agile projects), user experience, extracting business rules from legacy code in COBOL, effort estimation, hybrid cloud model for Industry 4.0, and last but not least software engineering education.

Many people helped in the preparation, publication, and dissemination of this book. We would like to thank: authors of the contributed chapters, the referees for helping us in the selection process, and Polish Information Processing Society for continuous supporting our efforts. We would like to express also our gratitude to Prof. Janusz Kacprzyk, the editor of the “Studies in Computational Intelligence” series, Dr. Thomas Ditzinger from Springer for their interest and support, as well as Ramamoorthy Rajangam who coordinated the book production project.

We sincerely hope that this book will be a valuable reference work in integrating research and practice in software engineering.

Białystok, Poland
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June 2019

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Contents

Creating Evolving Project Data Sets in Software Engineering	1
Tomasz Lewowski and Lech Madeyski	
Semantic Categorization of Software Bug Repositories for Severity Assignment Automation	15
Abeer Hamdy and AbdulRahman El-Laithy	
Scalable and Accurate Detection of Function Clones in Software Using Multithreading	31
Manoj Kumar Singh and Kuldeep Kumar	
Inferring Hints for Defect Fixing Order from Requirements-to-test-case Mappings	43
Stan Jarzabek, Konrad Liszewski and Cezary Boldak	
Safety and Security Integrated SIL Evaluation Using the NFR Approach	53
Nary Subramanian and Janusz Zalewski	
A Software Analysis Based Vulnerability Detection System For Smart Contracts	69
Jiaming Ye, Mingliang Ma, Tianyong Peng and Yinxing Xue	
Securing Connection and Data Transfer Between Devices and IoT Cloud Service	83
Krzysztof Stepień, Aneta Poniszewska-Marańda and Witold Marańda	
A Data-Driven Conceptual Modeling	97
Bogumila Hnatkowska, Zbigniew Huzar and Lech Tuzinkiewicz	
On Cognitive Biases in Requirements Elicitation	111
Andrzej Zalewski, Klara Borowa and Damian Kowalski	

Nuts and Bolts of Extracting Variability Models from Natural Language Requirements Documents	125
Eleonora Arganese, Alessandro Fantechi, Stefania Gnesi and Laura Semini	
On Importance of Non-functional Requirements in Agile Software Projects—A Survey	145
Sylwia Kopczyńska, Mirosław Ochodek and Jerzy Nawrocki	
Evaluation of Selected UX Techniques by Product Managers—A Preliminary Survey	159
Jakub Miler and Margarita Menjega-Schmidt	
Towards a Lightweight Approach for the Evaluation of Requirements Engineering Impact on Other IT Project Areas	171
Aleksander Jarzębowicz and Katarzyna Poniadowska	
From COBOL to Business Rules—Extracting Business Rules from Legacy Code	187
Harry M. Sneed and Chris Verhoef	
ISO 25010 Support in Test Point Analysis for Testing Effort Estimation	209
Agnieszka Małanowska and Ilona Bluemke	
Software for Integration of Manufacturing Resources in the Hybrid Cloud Model for Industry 4.0	223
Andrzej Paszkiewicz and Marek Bolanowski	
Integration of Senior Software Project Courses in an Undergraduate Software Engineering Program	237
Janusz Zalewski, Ingrid Buckley and Fernando Gonzalez	
Author Index	257