

2024 IEEE 32nd International Requirements Engineering Conference (RE 2024)

**Reykjavik, Iceland
24-28 June 2024**



**IEEE Catalog Number: CFP24022-POD
ISBN: 979-8-3503-9512-9**

**Copyright © 2024 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP24022-POD
ISBN (Print-On-Demand):	979-8-3503-9512-9
ISBN (Online):	979-8-3503-9511-2
ISSN:	1090-705X

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
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

2024 IEEE 32nd International Requirements Engineering Conference (RE) **RE 2024**

Table of Contents

Welcome from the RE 2024 Conference Chairs	xii
RE 2024 Organising Committee	xv
RE 2024 Program Committee Members	xvii
RE 2024 Subreviewers	xxi

Keynotes

Automation for Requirements Engineering: Opportunities and Pitfalls	1
<i>Jan Mendling (Humboldt-Universität zu Berlin, Germany)</i>	
Paradigm Shift with GenAI	2
<i>Marija Mikic (Google, USA)</i>	
Requirements Engineering for Trustworthy Human-AI Synergy in Software Engineering 2.0	3
<i>David Lo (Singapore Management University, Singapore)</i>	

Research Papers

AI-Enabled Regulatory Change Analysis of Legal Requirements	5
<i>Sallam Abualhaija (SnT - University of Luxembourg, Luxembourg), Marcello Ceci (SnT - University of Luxembourg, Luxembourg), Nicolas Sannier (SnT - University of Luxembourg, Luxembourg), Domenico Bianculli (SnT - University of Luxembourg, Luxembourg), Lionel C. Briand (Lero SFI centre for Software Research and University of Limerick, Ireland, University of Ottawa, Canada), Dirk Zetsche (FDEF - University of Luxembourg, Luxembourg), and Marco Bodellini (FDEF - University of Luxembourg, Luxembourg)</i>	
Defining a Model for Content Requirements from the Law: An Experience Report	18
<i>Marcello Ceci (University of Luxembourg, Luxembourg), Domenico Bianculli (University of Luxembourg - Luxembourg), and Lionel C. Briand (University of Ottawa, Canada; University of Limerick, Ireland)</i>	
Deriving Domain Models from User Stories: Human vs. Machines	31
<i>Maxim Bragilovski (Ben-Gurion University of the Negev, Israel), Ashley T. van Can (Utrecht University, The Netherlands), Fabiano Dalpiaz (Utrecht University, The Netherlands), and Arnon Sturm (Ben-Gurion University of the Negev, Israel)</i>	

"Do you have time for a Quick Call?": Exploring Remote and Hybrid Requirements Engineering Practices and Challenges in Industry	43
<i>Ze Shi Li (University of Victoria, Canada), Delina Ly (VX Company, The Netherlands; Utrecht University, The Netherlands), Lukas Nagel (Leibniz University Hannover, Germany), Nowshin Nawar Arony (University of Victoria, Canada), and Daniela Damian (University of Victoria, Canada)</i>	
Explanations in Everyday Software Systems: Towards a Taxonomy for Explainability Needs	55
<i>Jakob Droste (Leibniz University Hannover, Software Engineering Group, Germany), Hannah Deters (Leibniz University Hannover, Software Engineering Group, Germany), Martin Obaidi (Leibniz University Hannover, Software Engineering Group, Germany), and Kurt Schneider (Leibniz University Hannover, Software Engineering Group, Germany)</i>	
GlobalTagNet: A Graph-Based Framework for Multi-Label Classification in GitHub Issues	67
<i>Xiaojuan Wang (Hainan University, China), Jiawei Huang (Hainan University, China), Chunyang Ye (Hainan University, China), and Hui Zhou (Hainan University, China)</i>	
How do Practitioners Reason About Security Requirements? An Interview Study	79
<i>Luciana Provenzano (Mälardalen University, Sweden) and Robbert Jongeling (Mälardalen University, Sweden)</i>	
Keeping Behavioral Programs Alive: Specifying and Executing Liveness Requirements	91
<i>Tom Yaacov (Ben-Gurion University of the Negev, Israel), Achiya Elyasaf (Ben-Gurion University of the Negev, Israel), and Gera Weiss (Ben-Gurion University of the Negev, Israel)</i>	
Lessons from the Use of Natural Language Inference (NLI) in Requirements Engineering Tasks.....	103
<i>Mohamad Fazelnia (University of Hawaii at Manoa, USA), Viktoria Koscinski (Rochester Institute of Technology, USA), Spencer Herzog (Rochester Institute of Technology, USA), and Mehdi Mirakhorli (University of Hawaii at Manoa, USA)</i>	
Lessons Learned from Persona Usage in Requirements Engineering Practice	116
<i>Devi Karolita (Palangka Raya University, Indonesia), John C. Grundy (Monash University, Australia), Tanjila Kanij (Swinburne University of Technology, Australia), Jennifer McIntosh (University of Melbourne, Australia), and Humphrey O. Obie (Telstra Health, Australia)</i>	
Normative Requirements Operationalization with Large Language Models	129
<i>Nick Feng (University of Toronto, Canada), Lina Marsso (University of Toronto, Canada), Sinem Getir Yaman (University of York, UK), Isobel Standen (University of York, UK), Yesugen Baatartogtokh (University of Toronto, Canada), Reem Ayad (University of Toronto, Canada), Victória Oldemburgo de Mello (University of Toronto, Canada), Beverley Townsend (University of York, UK), Hanne Bartels (University of Toronto, Canada), Ana Cavalcanti (University of York, UK), Radu Calinescu (University of York, UK), and Marsha Chechik (University of Toronto, Canada)</i>	
ReqCompletion: Domain-Enhanced Automatic Completion for Software Requirements	142
<i>Xiaoli Lian (Beihang University, China), Jieping Ma (Beihang University, China), Heyang Lv (Beihang University, China), and Li Zhang (Beihang University, China)</i>	

Requirements Classification for Traceability Link Recovery	155
<i>Tobias Hey (Karlsruhe Institute of Technology (KIT), Germany), Jan Keim (Karlsruhe Institute of Technology (KIT), Germany), and Sophie Corallo (Karlsruhe Institute of Technology (KIT), Germany)</i>	
Requirements Satisfiability with In-Context Learning	168
<i>Sarah Santos (Carnegie Mellon University, USA), Travis Breaux (Carnegie Mellon University, USA), Thomas Norton (Fordham University, USA), Sara Haghghi (University of Maine, USA), and Sepideh Ghanavati (University of Maine, USA)</i>	
Requirements Strategy for Managing Human Factors in Automated Vehicle Development	180
<i>Amna Pir Muhammad (Chalmers University of Technology and University of Gothenburg, Sweden), Alessia Knauss (Zenseact AB, Sweden), Eric Knauss (Chalmers University of Technology and University of Gothenburg, Sweden), and Jonas Bärgrman (Chalmers University of Technology, Sweden)</i>	
Scalable Redundancy Detection for Real-Time Requirements	193
<i>Elisabeth Henkel (University of Freiburg, Germany), Nico Hauff (University of Freiburg, Germany), Lena Funk (University of Freiburg, Germany), Vincent Langenfeld (University of Freiburg, Germany), and Andreas Podelski (University of Freiburg, Germany)</i>	
Utilizing Process Models in the Requirements Engineering Process Through Model2Text Transformation	205
<i>Nataliia Klievtsova (Technical University of Munich, Germany), Juergen Mangler (Technical University of Munich, Germany), Timotheus Kampik (SAP Signavio, Germany), and Stefanie Rinderle-Ma (Technical University of Munich, Germany)</i>	

Industrial Innovation Papers

Engineering Safety Requirements for Autonomous Driving with Large Language Models	218
<i>Ali Nouri (Volvo Cars & Chalmers University of Technology Gothenburg, Sweden), Beatriz Cabrero-Daniel (University of Gothenburg, Sweden), Fredrik Törner (Volvo Cars & Chalmers University of Technology Gothenburg, Sweden), Håkan Sivencrona (Zenseact, Sweden), and Christian Berger (University of Gothenburg, Sweden)</i>	
Explainability Requirements for Time Series Forecasts: A Study in the Energy Domain	229
<i>Jakob Droste (Leibniz Universität Hannover, Germany), Ronja Fuchs (Kraft-Wärme-Kopplung GmbH and Leibniz Universität Hannover, Germany), Hannah Deters (Leibniz Universität Hannover, Germany), Jil Klünder (Leibniz Universität Hannover, Germany), and Kurt Schneider (Leibniz Universität Hannover, Germany)</i>	
Generating Test Scenarios from NL Requirements using Retrieval-Augmented LLMs: An Industrial Study	240
<i>Chetan Arora (Monash University, Australia), Tomas Herda (Austrian Post Group IT, Austria), and Verena Homm (Austrian Post Group IT, Austria)</i>	

Global Decision Making Support for Complex System Development	252
<i>Lola Burgueño (University of Malaga, Spain), Damien Foures (Airbus Group, France), Benoit Combemale (University of Rennes, France), Jörg Kienzle (University of Malaga, Spain & McGill University, Canada), and Gunter Mussbacher (McGill University, Canada & INRIA, France)</i>	
Multi-label Requirements Classification with Large Taxonomies	264
<i>Waleed Abdeen (Blekinge Insitute of Technology, Sweden), Michael Unterkalmsteiner (Blekinge Institute of Technology, Sweden), Krzysztof Wnuk (Blekinge Institute of Technology, Sweden), Alexandros Chirtoglou (HOCHTIEF ViCon GmbH, Germany), Christoph Schimanski (HOCHTIEF ViCon GmbH, Germany), and Heja Goli (HOCHTIEF ViCon GmbH, Germany)</i>	
Non-Functional Requirements Discovery and Quality Assurance using Goal Model for Earthquake Warning System in Operation	275
<i>Youngsul Shin (Kyungpook National University, Republic of Korea), Seok-Won Lee (Ajou University, Republic of Korea), and Yunja Choi (Kyungpook National University, Republic of Korea)</i>	
Post-Hoc Formal Verification of Automotive Software with Informal Requirements: An Experience Report	287
<i>Gustav Ung (Scania, Sweden), Jesper Amilon (KTH Royal Institute of Technology, Sweden), Dilian Gurov (KTH Royal Institute of Technology, Sweden), Christian Lidström (KTH Royal Institute of Technology, Sweden), Mattias Nyberg (Scania, Sweden), and Karl Palmskog (KTH Royal Institute of Technology, Sweden)</i>	
Problems with Communication About Requirements in a Complex Program in a Large Organization	299
<i>Agnete Røberg Horup (Mjølner Informatics A/S, Denmark), Morten Jokumsen (Mjølner Informatics A/S, Denmark), Jens Bæk Jørgensen (Mjølner Informatics A/S, Denmark), Maja Due Kadenic (Aarhus University, Denmark), and Nina Wiborg Mølgaard (Mjølner Informatics A/S, Denmark)</i>	
Towards Understanding Contracts Grammar: A Large Language Model-Based Extractive Question-Answering Approach	310
<i>Gokul Rejithkumar (TCS Research, India), Preethu Rose Anish (TCS Research, India), and Smita Ghaisas (TCS Research, India)</i>	

RE@Next! Papers

Code Gradients: Towards Automated Traceability of LLM-Generated Code	321
<i>Marc North (Durham University, UK), Amir Atapour-Abarghouei (Durham University, UK), and Nelly Bencomo (Durham University, UK)</i>	
Comic-Based Morphological Box: Enhancing Vision Design – A Research Preview	330
<i>Nedo Bartels (Fraunhofer IESE, Germany), Simon André Scherr (Fraunhofer IESE, Germany), Bilgin Gültekin (Fraunhofer IESE, Germany), Stefanie Ludborzs (Fraunhofer IESE, Germany), Sven Storck (Fraunhofer IESE, Germany), and Annika Zepp (Fraunhofer IESE, Germany)</i>	

Coupled Requirements-Driven Testing of CPS: From Simulation To Reality	337
<i>Ankit Agrawal (St. Louis University, USA), Philipp Zech (University of Innsbruck, Austria), and Michael Vierhauser (University of Innsbruck, Austria)</i>	
Digital Process Twins for Interleaving Requirements Elicitation and Design of Cyber-Physical Systems	345
<i>Thomas Ernst Jost (Johannes Kepler University Linz, Austria), Paul Grünbacher (Johannes Kepler University Linz, Austria), and Christian Stary (Johannes Kepler University Linz, Austria)</i>	
Explainability as a Requirement for Hardware: Introducing Explainable Hardware (XHW)	354
<i>Timo Speith (University of Bayreuth, Germany), Julian Speith (Max Planck Institute for Security and Privacy, Germany), Steffen Becker (Ruhr University Bochum, Germany), Yixin Zou (Max Planck Institute for Security and Privacy, Germany), Asia Biega (Max Planck Institute for Security and Privacy, Germany), and Christof Paar (Max Planck Institute for Security and Privacy, Germany)</i>	
From Posts to Reqs and Back: Investigating Instagram's Potential in Supporting Requirements Engineers. An Empirical Study	363
<i>Sylvia Kopczyńska (Poznań University of Technology, Poland) and Sebastian Orwat (Poznan University of Technology, Poland)</i>	
GPT-Powered Elicitation Interview Script Generator for Requirements Engineering Training	372
<i>Binnur Görer (Microsoft, Türkiye) and Fatma Başak Aydemir (Utrecht University, Netherlands)</i>	
Interlinking User Stories and GUI Prototyping: A Semi-Automatic LLM-Based Approach	380
<i>Kristian Kolthoff (Institute for Enterprise Systems, University of Mannheim, Germany), Felix Kretzer (Human-Centered Systems Lab, Karlsruhe Institute of Technology, Germany), Christian Bartelt (Institute for Enterprise Systems, University of Mannheim, Germany), Alexander Maedche (Human-Centered Systems Lab, Karlsruhe Institute of Technology, Germany), and Simone Paolo Ponzetto (Data and Web Science Group, University of Mannheim, Germany)</i>	
Leveraging LLMs for the Quality Assurance of Software Requirements	389
<i>Sebastian Lubos (Graz University of Technology, Austria), Alexander Felfernig (Graz University of Technology, Austria), Thi Ngoc Trang Tran (Graz University of Technology, Austria), Damian Garber (Graz University of Technology, Austria), Merfat El Mansi (Graz University of Technology, Austria), Seda Polat Erdeniz (Graz University of Technology, Austria), and Viet-Man Le (Graz University of Technology, Austria)</i>	
Measuring the Fitness-for-Purpose of Requirements: An Initial Model of Activities and Attributes	398
<i>Julian Frattini (Blekinge Institute of Technology, Sweden), Davide Fucci (Blekinge Institute of Technology, Sweden), Michael Unterkalmsteiner (Blekinge Institute of Technology, Sweden), Daniel Mendez (Blekinge Institute of Technology, Sweden, and fortiss, Germany), and Jannik Fischbach (Netlight Consulting GmbH, Germany, and fortiss, Germany)</i>	

Paving the Way Towards an Effective Vision Video Usage: An Exploratory Study	407
<i>Lukas Nagel (Leibniz University Hannover, Germany), Jakob Droste (Leibniz University Hannover, Germany), Anne Hess (Technical University of Applied Sciences Würzburg-Schweinfurt, Germany), and Kurt Schneider (Leibniz University Hannover, Germany)</i>	
Requirements Are All You Need: From Requirements to Code with LLMs	416
<i>Bingyang Wei (Texas Christian University, USA)</i>	
Requirements Engineering for Research Software: A Vision	423
<i>Adrian Bajraktari (University of Cologne, Germany), Michelle Binder (University of Cologne, Germany), and Andreas Vogelsang (University of Cologne, Germany)</i>	
Rethinking Legal Compliance Automation: Opportunities with Large Language Models	432
<i>Shabnam Hassani (University of Ottawa, Canada), Mehrdad Sabetzadeh (University of Ottawa, Canada), Daniel Amyot (University of Ottawa, Canada), and Jain Liao (New Software, Canada)</i>	
A Vision to Enhance Trust Requirements for Peer Support Systems by Revisiting Trust Theories	441
<i>Yasaman Gheidar (University of Ottawa, Canada), Lysanne Lessard (University of Ottawa, Canada), and Yao Yao (University of Ottawa, Canada)</i>	
SwissREview - Mapping the Requirements Engineering Job Landscape	450
<i>Anthea Moravánszky (University of Szeged, University of Applied Science of the Grisons Chur, Switzerland)</i>	
Towards Crowd-Based Requirements Engineering for Digital Farming (CrowdRE4DF)	457
<i>Eduard C. Groen (Fraunhofer IESE, Germany), Kazi Rezoanur Rahman (University of Kaiserslautern-Landau (RPTU), Germany), Nikita Narsinghani (University of Kaiserslautern-Landau (RPTU), Germany), and Joerg Doerr (Fraunhofer IESE, Germany)</i>	
Uncovering Patterns in Users' Ethical Concerns About Software	466
<i>Özge Karaçam (Vrije Universiteit Amsterdam), Tom P. Humbert (Vrije Universiteit Amsterdam), and Emitzá Guzmán (Vrije Universiteit Amsterdam)</i>	
Using LLMs in Software Requirements Specifications: An Empirical Evaluation	475
<i>Madhava Krishna (IIIT Delhi), Bhagesh Gaur (IIIT Delhi), Arsh Verma (IIIT Delhi, Wadhvani AI), and Pankaj Jalote (IIIT Delhi)</i>	

Posters and Tool Demos

A Tool for Automatically Identifying Semantic Conflicts in User Stories by Combining NLP and BERT Model	484
<i>Zhen Xuan (Inner Mongolia Normal University, China), Tianci Wang (Inner Mongolia Normal University, China), Chunhui Wang (Inner Mongolia Normal University, China), and Tong Li (Beijing University of Technology, China)</i>	

Automated Configuration Synthesis for Machine Learning Models: A git-Based Requirement and Architecture Management System	488
<i>Abdullatif AlShriaf (Chalmers and University of Gothenburg, Sweden), Hans-Martin Heyn (Chalmers and University of Gothenburg, Sweden), and Eric Knauss (Chalmers and University of Gothenburg, Sweden)</i>	
Automating Requirements Review in the Automotive Sector: A Tailored AI Approach	492
<i>Sivajeet Chand (Chalmers University of Gothenburg, Sweden), Chang Li (Chalmers University of Gothenburg, Sweden), Cristina Martinez Montes (Chalmers University of Gothenburg, Sweden), Beatriz Cabrero-Daniel (Chalmers University of Gothenburg, Sweden), and Jennifer Horkoff (Chalmers University of Gothenburg, Sweden)</i>	
Explainable AI: A Diverse Stakeholder Perspective	494
<i>Umm-E- Habiba (University of Stuttgart, Germany) and Khan Mohammad Habibullah (Chalmers and University of Gothenburg)</i>	
Scoping of Non-Functional Requirements for Machine Learning Systems	496
<i>Khan Mohammad Habibullah (Chalmers and University of Gothenburg, Sweden), Juan Garcia Diaz (Chalmers and University of Gothenburg, Sweden), Gregory Gay (Chalmers and University of Gothenburg, Sweden), and Jennifer Horkoff (Chalmers and University of Gothenburg, Sweden)</i>	
SymboleoNLP: A Tool for Generating Formal Specifications from Legal Contract Templates	498
<i>Regan Meloche (University of Ottawa, Canada), Daniel Amyot (University of Ottawa, Canada), and John Mylopoulos (University of Ottawa, Canada)</i>	

Artifact Paper

KG-EmpiRE: A Community-Maintainable Knowledge Graph for a Sustainable Literature Review on the State and Evolution of Empirical Research in Requirements Engineering	500
<i>Oliver Karras (TIB - Leibniz Information Centre for Science and Technology)</i>	

Doctoral Symposium

A Model-Driven Requirements Engineering Method for Human-Centered Digitalisation of Agriculture	502
<i>Chiara Mannari (University of Pisa, Italy)</i>	
Enhancing Legal Compliance and Regulation Analysis with Large Language Models	507
<i>Shabnam Hassani (University of Ottawa)</i>	
Formalising Safety Requirements for Robotic Autonomous Systems in Highly Regulated Domains.	512
<i>Diana C. Benjumea (The University of Manchester, UK)</i>	
Requirements Copilot: Ambiguity Management in Feature Requests	517
<i>Pragyan K C (University of Texas at San Antonio, USA)</i>	
Towards a Tool Supported Approach for Regulatory Requirements Engineering	520
<i>Parisa Elahidoost (Blekinge Institute of Technology, Sweden)</i>	
Author Index	525