

2024 IEEE International Conference on Software Maintenance and Evolution (ICSME 2024)

**Flagstaff, Arizona, USA
6-11 October 2024**

Pages 1-460



**IEEE Catalog Number: CFP24079-POD
ISBN: 979-8-3503-9569-3**

**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:	CFP24079-POD
ISBN (Print-On-Demand):	979-8-3503-9569-3
ISBN (Online):	979-8-3503-9568-6
ISSN:	1063-6773

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 International Conference on Software Maintenance and Evolution (ICSME) **ICSME 2024**

Table of Contents

Message from the General Chairs	xvi
Message from the Program Chairs	xvii
Organizing Committee	xviii
Program Committee	xx
Steering Committee	xxvii
Additional Reviewers	xxviii
Keynotes	xxx

Research Track Papers

How Far Have We Gone in Binary Code Understanding Using Large Language Models	1
<i>Xiawei Shang (University of Science and Technology of China, China), Shaoyin Cheng (University of Science and Technology of China, China; Anhui Province Key Laboratory of Digital Security, China), Guoqiang Chen (University of Science and Technology of China, China), Yanming Zhang (University of Science and Technology of China, China), Li Hu (University of Science and Technology of China, China), Xiao Yu (University of Science and Technology of China, China), Gangyang Li (University of Science and Technology of China, China), Weiming Zhang (University of Science and Technology of China, China; Anhui Province Key Laboratory of Digital Security, China), and Nenghai Yu (University of Science and Technology of China, China; Anhui Province Key Laboratory of Digital Security, China)</i>	
vFix: Facilitating Software Maintenance of Smart Contracts via Automatically Fixing Vulnerabilities	13
<i>Pengcheng Fang (Case Western Reserve University, USA), Peng Gao (Virginia Tech, USA), Yun Peng (The Chinese University of Hong Kong, China), Qingzhao Zhang (Shanghai Jiao Tong University, China), Tao Xie (Peking University, China), Dawn Song (University of California, Berkeley, USA), Prateek Mittal (Princeton University, USA), Sanjeev Kulkarni (Princeton University, USA), Zhuotao Liu (Tsinghua University, China), and Xusheng Xiao (Arizona State University, USA)</i>	

An Empirical Study of Automatic Program Repair Techniques for Injection Vulnerabilities	25
<i>Tingwei Zhu (Nanjing University, China), Tongtong Xu (Huawei Technologies Co., Ltd., China), Kui Liu (Huawei Technologies Co., Ltd., China), Jiayuan Zhou (Huawei Technologies Co., Ltd., Canada), Xing Hu (Huawei Technologies Co., Ltd., China), Xin Xia (Huawei Technologies Co., Ltd., China), Tian Zhang (Nanjing University, China), and David Lo (Singapore Management University, Singapore)</i>	
Optimizing Decompiler Output by Eliminating Redundant Data Flow in Self-Recursive Inlining.....	38
<i>Runze Zhang (University of Chinese Academy of Sciences, China), Ying Cao (University of Chinese Academy of Sciences, China), Ruigang Liang (Chinese Academy of Sciences, China), Peiwei Hu (University of Chinese Academy of Sciences, China), and Kai Chen (University of Chinese Academy of Sciences, China; Chinese Academy of Sciences, China)</i>	
Maven Unzipped: Exploring the Impact of Library Packaging on the Ecosystem	50
<i>Mehdi Keshani (Delft University of Technology, The Netherlands), Gideon Bot (Delft University of Technology, The Netherlands), Priyam Rungta (Delft University of Technology, The Netherlands), Maliheh Izadi (Delft University of Technology, The Netherlands), Arie van Deursen (Delft University of Technology, The Netherlands), and Sebastian Proksch (Delft University of Technology, The Netherlands)</i>	
New PHP Language Features Make Your Static Code Analysis Tools Miss Vulnerabilities	63
<i>Lin Wang (Fudan University, China), Yuan Zhang (Fudan University, China), Xin Tan (Fudan University, China), Shengke Ye (Fudan University, China), and Min Yang (Fudan University, China)</i>	
Enhancing Web Test Script Repair Using Integrated UI Structural and Visual Information	75
<i>Zhongzhen Wen (Nanjing University, China), Yifei Lu (Nanjing University, China), Tongtong Xu (Nanjing University, China), Minoxue Pan (Nanjing University, China), Tian Zhang (Nanjing University, China), and Xuandong Li (Nanjing University, China)</i>	
Toward Debugging Deep Reinforcement Learning Programs with RLEplorer	87
<i>Rached Bouchoucha (Mila, Polytechnique Montréal, Canada), Ahmed Haj Yahmed (Mila, Polytechnique Montréal, Canada), Darshan Patil (Mila, Université de Montréal, Canada), Janarthanan Rajendran (Mila, Université de Montréal, Canada), Amin Nikanjam (Polytechnique Montréal, Canada), Sarath Chandar (Mila, Polytechnique Montréal, Canada), and Foutse Khomh (Polytechnique Montréal, Canada)</i>	
Focused: An Approach to Framework-Oriented Cross-Language Link Specification and Detection.	100
<i>Ailun Yu (Peking University, China), Yifan Shi (Peking University, China), Bo Shen (Huawei Technologies Co., Ltd., China), Wei Zhang (Peking University, China), Haiyan Zhao (Peking University, China), Guangtai Liang (Huawei Technologies Co., Ltd., China), Tianyong Wu (Huawei Technologies Co., Ltd., China), and Zhi Jin (Peking University, China)</i>	
Decomposing God Header File via Multi-View Graph Clustering	112
<i>Yue Wang (Peking University, China), Wenhui Chang (Peking University, China), Tongwei Deng (Peking University, China), Yanzhen Zou (Peking University, China), and Bing Xie (Peking University, China)</i>	

Leveraging Large Vision-Language Model For Better Automatic Web GUI Testing	125
<i>Siyi Wang (Southern University of Science and Technology, China), Sinan Wang (Southern University of Science and Technology, China), Yujia Fan (Southern University of Science and Technology, China), Xiaolei Li (Southern University of Science and Technology, China), and Yepang Liu (Southern University of Science and Technology, China)</i>	
Mind the Gap: The Disconnect Between Refactoring Criteria Used in Industry and Refactoring Recommendation Tools	138
<i>James Ivers (CMU Software Engineering Institute, Pittsburgh, USA), Anwar Ghammam (Oakland University, Rochester, USA), Khouloud Gaaloul (University of Michigan, Dearborn, USA), Ipek Ozkaya (CMU Software Engineering Institute, Pittsburgh, USA), Marouane Kessentini (University of Michigan, Flint, USA), and Wajdi Aljedaani (Oakland University, Rochester, USA)</i>	
CPLS: Optimizing the Assignment of LLM Queries	151
<i>Yueyue Liu (The University of Newcastle, Australia), Hongyu Zhang (Chongqing University, China), Zhiqiang Li (Shaanxi Normal University, China), and Yuantian Miao (The University of Newcastle, Australia)</i>	
Towards Unmasking LGTM Smells in Code Reviews: A Comparative Study of Comment-Free and Commented Reviews	163
<i>Mahmut Furkan Gön (Bilkent University, Turkey), Burak Yetiştiren (University of California, Los Angeles, USA), and Eray Tüzün (Bilkent University, Turkey)</i>	
OPass: Orchestrating TVM's Passes for Lowering Memory Footprints of Computation Graphs	175
<i>Pengbo Nie (Shanghai Jiao Tong University, China), Zihan Wang (Shanghai Jiao Tong University, China), Chengcheng Wan (East China Normal University, China), Ziyi Lin (Alibaba Group, China), He Jiang (Dalian University of Technology, China), Jianjun Zhao (Kyushu University, Japan), and Yuting Chen (Shanghai Jiao Tong University, China)</i>	
"What Happened to my Models?" History-Aware Co-Existence and Co-Evolution of Metamodels and Models	187
<i>Marcel Homolka (Johannes Kepler University Linz, Austria), Luciano Marchezan (Johannes Kepler University Linz, Austria), Wesley K. G. Assunção (North Carolina State University, USA), and Alexander Egyed (Johannes Kepler University Linz, Austria)</i>	
RetypeR: Integrated Retrieval-Based Automatic Program Repair for Python Type Errors	199
<i>Sichong Hao (Harbin Institute of Technology, China), Xianjun Shi (Harbin Institute of Technology, China), and Hongwei Liu (Harbin Institute of Technology, China)</i>	
Deep Learning-Based Code Completion: On the Impact on Performance of Contextual Information	211
<i>Matteo Ciniselli (Università della Svizzera italiana, Switzerland), Luca Pascarella (ETH Zurich, Switzerland), and Gabriele Bavota (Università della Svizzera italiana, Switzerland)</i>	

Encoding Domain Knowledge in Log Analysis	224
<i>Filip Zamfirov (Eindhoven University of Technology, The Netherlands), Dennis Dams (TNO-ESI, The Netherlands), Mazyar Seraj (Eindhoven University of Technology, The Netherlands), and Alexander Serebrenik (Eindhoven University of Technology, The Netherlands)</i>	
Blessing or Curse? Investigating Test Code Maintenance through Inheritance and Interface	237
<i>Dong Jae Kim (DePaul University, USA) and Tse-Hsun Chen (Concordia University, Canada)</i>	
Impact of JVM Configurations on Test Runtime	249
<i>Abdelrahman Baz (The University of Texas at Austin, USA), Milos Gligoric (The University of Texas at Austin, USA), and August Shi (The University of Texas at Austin, USA)</i>	
Improving Long-Tail Vulnerability Detection Through Data Augmentation Based on Large Language Models	262
<i>Xiao Deng (Peking University, China), Fuyao Duan (Peking University, China), Rui Xie (Peking University, China), Wei Ye (Peking University, China), and Shikun Zhang (Peking University, China)</i>	
Next-Generation Refactoring: Combining LLM Insights and IDE Capabilities for Extract Method	275
<i>Dorin Pomian (University of Colorado Boulder, USA), Abhiram Bellur (University of Colorado Boulder, USA), Malinda Dilhara (University of Colorado Boulder, USA), Zarina Kurbatova (JetBrains Research, Serbia), Egor Bogomolov (JetBrains Research, The Netherlands), Timofey Bryksin (JetBrains Research, Cyprus), and Danny Dig (JetBrains Research, University of Colorado Boulder, USA)</i>	
Towards Identifying Code Proficiency through the Analysis of Python Textbooks	288
<i>Ruksit Rojpaisarnkit (Nara Institute of Science and Technology, Japan), Gregorio Robles (Universidad Rey Juan Carlos, Spain), Raula Gaikovina Kula (Nara Institute of Science and Technology, Japan), Dong Wang (Tianjin University, China), Chaiyong Ragkhitwetsagul (Mahidol University, Thailand), Jesus M. Gonzalez Barahona (Universidad Rey Juan Carlos, Spain), and Kenichi Matsumoto (Nara Institute of Science and Technology, Japan)</i>	
Exploring the Adoption of Fuzz Testing in Open-Source Software: A Case Study of the Go Community	300
<i>Olivier Nourry (Kyushu University, Japan), Masanari Kondo (Kyusu University, Japan), Mahmoud Alfadel (University of Waterloo, Canada), Shane McIntosh (University of Waterloo, Canada), and Yasutaka Kamei (Kyushu University, Japan)</i>	
Private—Keep Out? Understanding How Developers Account for Code Visibility in Unit Testing..	312
<i>Muhammad Firhard Roslan (University of Sheffield, UK), José Miguel Rojas (University of Sheffield, UK), and Phil McMinn (University of Sheffield, UK)</i>	
Compilation of Commit Changes within Java Source Code Repositories	325
<i>Stefan Schott (Paderborn University, Germany), Wolfram Fischer (SAP Security Research, France), Serena Elisa Ponta (SAP Security Research, France), Jonas Klauke (Paderborn University, Germany), and Eric Bodden (Paderborn University & Fraunhofer IEM, Germany)</i>	

The Impact of Program Reduction on Automated Program Repair	337
<i>Linus Vidziunas (Simula Research Laboratory, Norway), David Binkley (Loyola University Maryland, USA), and Leon Moonen (Simula Research Laboratory & BI Norwegian Business School, Norway)</i>	
Improving Retrieval-Augmented Code Comment Generation by Retrieving for Generation	350
<i>Hanzhen Lu (Zhejiang University, China) and Zhongxin Liu (Zhejiang University, China; Hangzhou High-Tech Zone (Binjiang) Institute of Blockchain and Data Security, China)</i>	
Understanding Code Change with Micro-Changes	363
<i>Lei Chen (Tokyo Institute of Technology, Japan), Michele Lanza (Università della Svizzera italiana, Switzerland), and Shinpei Hayashi (Tokyo Institute of Technology, Japan)</i>	
On the Generalizability of Transformer Models to Code Completions of Different Lengths	375
<i>Nathan Cooper (Stability AI, USA), Rosalia Tufano (Università della Svizzera italiana, Switzerland), Gabriele Bavota (Università della Svizzera italiana, Switzerland), and Denys Poshyvanyk (William & Mary, USA)</i>	
A Taxonomy of Self-Admitted Technical Debt in Deep Learning Systems	388
<i>Federica Pepe (University of Sannio, Italy), Fiorella Zampetti (University of Sannio, Italy), Antonio Mastropaolo (William & Mary, USA), Gabriele Bavota (Software Institute, Università della Svizzera Italiana, Switzerland), and Massimiliano Di Penta (University of Sannio, Italy)</i>	
Broken Windows: Exploring the Applicability of a Controversial Theory on Code Quality	400
<i>Diomidis Spinellis (Athens University of Economics and Business, Greece), Panos Louridas (Athens University of Economics and Business, Greece), Maria Kechagia (University College London, UK), and Tushar Sharma (Dalhousie University, Canada)</i>	
Investigating Developers' Preferences for Learning and Issue Resolution Resources in the ChatGPT Era	413
<i>Ahmad Tayeb (Florida State University, USA), Mohammad Alahmadi (University of Jeddah, Saudi Arabia), Elham Tajik (Florida State University, USA), and Sonia Haiduc (Florida State University, USA)</i>	
Supporting Software Maintenance with Dynamically Generated Document Hierarchies	426
<i>Katherine R. Dearstyne (University of Notre Dame, USA), Alberto D. Rodriguez (University of Notre Dame, USA), and Jane Cleland-Huang (University of Notre Dame, USA)</i>	
The Effectiveness of Compact Fine-Tuned LLMs in Log Parsing	438
<i>Maryam Mehrabi (Concordia University, Canada), Abdelwahab Hamou-Lhadj (Concordia University, Canada), and Hossein Moosavi (Cisco Systems, Canada)</i>	
Test Scheduling Across Heterogeneous Machines While Balancing Running Time, Price, and Flakiness	449
<i>Hengchen Yuan (The University of Texas at Austin, USA), Jiefang Lin (The University of Texas at Austin, USA), Wing Lam (George Mason University, USA), and August Shi (The University of Texas at Austin, USA)</i>	

Unraveling the Impact of Code Smell Agglomerations on Code Stability	461
<i>Amanda Santana (Federal University of Minas Gerais, Brazil), Eduardo Figueiredo (Federal University of Minas Gerais, Brazil), and Juliana Alves Pereira (Pontifical Catholic University of Rio de Janeiro, Brazil)</i>	
Understanding Web Application Workloads and Their Applications: Systematic Literature Review and Characterization	474
<i>Roozbeh Aghili (Polytechnique Montreal, Canada), Qiaolin Qin (Polytechnique Montreal, Canada), Heng Li (Polytechnique Montreal, Canada), and Foutse Khomh (Polytechnique Montreal, Canada)</i>	
Precos: Project-Specific Retrieval for Better Code Summarization	487
<i>Tingwei Zhu (Nanjing University, China), Zhong Li (Nanjing University, China), Tian Zhang (Nanjing University, China), Minxue Pan (Nanjing University, China), and Xuandong Li (Nanjing University, China)</i>	
Can We Do Better with What We Have Done? Unveiling the Potential of ML Pipeline in Notebooks	499
<i>Yuangan Zou (University of Toronto, Canada), Xinpeng Shan (University of Toronto, Canada), Shiqi Tan (University of Toronto, Canada), and Shurui Zhou (University of Toronto, Canada)</i>	
On the Use of Deep Learning Models for Semantic Clone Detection	512
<i>Subroto Nag Pinku (University of Saskatchewan, Canada), Debajyoti Mondal (University of Saskatchewan, Canada), and Chanchal K. Roy (University of Saskatchewan, Canada)</i>	
Demystifying Device-Specific Compatibility Issues in Android Apps	525
<i>Junfeng Chen (Southern University of Science and Technology, China), Kevin Li (McGill University, Canada), Yifei Chen (McGill University, Canada), Lili Wei (McGill University, Canada), and Yepang Liu (Southern University of Science and Technology, China)</i>	
On the Rationale and Use of Assertion Messages in Test Code: Insights from Software Practitioners	538
<i>Anthony Peruma (University of Hawai'i at Mānoa, USA), Taryn Takebayashi (University of Hawai'i at Mānoa, USA), Rocky Huang (University of Hawai'i at Mānoa, USA), Joseph Averion (University of Hawai'i at Mānoa, USA), Veronica Hodapp (Columbia University, USA), Christian Newman (Rochester Institute of Technology, USA), and Mohamed Mkaouer (University of Michigan-Flint, USA)</i>	
On the Impact of Draft Pull Requests on Accelerating Feedback	550
<i>Firas Harbaoui (ETS - Quebec University, Canada), Mohammed Sayagh (ETS - Quebec University, Canada), and Rabe Abdalkareem (Omar AL-mukhtar University, Libya)</i>	
RENAS: Prioritizing Co-Renaming Opportunities of Identifiers	562
<i>Naoki Doi (Tokyo Institute of Technology, Japan), Yuki Osumi (Tokyo Institute of Technology, Japan), and Shinpei Hayashi (Tokyo Institute of Technology, Japan)</i>	
Can Developers Prompt? A Controlled Experiment for Code Documentation Generation	574
<i>Hans-Alexander Kruse (Universität Hamburg, Germany), Tim Puhlfürß (Universität Hamburg, Germany), and Walid Maalej (Universität Hamburg, Germany)</i>	

Exploring Pseudo-Testedness: Empirically Evaluating Extreme Mutation Testing at the Statement Level	587
<i>Megan Maton (University of Sheffield, UK), Gregory Kapfhammer (Allegheny College, USA), and Phil McMinn (University of Sheffield, UK)</i>	
BABEL: A Novel Software Vulnerability Detection Framework for Breaking Language Barriers	599
<i>Xia Li (Guangdong University of Foreign Studies, China), Yuhang Lin (Guangdong University of Foreign Studies, China), Yongqiang Zheng (Guangdong University of Foreign Studies, China), Junyi He (Guangdong University of Foreign Studies, China), Rihu Liao (Guangdong University of Foreign Studies, China), and Junlang Wang (Guangdong University of Foreign Studies, China)</i>	

New Ideas and Emerging Results Track Papers

GlueTest: Testing Code Translation via Language Interoperability	612
<i>Muhammad Salman Abid (Cornell University, USA), Mrigank Pawagi (Indian Institute of Science, India), Sugam Adhikari (Islington College, Nepal), Xuyan Cheng (Dickinson College), Ryed Badr (University of Illinois, USA), Md Wahiduzzaman (BRAC University, Bangladesh), Vedant Rathi (Adlai E Stevenson High School, USA), Ronghui Qi (Wuhan University, China), Choyin Li (Po Leung Kuk Ngan Po Ling College, Hong Kong, China), Lu Liu (University of Washington, USA), Rohit Sai Naidu (University of California, USA), Licheng Lin (Zhejiang University, China), Que Liu (University of Shanghai for Science and Technology, China), Asif Zubayer Palak (BRAC University, Bangladesh), Mehza bin Haque (University of Dhaka, Bangladesh), Xinyu Chen (University of Illinois, USA), Darko Marinov (University of Illinois, USA), and Saikat Dutta (Cornell University, USA)</i>	
Leveraging LSTM and Pre-trained Model for Effective Summarization of Stack Overflow Posts	618
<i>Duc-Loc Nguyen (Hanoi University of Science and Technology, Vietnam) and Thi-Mai-Anh Bui (Hanoi University of Science and Technology, Vietnam)</i>	
Nigerian Software Engineer or American Data Scientist? GitHub Profile Recruitment Bias in Large Language Models	624
<i>Takashi Nakano (Nara Institute of Science and Technology, Japan), Kazumasa Shimari (Nara Institute of Science and Technology, Japan), Raula Gaikovina Kula (Osaka University, Japan), Christoph Treude (Singapore Management University, Singapore), Marc Cheong (The University of Melbourne, Australia), and Kenichi Matsumoto (Nara Institute of Science and Technology, Japan)</i>	
Monitoring Temporal Dynamics of Issues in Crowdsourced User Reviews and their Impact on Mobile App Updates	630
<i>Vitor Mesaque Alves de Lima (Federal University of Mato Grosso do Sul, Brazil), Jacson Rodrigues Barbosa (Federal University of Goiás, Brazil), and Ricardo Marcodes Marcacini (University of São Paulo, Brazil)</i>	
NeuroUI: A Metamorphic Testing Strategy to Make UI Component Detection Models Robust	636
<i>Proma Chowdhury (University of Dhaka, Bangladesh) and Kazi Sakib (University of Dhaka, Bangladesh)</i>	

An Empirical Study of the Impact of Test Strategies on Online Optimization for Ensemble-Learning Defect Prediction	642
<i>Kensei Hamamoto (Kindai University, Japan), Masateru Tsunoda (Kindai University, Japan), Amjed Tahir (Massey University, New Zealand), Kwabena Ebo Bennin (Wageningen University & Research, The Netherlands), Akito Monden (Okayama University, Japan), Koji Toda (Fukuoka Institute of Technology, Japan), Keitaro Nakasai (Osaka Metropolitan University College of Technology, Japan), and Kenichi Matsumoto (Nara Institute of Science and Technology, Japan)</i>	
Property-Based Testing within ML Projects: an Empirical Study	648
<i>Cindy Wauters (Vrije Universiteit Brussel, Belgium) and Coen De Roover (Vrije Universiteit Brussel, Belgium)</i>	
RevToken: A Token-Level Review Recommendation: How Far are We?	654
<i>Yasuhito Morikawa (Nara Institute of Science and Technology, Japan), Yutaro Kashiwa (Nara Institute of Science and Technology, Japan), Kenji Fujiwara (Nara Women's University, Japan), and Hajimu Iida (Nara Institute of Science and Technology, Japan)</i>	
Using Animations to Understand Commits	660
<i>Carmen Armenti (REVEAL @ Software Institute - Università della Svizzera italiana, Switzerland) and Michele Lanza (REVEAL @ Software Institute - Università della Svizzera italiana, Switzerland)</i>	
What You Need is What You Get: Theory of Mind for an LLM-Based Code Understanding Assistant	666
<i>Jonan Richards (Radboud University, The Netherlands) and Mairieli Wessel (Radboud University, The Netherlands)</i>	

Industry Track Papers

Remote Communication Trends Among Developers and Testers in Post-Pandemic Work Environments	672
<i>Felipe Jansen (Dell Technologies, Brazil) and Ronnie de Souza Santos (University of Calgary, Canada)</i>	
Ghost Echoes Revealed: Benchmarking Maintainability Metrics and Machine Learning Predictions Against Human Assessments	678
<i>Markus Borg (CodeScene, Sweden; Lund University, Sweden), Marwa Ezzouhri (University of Clermont Auvergne, France), and Adam Tornhill (CodeScene, Sweden)</i>	
Icing on the Cake: Automatic Code Summarization at Ericsson	689
<i>Giriprasad Sridhara (Ericsson, GAIA, India), Sujoy Roychowdhury (Ericsson, GAIA, India), Sumit Soman (Ericsson, GAIA, India), Ranjani H G (Ericsson, GAIA, India), and Ricardo Britto (Ericsson SA BOS & Blekinge Institute of Technology, Sweden)</i>	
Migrating Existing Container Workload to Kubernetes - LLM Based Approach and Evaluation	701
<i>Masaru Ueno (Fujitsu Limited, Japan) and Tetsuya Uchiumi (Fujitsu Limited, Japan)</i>	

Developing a Llama-Based Chatbot for CI/CD Question Answering: A Case Study at Ericsson	707
<i>Daksh Chaudhary (University of Ottawa, Canada), Sri Lakshmi Vadlamani (Ericsson), Dimple Thomas (Ericsson, Canada), Shiva Nejati (University of Ottawa, Canada), and Mehrdad Sabetzadeh (University of Ottawa, Canada)</i>	
Learning Strategies using Boolean Program Metrics to Verify Industrial Code	719
<i>Priyanka Darke (TCS Research, India), Bharti Chimdyalwar (TCS Research, India), Manoj Alladawar (TCS Research, India), Sahil Sulakhe (TCS Research, India), R Venkatesh (TCS Research, India), and Supratik Chakraborty (IIT Bombay, India)</i>	
If it's not SBOM, then what? How Italian Practitioners Manage the Software Supply Chain	730
<i>Sabato Nocera (University of Salerno, Italy), Massimiliano Di Penta (University of Sannio, Italy), Rita Francese (University of Salerno, Italy), Simone Romano (University of Salerno, Italy), and Giuseppe Scanniello (University of Salerno, Italy)</i>	
Just-in-Time Flaky Test Detection via Abstracted Failure Symptom Matching	741
<i>Gabin An (KAIST, South Korea), Juyeon Yoon (KAIST, South Korea), Thomas Bach (SAP, Germany), Jingun Hong (SAP Labs Korea, South Korea), and Shin Yoo (KAIST, South Korea)</i>	
Refactoring Legacy Code using Cleaning Up Cycles: An Experience Report	753
<i>Andrei V. Girjoaba (University of Groningen, The Netherlands) and Andrea Capiluppi (University of Groningen, The Netherlands)</i>	
Insights on Microservice Architecture Through the Eyes of Industry Practitioners	765
<i>Vinicius L. Nogueira (Maringa State University, Brazil), Wesley K. G. Assunção (North Carolina State University, USA), Thelma E. Colanzi (Maringa State University, Brazil), Fernando S. Felizardo (Maringa State University, Brazil), and Aline M. M. M. Amaral (Maringa State University, Brazil)</i>	
A Developer-Centric Study Exploring Mobile Application Security Practices and Challenges	778
<i>Anthony Peruma (University of Hawai'i, USA), Timothy Huo (University of Hawai'i, USA), Ana Araújo (University of Hawai'i, USA), Jake Imanaka (University of Hawai'i, USA), and Rick Kazman (University of Hawai'i, USA)</i>	
Take Loads Off Your Developers : Automated User Story Generation Using Large Language Model	791
<i>Tajmilur Rahman (University of Saskatchewan, Canada), Yuecai Zhu (Bell Mobility, Canada), Lamyaa Maha (University of Saskatchewan, Canada), Chanchal Roy (University of Saskatchewan, Canada), Banani Roy (University of Saskatchewan, Canada), and Kevin Schneider (University of Saskatchewan, Canada)</i>	
Integrating Lean Processes and Engineering Discipline into Work Culture Over 20 Years: An Experience Report	802
<i>Doug Durham (Don't Panic Labs, USA) and Bonita Sharif (University of Nebraska-Lincoln, USA)</i>	

BIPeC: A Combined Change-Point Analyzer to Identify Performance Regressions in Large-Scale Database Systems	808
<i>Zhan Lyu (SAP Labs China, China), Thomas Bach (SAP, Germany), Yong Li (SAP Labs China, China), Nguyen Minh Le (SAP Labs China, China), and Lars Hoemke (SAP, Germany)</i>	
Effective Unit Test Generation for Android Apps	820
<i>Guojun Ma (Douyin Co., Ltd., China), Yu Pei (The Hong Kong Polytechnic University, China), Liushan Chen (Douyin Co., Ltd., China), Chenqing Gan (Douyin Co., Ltd., China), Hao Zhang (Nanjing University, China), Hao Liang (Douyin Co., Ltd., China), and Tian Zhang (Nanjing University, China)</i>	

Doctoral Symposium Papers

Assessing Software Developer Productivity and Emotional State Using Biometrics	833
<i>Kang-il Park (University of Nebraska-Lincoln, USA)</i>	
Fostering Microservice Maintainability Assurance through a Comprehensive Framework	838
<i>Amr S. Abdelfattah (Baylor University, USA)</i>	
Optimizing Self-Adaptation in Service-Based Systems: Leveraging Ensemble Prediction with DNN-ILSTM Models	843
<i>Shenglong Xie (Xidian University, China; Yan'an University, China)</i>	
Smart Software Bug Management Using Issue Commit Analysis	848
<i>Abhishek Kumar (Indian Institute of Technology, India)</i>	

Tool Demo Papers

GitTruck@Duck - Interactive Time Range Selection in Hierarchy-Oriented Polymetric Visualization of Git Repository Evolution	853
<i>Adrian Hoff (IT University of Copenhagen, Denmark), Thomas Hoffmann Kilbak (IT University of Copenhagen, Denmark), Leonel Merino (Pontificia Universidad Católica de Chile, Chile), and Mircea Lungu (IT University of Copenhagen, Denmark)</i>	
iRisk: A Scalable Microservice for Classifying Issue Risks Based on Crowdsourced App Reviews	858
<i>Vitor Mesaque Alves de Lima (Federal University of Mato Grosso do Sul, Brazil), Jacson Rodrigues Barbosa (Federal University of Goiás, Brazil), and Ricardo Marcodes Marcacini (University of São Paulo, Brazil)</i>	
jscefr: A Tool to Evaluate the Code Proficiency for JavaScript	863
<i>Chaiyong Ragkhitwetsagul (Mahidol University, Thailand), Komsan Kongwongsupak (Mahidol University, Thailand), Thanakrit Maneesawas (Mahidol University, Thailand), Natpichsinee Puttiwarodom (Mahidol University, Thailand), Ruksit Rojpaisarnkit (Nara Institute of Science and Technology, Japan), Morakot Choetkiertikul (Mahidol University, Thailand), Raula Gaikovina Kula (Osaka University, Japan), and Thanwadee Sunetnanta (Mahidol University, Thailand)</i>	

MetaSim: A Search Engine for Finding Similar GitHub Repositories	868
<i>Md Rayhanul Masud (University of California, Riverside, USA), Md Omar Faruk Rokon (University of California, Riverside, USA), Qian Zhang (University of California, Riverside, USA), and Michalis Faloutsos (University of California, Riverside, USA)</i>	
PseudoSweep: A Pseudo-Tested Code Identifier	873
<i>Megan Maton (University of Sheffield, UK), Gregory Kapfhammer (Allegheny College, USA), and Phil McMinn (University of Sheffield, UK)</i>	
Review-Pulse: A Dashboard for Managing User Feedback for Android Applications	878
<i>Omar Abdelaziz (University of Saskatchewan, Canada), Zadia Codabux (University of Saskatchewan, Canada), and Kevin Schneider (University of Saskatchewan, Canada)</i>	
ROOT: Requirements Organization and Optimization Tool	883
<i>Katherine R. Dearstyne (University of Notre Dame, USA), Alberto D. Rodriguez (University of Notre Dame, USA), and Jane Cleland-Huang (University of Notre Dame, USA)</i>	
SEART Data Hub: Streamlining Large-Scale Source Code Mining and Pre-Processing	888
<i>Ozren Dabic (SEART @ Software Institute - Università della Svizzera italiana, Switzerland), Rosalia Tufano (SEART @ Software Institute - Università della Svizzera italiana, Switzerland), and Gabriele Bavota (SEART @ Software Institute - Università della Svizzera italiana, Switzerland)</i>	
StackRAG Agent: Improving Developer Answers with Retrieval-Augmented Generation	893
<i>Davit Abrahamyan (University of British Columbia, Canada) and Fatemeh Fard (University of British Columbia, Canada)</i>	
Stereocode: A Tool for Automatic Identification of Method and Class Stereotypes for Software Systems	898
<i>Ali F. Al-Ramadan (Kent State University, USA), Joshua A. C. Behler (Kent State University, USA), Michael J. Decker (Bowling Green State University, USA), Natalia Dragan (Kent State University, USA), Michael L. Collard (The University of Akron, USA), and Jonathan I. Maletic (Kent State University, USA)</i>	
TRec: A Regression Test Recommender for Java Projects	903
<i>Sai Kiran Bhrugumalla (North Dakota State University, USA) and Ajay Kumar Jha (North Dakota State University, USA)</i>	
Viscount: A Direct Method Call Coverage Tool for Java	908
<i>Muhammad Firhard Roslan (University of Sheffield, UK), José Miguel Rojas (University of Sheffield, UK), and Phil McMinn (University of Sheffield, UK)</i>	

Author Index