## 2022 IEEE 22nd International **Working Conference on Source Code Analysis and Manipulation** (SCAM 2022)

Limassol, Cyprus **3 October 2022** 



**IEEE Catalog Number: CFP22SRC-POD ISBN**:

978-1-6654-9610-0

### Copyright © 2022 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:
 CFP22SRC-POD

 ISBN (Print-On-Demand):
 978-1-6654-9610-0

 ISBN (Online):
 978-1-6654-9609-4

ISSN: 1942-5430

#### 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



# 2022 IEEE 22<sup>nd</sup> International Working Conference on Source Code Analysis and Manipulation (SCAM) **SCAM 2022**

#### **Table of Contents**

Message from the General Chair and Program Co-Chairs	ix
Dynamic Analysis	
Pruning Boolean Expressions to Shorten Dynamic Slices	1
Benchmark Fuzzing for Android Taint Analyses	12
Plug and Analyze: Usable Dynamic Taint Tracker for Android Apps	24
Test Transplantation Through Dynamic Test Slicing	35
Assessing the Impact of Execution Environment on Observation-Based Slicing	40
Smell and Refactoring 1	
Semi-Automatic Refactoring to C++20 Modules: A Semi-Success Story	45
Revisiting the Impact of Anti-Patterns on Fault-Proneness: A Differentiated Replication  Aurel Ikama (DGIGL), Vincent Du (DGIGL), Philippe Belias (DGIGL),  Biruk Asmare Muse (DGIGL), Foutse Khomh (DGIGL), and Mohammad Hamdaqa  (SAET, Polytechnique Montréal)	56

A Preliminary Evaluation on the Relationship Among Architectural and Test Smells
Smell and Refactoring 2
An Empirical Study of Code Smells in Transformer-Based Code Generation Techniques
N-Lane Bridge Performance Antipattern Analysis Using System-Level Execution Tracing
Checking Refactoring Detection Results Using Code Changes Encoding for Improved Accuracy 94 Liang Tan (Philipps-University Marburg, Germany) and Christoph Bockisch (Philipps-University Marburg, Germany)
Removing Dependencies from Large Software Projects: are you Really Sure?
Deep Multimodal Architecture for Detection of Long Parameter List and Switch Statements  Using DistilBERT
Program Comprehension
Mining for Framework Instantiation Pattern Interplays
Multi-Modal Code Summarization with Retrieved Summary

CodeCV: Mining Expertise of GitHub Users from Coding Activities
Towards the Detection of Hidden Familial Type Correlations in Java Code
Studies on Programming Languages
The Devil is in the Details: Unwrapping the Cryptojacking Malware Ecosystem on Android
Don't DIY: Automatically Transform Legacy Python Code to Support Structural Pattern
Matching
Building LLVM and GCC, with Amake
On the Usage of Programming Languages in the iOS Ecosystem
Deriving Modernity Signatures for PHP Systems with Static Analysis
Static Analysis
Summary-Based Compositional Analysis for Soft Contract Verification
Classification and Ranking of Delta Static Analysis Alarms
Lint-Based Warnings in Python Code: Frequency, Awareness and Refactoring

An Empirical Assessment on Merging and Repositioning of Static Analysis Alarms	219
To what Extent can we Analyze Kotlin Programs Using Existing Java Taint Analysis Tools? Ranjith Krishnamurthy (Fraunhofer IEM), Goran Piskachev (Fraunhofer IEM), and Eric Bodden (Paderborn University & Fraunhofer IEM)	230
JFeature: Know Your Corpus  Idriss Riouak (Lund University), Görel Hedin (Lund University), Christoph Reichenbach (Lund University), and Niklas Fors (Lund University)	236
An End-to-End Framework for Repairing Potentially Vulnerable Source Code	242
First Steps Towards a Methodology for Unified Graph's Discrepancy Analysis	248
Quality Assurance	
Improving Weighted-SBFL by Blocking Spectrum Haruka Yoshioka (Osaka University, Japan), Yoshiki Higo (Osaka University, Japan), and Shinji Kusumoto (Osaka University, Japan)	253
Flaky Test Sanitisation via On-the-Fly Assumption Inference for Tests with Network	
Dependencies	264
Experimental Evaluation of A New Ranking Formula for Spectrum Based Fault Localization  Qusay Idrees Sarhan (University of Szeged, Hungary; University of  Duhok, Iraq) and Árpád Beszédes (University of Szeged, Hungary)	276
Author Index	281