

1. Record Nr.	UNISA996490366803316
Titolo	Quality of information and communications technology : 15th International Conference, QUATIC 2022, Talavera de la Rina, Spain, September 12-14, 2022, proceedings / / Antonio Vallecillo, Joost Visser, Ricardo Perez-Castillo (editors)
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2022] ©2022
ISBN	3-031-14179-2
Descrizione fisica	1 online resource (332 pages)
Collana	Communications in computer and information science ; ; 1621
Disciplina	004
Soggetti	Information technology Telecommunication
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Intro -- Preface -- Organization -- Contents -- Smart and Advanced Systems -- Quality Characteristics of a Software Platform for Human-AI Teaming in Smart Manufacturing -- 1 Introduction -- 2 Research Context -- 2.1 UC1: Quality Inspection -- 2.2 UC2: Parameter Optimization -- 2.3 UC3: Large-Scale Parts Assembly -- 2.4 Stakeholder Roles -- 3 Related Work -- 4 Research Questions and Methodology -- 5 Results -- 5.1 RQ1 -- 5.2 RQ2 and RQ3 -- 6 Discussion -- 7 Threats to Validity -- 8 Conclusion and Future Work -- References -- Architectural Decisions in AI-Based Systems: An Ontological View -- 1 Introduction -- 2 Background -- 2.1 Architecting AI-Based Systems -- 2.2 Architectural Decisions -- 3 Research Questions and Method -- 4 An Ontology for AI-Based Systems Architectural Decision-Making -- 5 Discussion and Research Agenda -- 6 Conclusions -- References -- Verification and Validation -- An Empirical Study to Quantify the SetUp and Maintenance Benefits of Adopting WebDriverManager -- 1 Introduction -- 2 WebDriverManager -- 2.1 Selenium WebDriver -- 2.2 Driver Management -- 2.3 Automated Driver Management -- 3 Experiment Definition, Design and Settings -- 4 Results -- 4.1 Post-Experiment Questionnaire -- 4.2 Threats to Validity -- 5 Related Work -- 6

Conclusions and Future Work -- References -- Assessing Black-box Test Case Generation Techniques for Microservices -- 1 Introduction -- 2 Related Work -- 3 The uTest combinatorial testing strategy -- 3.1 Background -- 3.2 Combinatorial Test Case Generation Strategy -- 3.3 The uTest tool -- 4 Experimental Comparison -- 4.1 Subjects -- 4.2 Experiments -- 4.3 Metrics -- 5 Results -- 5.1 Scenario 1: Tests with Valid Input -- 5.2 Scenario 2: Tests with Valid and Invalid Input -- 6 Threats to Validity -- 7 Conclusions -- References -- ReSuMo: Regression Mutation Testing for Solidity Smart Contracts.

1 Introduction -- 2 Background -- 3 The ReSuMo Approach -- 3.1 Granularity of Computation -- 3.2 Computing File Changes -- 3.3 Computing File Dependencies -- 3.4 Identifying Contracts to Be Mutated -- 3.5 Identifying Regression Tests -- 3.6 Mutation Score Calculation -- 4 The ReSuMo Tool -- 4.1 Design -- 4.2 Workflow -- 5 Validation -- 5.1 Experiment Set-up -- 5.2 Results -- 6 Related Work -- 7 Conclusions and Future Work -- References -- Is NLP-based Test Automation Cheaper Than Programmable and Capture& Replay? -- 1 Introduction -- 2 Related Work -- 3 Background -- 4 Case Study Design -- 4.1 Study Design -- 4.2 Software Objects -- 4.3 Research Questions and Metrics -- 4.4 Procedure -- 4.5 Threats to Validity -- 5 Analysis of Results -- 5.1 RQ1: Developing Time -- 5.2 RQ2: Reuse -- 5.3 RQ3: Evolution Time -- 5.4 RQ4: Cumulative Effort -- 6 Conclusions -- References -- Effective Spectrum Based Fault Localization Using Contextual Based Importance Weight -- 1 Introduction -- 2 Background of SBFL -- 2.1 SBFL Process -- 2.2 Code Example -- 2.3 Program Spectra and Basic Statistics -- 2.4 SBFL Formulas -- 2.5 Suspiciousness Scores -- 2.6 Suspiciousness Ranking -- 3 Related Works -- 4 The Proposed SBFL Enhancing Approach -- 4.1 The Frequency-Based Ef () -- 4.2 The Proposed Approach -- 5 Evaluation -- 5.1 Subject Programs -- 5.2 Granularity of Data Collection -- 5.3 Evaluation Baselines -- 6 Experimental Results and Discussion -- 6.1 Achieved Improvements in the Average Ranks -- 6.2 Achieved Improvements in the Top-N Categories -- 7 Threats to Validity -- 8 Conclusions -- References -- Comparing the Effectiveness of Assertions with Differential Testing in the Context of Web Testing -- 1 Introduction -- 2 Differential Testing vs Assertions -- 3 Testing Tools and Framework Considered -- 3.1 Selenium WebDriver -- 3.2 Differential Testing with Recheck.

4 Empirical Evaluation -- 4.1 Research Questions -- 4.2 Experimental Procedure -- 4.3 Additional Details on the Mutations Analysis (RQ2) -- 5 Results -- 5.1 RQ1 Development Time -- 5.2 RQ2 Effectiveness in Detecting Bugs -- 5.3 RQ3 Execution Time -- 5.4 Discussion -- 5.5 Threats to Validity -- 6 Conclusions and Future Work -- References -- Skills and Education -- Roadblocks to Attracting Students to Software Testing Careers: Comparisons of Replicated Studies -- 1 Introduction -- 2 Background -- 2.1 Software Testing in Academic Curricula -- 2.2 Replications of Empirical Studies in Software Engineering -- 2.3 Original Study and First Replication -- 3 Method -- 3.1 Data Collection -- 3.2 Data Analysis -- 4 Findings -- 4.1 After you Graduate, Would you Consider a Career in Software Testing? -- 4.2 What are the Advantages and Drawbacks of Taking up a Career in Software Testing? -- 5 Conclusions -- References -- Analyzing Quality Issues from Software Testing Glossaries Used in Academia and Industry -- 1 Introduction -- 2 Terminological Categories for Testing and Study Scope -- 2.1 Terminological Categories and Numbers -- 2.2 Scope of the Quality Exploratory Study -- 3 Analyzing Quality Issues Between Glossaries -- 3.1 Procedure to Get Syntactically Matching Terms Between Glossaries -- 3.2 Analysis of Syntactic and Semantic

Consistency -- 3.3 Other Quality Issues -- 4 Related Work and Discussion -- 5 Conclusions and Future Work -- References -- Can Source Code Analysis Indicate Programming Skills? A Survey with Developers -- 1 Introduction -- 2 Identifying Programming Skills -- 3 Study Settings -- 3.1 Goal and Research Questions -- 3.2 Evaluation Steps -- 3.3 Dataset -- 3.4 Survey Design -- 3.5 Data Analysis -- 4 Results -- 4.1 Overview -- 4.2 Programming Language Skill -- 4.3 Back-end & Front-end Profiles -- 4.4 Test Development.

4.5 Feedback from Developers -- 5 Discussion -- 5.1 Accuracy of the Evaluated Heuristics -- 6 Threats to Validity -- 7 Related Work -- 8 Conclusion and Future Work -- References -- Industrial Experiences and Applications -- Improving the Quality of ICT and Forestry Service Processes with Digital Service Management Approach: A Case Study on Forestry Liquids -- 1 Introduction -- 2 Research Methods -- 2.1 Target Organization -- 2.2 Data Collection Methods -- 2.3 Data Analysis Methods -- 3 Results -- 3.1 Diagnose Problem -- 3.2 Action Planning -- 3.3 Action Taking -- 3.4 Evaluating Action -- 4 Analysis -- 5 Conclusions -- References -- Towards a Process Reference Model for Clinical Coding -- 1 Introduction -- 2 State of the Art and Related Works -- 2.1 Existing Works on Clinical Coding -- 2.2 Alarcos' Model for Data Improvement (MAMDv3.0) -- 3 Research Method -- 4 The CODE.CLINIC Process Reference Model -- 4.1 The Strategic Process Group -- 4.2 The Main Process Group -- 4.3 The Support Process Group -- 4.4 The Other Process Group -- 4.5 Customization of the Framework for a Specific Context -- 5 Discussion, Conclusions and Future Work -- References -- Digital Twin for IoT Environments: A Testing and Simulation Tool -- 1 Introduction -- 2 Related Work -- 3 A Test and Simulation (TaS) Tool Based on Digital Twin for IoT Environment -- 3.1 The Approach and Architecture of the Tool -- 3.2 Tool Implementation -- 4 Experimentation and Validation -- 4.1 Application of TaS to ITS Use Case -- 4.2 Results -- 5 Discussion -- 6 Conclusion and Future Work -- References -- Safety, Security and Privacy -- Simpler Is Better: On the Use of Autoencoders for Intrusion Detection -- 1 Introduction -- 2 Related Work -- 3 Background and Datasets -- 3.1 Autoencoders (AE) -- 3.2 AE for Classification and Evaluation Metrics -- 3.3 Reference Dataset: CICIDS2017.

4 Proposed IDS Approach with a Single AE -- 4.1 AE Dimensions and Depth -- 4.2 Training and Validation -- 4.3 Results -- 5 Feature Selection -- 5.1 Results -- 6 Lessons Learned and Conclusion -- References -- A Proposal for FPGA-Accelerated Deep Learning Ensembles in MPSoC Platforms Applied to Malware Detection -- 1 Introduction -- 2 Preliminaries and Related Works -- 2.1 Ensemble Learning -- 2.2 Deep Learning Hardware Solutions -- 3 A Proposal for an FPGA-Based MPSoC EL Platform -- 3.1 System Architecture -- 3.2 Preliminary Security Analysis -- 4 Conclusion -- References -- Automated Threat Modeling Approaches: Comparison of Open Source Tools -- 1 Introduction -- 2 Threat Modeling Practices -- 3 Threat Modeling Tools -- 3.1 Microsoft Threat Modeling Tool -- 3.2 OWASP Threat Dragon -- 3.3 SLAGenerator -- 4 Tool Comparison -- 4.1 The WordPress Case Study -- 4.2 Microsoft Tool Analysis -- 4.3 Dragon Analysis -- 4.4 SLAgenerator Analysis -- 4.5 Comparison -- 5 Conclusion -- References -- Understanding Black-Box Attacks Against Object Detectors from a User's Perspective -- 1 Introduction -- 2 Background -- 2.1 Object Detection and Image Classification -- 2.2 Threat Models -- 3 Related Work -- 4 Research Design and Implementation -- 5 Research Results -- 5.1 RQ1-Attacker's Knowledge -- 5.2 RQ2-Attack Generalizability -- 5.3 RQ3-Attack

Consequences -- 5.4 RQ4-Mitigation Strategies -- 6 Discussion -- 7
Conclusion and Future Work -- References -- Alice in (Software Supply)
Chains: Risk Identification and Evaluation -- 1 Introduction -- 2
Software Supply Chain -- 2.1 Software Supply Chain Vulnerabilities and
Attacks -- 3 Sunset -- 3.1 Property Analysis -- 3.2 Model Composition
-- 3.3 Risk Identification -- 4 Related Work -- 5 Conclusion and Future
Work -- References.
Evaluating Tangle Distributed Ledger for Access Control Policy
Distribution in Multi-region Cloud Environments.
