

2018 ACM/IEEE International Conference on Technical Debt TechDebt 2018

Table of Contents

Message from ICSE 2018 General Chair	viii
Message from TechDebt 2018 Chairs	xi
Organizing Committee	xii
Program Committee	xiii
ICSE 2018 Sponsors and Supporters	xv

TechDebt 2018 - Incurring Debt

An Exploratory Study on the Influence of Developers in Technical Debt	1
<i>Reem Alfayez (University of Southern California), Pooyan Behnamghader (University of Southern California), Kamonphop Srisopha (University of Southern California), and Barry Boehm (University of Southern California)</i>	
Architectural Technical Debt Identification: The Research Landscape	11
<i>Roberto Verdecchia (Gran Sasso Science Institute), Ivano Malavolta (Vrije Universiteit Amsterdam), and Patricia Lago (Vrije Universiteit Amsterdam)</i>	

TechDebt 2018 - Assessing Debt

Technical Debt as an External Software Attribute	21
<i>Luigi Lavazza (Università degli Studi dell'Insubria), Sandro Morasca (Università degli Studi dell'Insubria), and Davide Tosi (Università degli Studi dell'Insubria)</i>	
Prioritizing Technical Debt in Database Normalization Using Portfolio Theory and Data Quality Metrics	31
<i>Mashel Albarak (University of Birmingham; King Saud University) and Rami Bahsoon (University of Birmingham)</i>	
Evaluating Domain-Specific Metric Thresholds: An Empirical Study	41
<i>Allan Mori (UFMG), Gustavo Vale (University of Passau), Markos Viggiano (UFMG), Johnatan Oliveira (PUC-Minas), Eduardo Figueiredo (UFMG), Elder Cirilo (UFSJ), Pooyan Jamshidi (CMU), and Christian Kastner (CMU)</i>	

TechDebt 2018 - Tools Track

Introducing Debtgrep: A Tool for Fighting Technical Debt in Base Station Software	51
<i>Svante Arvedahl (Ericsson AB)</i>	
Static Software Metrics for Reliability and Maintainability	53
<i>Jeremy Ludwig (Stottler Henke Associates), Steven Xu (Stottler Henke Associates), and Frederick Webber (Air Force Research Laboratory)</i>	
AnaConDebt: A Tool to Assess and Track Technical Debt	55
<i>Antonio Martini (University of Oslo)</i>	
Cognitive Complexity — An Overview and Evaluation	57
<i>G. Ann Campbell (SonarSource SA)</i>	
Prioritize Technical Debt in Large-Scale Systems Using CodeScene	59
<i>Adam Tornhill (Empear)</i>	

TechDebt 2018 - Managing the Debt I (Short Papers)

The Past, Present and Future of Technical Debt: Learning from the Past to Prepare for the Future	61
<i>Eoin Woods (Endava)</i>	
The Developer's Dilemma: Factors Affecting the Decision to Repay Code Debt	62
<i>Theodoros Amanatidis (University of Macedonia), Nikolaos Mittas (Aristotle University of Thessaloniki), Alexander Chatzigeorgiou (University of Macedonia), Apostolos Ampatzoglou (University of Macedonia), and Lefteris Angelis (Aristotle University of Thessaloniki)</i>	
From Lasagna to Spaghetti: A Decision Model to Manage Defect Debt	67
<i>Abdullah Aldaej (University of Maryland Baltimore County) and Carolyn Seaman (University of Maryland Baltimore County)</i>	
A Proposed Sizing Model for Managing 3rd Party Code Technical Debt	72
<i>Will Snipes (ABB Corporate Research) and Srinu Ramaswamy (ABB Inc.)</i>	

TechDebt 2018 - Managing the Debt II

Governing Technology Debt: Beyond Technical Debt	76
<i>Johan Magnusson (University of Gothenburg; Westerdal Oslo School of Art), Carlos Juiz (University of the Balearic Islands), Beatriz Gomez (University of the Balearic Islands), and Belén Bermejo (University of the Balearic Islands)</i>	
Trade-Off Decisions across Time in Technical Debt Management: A Systematic Literature Review	85
<i>Christoph Becker (University of Toronto), Ruzanna Chitchyan (University of Bristol), Stefanie Betz (Karlsruhe Institute of Technology), and Curtis McCord (University of Toronto)</i>	
Design Debt Prioritization: A Design Best Practice-Based Approach	95
<i>Reinhold Plösch (Johannes Kepler University), Johannes Bräuer (Johannes Kepler University), Matthias Saft (Corporate Technology Siemens AG), and Christian Körner (Corporate Technology Siemens AG)</i>	

TechDebt 2018 - Practice in Industry

Technical Debt Cripples Software Developer Productivity: A Longitudinal Study on Developers' Daily Software Development Work	105
<i>Terese Besker (Chalmers University of Technology), Antonio Martini (CA Technologies; University of Oslo), and Jan Bosch (Chalmers University of Technology)</i>	
A Framework for Managing Interest in Technical Debt: An Industrial Validation	115
<i>Areti Ampatzoglou (University of Groningen), Alexandros Michailidis (International Hellenic University), Christos Sarikyriakidis (University of Western Macedonia), Apostolos Ampatzoglou (University of Macedonia), Alexander Chatzigeorgiou (University of Macedonia), and Paris Avgeriou (University of Groningen)</i>	
Limiting Technical Debt with Maintainability Assurance – An Industry Survey on Used Techniques and Differences with Service- and Microservice-Based Systems	125
<i>Justus Bogner (University of Applied Sciences Reutlingen), Jonas Fritzsch (University of Stuttgart), Stefan Wagner (University of Stuttgart), and Alfred Zimmermann (University of Applied Sciences Reutlingen)</i>	

TechDebt 2018 - Future Research (Short Papers)

Technical Debt-Related Information Asymmetry between Finance and IT	134
<i>Thomas Stablein (University of South Florida), Donald Berndt (University of South Florida), and Matthew Mullarkey (University of South Florida)</i>	
A Position Study to Investigate Technical Debt Associated with Security Weaknesses	138
<i>Clemente Izurieta (Montana State University), Kali Kimball (Georgia College & State University), David Rice (Montana State University), and Tessa Valentien (Georgia Institute of Technology)</i>	
Author Index	143