

2023 IEEE/ACM 45th International Conference on Software Engineering: Software Engineering Education and Training (ICSE-SEET 2023)

**Melbourne, Australia
17-19 May 2023**



**IEEE Catalog Number: CFP23L69-POD
ISBN: 979-8-3503-2260-6**

**Copyright © 2023 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:	CFP23L69-POD
ISBN (Print-On-Demand):	979-8-3503-2260-6
ISBN (Online):	979-8-3503-2259-0
ISSN:	2832-756X

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

2023 IEEE/ACM 45th International Conference on Software Engineering: Software Engineering Education and Training (ICSE- SEET) **ICSE-SEET 2023**

Table of Contents

ICSE-SEET 2023 Committees	ix
---------------------------------	----

SEET - Software Engineering Education and Training

Cognitive Reflection in Software Verification and Testing	1
<i>Kevin Buffardi (California State University, USA)</i>	
Designing for Real People: Teaching Agility Through User-Centric Service Design	11
<i>Robert Chatley (Imperial College London, United Kingdom), Tony Field (Imperial College London, United Kingdom), Mark Wheelhouse (Imperial College London, United Kingdom), Carolyn Runcie (Royal College of Art, United Kingdom), Clive Grinyer (Royal College of Art, United Kingdom), and Nick de Leon (Royal College of Art, United Kingdom)</i>	
Open Design Case Study - A Crowdsourcing Effort to Curate Software Design Case Studies	23
<i>Chun Yong Chong (Monash University Malaysia, Malaysia), Eunsuk Kang (Carnegie Mellon University, USA), and Mary Shaw (Carnegie Mellon University, USA)</i>	
Do the Test Smells Assertion Roulette and Eager Test Impact Students' Troubleshooting and Debugging Capabilities?	29
<i>Wajdi Aljedaani (University of North Texas), Mohamed Wiem Mkaouer (Rochester Institute of Technology), Anthony Peruma (University of Hawaii at Manoa), and Stephanie Ludi (University of North Texas)</i>	
Training for Security: Planning the Use of a SAT in the Development Pipeline of Web Apps	40
<i>Sabato Nocera (University of Salerno, Italy), Simone Romano (University of Salerno, Italy), Rita Francese (University of Salerno, Italy), and Giuseppe Scanniello (University of Salerno, Italy)</i>	
Are you Cloud-Certified? Preparing Computing Undergraduates for Cloud Certification with Experiential Learning	46
<i>Eng Lieh Ouh (Singapore Management University, Singapore) and Benjamin Kok Siew Gan (Singapore Management University, Singapore)</i>	

Improving Assessment of Programming Pattern Knowledge Through Code Editing and Revision ...	58
<i>Sara Nurollahian (University of Utah, USA), Anna N. Rafferty (Carleton College, USA), and Eliane Wiese (University of Utah, USA)</i>	
Speak, Memory! Analyzing Historical Accidents to Sensitize Software Testing Novices	70
<i>Natalia Silvis-Cividjian (Vrije Universiteit Amsterdam, The Netherlands) and Fritz Hager (ABR Certified Radiological Physicist Retired)</i>	
Software Startup within a University - Producing Industry-Ready Graduates	82
<i>Saara Tenhunen (University of Helsinki), Tomi Männistö (University of Helsinki), Petri Ihantola (University of Helsinki), Jami Kousa (University of Helsinki), and Matti Luukkainen (University of Helsinki)</i>	
Teaching MLOps in Higher Education Through Project-Based Learning	95
<i>Filippo Lanubile (University of Bari, Italy), Silverio Martínez-Fernández (Universitat Politècnica de Catalunya, Spain), and Luigi Quaranta (University of Bari, Italy)</i>	
Software Resurrection: Discovering Programming Pearls by Showing Modernity to Historical Software	101
<i>Abhishek Dutta (University of Oxford)</i>	
Teaching Computer Science Students to Communicate Scientific Findings More Effectively	107
<i>Marvin Wyrich (University of Stuttgart, Germany) and Stefan Wagner (University of Stuttgart, Germany)</i>	
The ABC of Pair Programming: Gender-Dependent Attitude, Behavior and Code of Young Learners	115
<i>Isabella Graßl (University of Passau, Germany) and Gordon Fraser (University of Passau, Germany)</i>	
Engaging Girls in Computer Science: Do Single-Gender Interdisciplinary Classes Help?	128
<i>Kai Marquardt (Karlsruhe Institute of Technology, Germany), Ingo Wagner (Karlsruhe Institute of Technology, Germany), and Lucia Happe (Karlsruhe Institute of Technology, Germany)</i>	
BARA: A Dynamic State-Based Serious Game for Teaching Requirements Elicitation	141
<i>Yu Liu (Beijing University of Technology, China), Tong Li (Beijing University of Technology, China), Zheqing Huang (Beijing University of Technology, China), and Zhen Yang (Beijing University of Technology, China)</i>	
A Theorem Proving Approach to Programming Language Semantics	153
<i>Subhajit Roy (Indian Institute of Technology Kanpur, India)</i>	
Overcoming Challenges in DevOps Education Through Teaching Methods	166
<i>Samuel Ferino (Federal University of Rio Grande do Norte, Brazil), Marcelo Fernandes (Federal University of Rio Grande do Norte, Brazil; Federal Institute of Rio Grande do Norte, Brazil), Elder Cirilo (Federal University of São João del Rei, Brazil), Lucas Agnez (Federal University of Rio Grande do Norte, Brazil), Bruno Batista (Federal University of Rio Grande do Norte, Brazil), Uirá Kulesza (Federal University of Rio Grande do Norte, Brazil), Eduardo Aranha (Federal University of Rio Grande do Norte, Brazil), and Christoph Treude (University of Melbourne, Australia)</i>	

On the use of Static Analysis to Engage Students with Software Quality Improvement: An Experience with PMD	179
<i>Eman Abdullah AlOmar (Stevens Institute of Technology, USA), Salma Abdullah AlOmar (n/a), and Mohamed Wiem Mkaouer (Rochester Institute of Technology, USA)</i>	
GradeStyle: GitHub-Integrated and Automated Assessment of Java Code Style	192
<i>Callum Iddon (University of Auckland, New Zealand), Nasser Giacaman (University of Auckland, New Zealand), and Valerio Terragni (University of Auckland, New Zealand)</i>	
Persona-Based Assessment of Software Engineering Student Research Projects: An Experience Report	198
<i>Chetan Arora (Deakin University, Australia; Monash University, Australia), Laura Tubino (Deakin University, Australia), Andrew Cain (Deakin University, Australia), Kevin Lee (Deakin University, Australia), and Vasudha Malhotra (Deakin University, Australia)</i>	
Exposing Software Engineering Students to Stressful Projects: Does Diversity Matter?	210
<i>Isabella Graßl (University of Passau, Germany), Gordon Fraser (University of Passau, Germany), Stefan Trieflinger (Reutlingen University, Germany), and Marco Kuhrmann (Reutlingen University, Germany)</i>	
Software is the Easy Part of Software Engineering - Lessons and Experiences from A Large-Scale, Multi-Team Capstone Course	223
<i>Ze Shi Li (University of Victoria, Canada), Nowshin Nawar Arony (University of Victoria, Canada), Kezia Devathasan (University of Victoria, Canada), and Daniela Damian (University of Victoria, Canada)</i>	
Attribution-Based Personas in Virtual Software Engineering Education	235
<i>Klaudia Madhi (Technical University of Munich, Germany), Lara Marie Reimer (Technical University of Munich, Germany; University Hospital Bonn, Germany), and Stephan Jonas (University Hospital Bonn, Germany)</i>	
Leveraging Diversity in Software Engineering Education Through Community Engaged Learning and a Supportive Network	247
<i>Nowshin Nawar Arony (University of Victoria, Canada), Kezia Devathasan (University of Victoria, Canada), Ze Shi Li (University of Victoria, Canada), and Daniela Damian (University of Victoria, Canada)</i>	
Improving Grading Outcomes in Software Engineering Projects Through Automated Contributions Summaries	259
<i>Kai Presler-Marshall (Bowdoin College, USA), Sarah Heckman (North Carolina State University, USA), and Kathryn T. Stolee (North Carolina State University, USA)</i>	
Analyzing the Quality of Submissions in Online Programming Courses	271
<i>Maria Tigina (JetBrains Research, Republic of Serbia), Anastasiia Birillo (JetBrains Research, Republic of Serbia), Yaroslav Golubev (JetBrains Research, Republic of Serbia), Hieke Keuning (Utrecht University, The Netherlands), Nikolay Vyahhi (Stepik, United States), and Timofey Bryksin (JetBrains Research, Republic of Cyprus)</i>	
A Metric for Measuring Software Engineering Post-Graduate Outcomes	283
<i>Travis D. Breaux (Carnegie Mellon University, USA) and Jennifer Moritz (Carnegie Mellon University, USA)</i>	

Using Focus to Personalise Learning and Feedback in Software Engineering Education	296
<i>Bansri Amish Modi (Deakin University, Australia), Andrew Cain (Deakin University, Australia), Guy Wood-Bradley (Deakin University, Australia), and Jake Renzella (University of New South Wales, Australia)</i>	
Shaping a Tool for Developing Computing Students Professional Identity - Industry Perspectives	302
<i>Laura Tubino (Deakin University, Australia), Kerri Morgan (Deakin University, Australia), Guy Wood-Bradley (Deakin University, Australia), and Andrew Cain (Deakin University, Australia)</i>	
REFERENT: Transformer-Based Feedback Generation Using Assignment Information for Programming Course	308
<i>Jinseok Heo (Sungkyunkwan University, Korea), Hohyeon Jeong (Sungkyunkwan University, Korea), Dongwook Choi (Sungkyunkwan University, Korea), and Eunseok Lee (Sungkyunkwan University, Korea)</i>	
Factors Affecting Compilable State at Each Keystroke in CS1	314
<i>Steven Scott (Utah State University, USA), Arto Hellas (Aalto University, Finland), Juho Leinonen (Aalto University, Finland), and John Edwards (Utah State University, USA)</i>	
Open Source Software Onboarding as a University Course: An Experience Report	324
<i>Hao He (Peking University, China), Minghui Zhou (Peking University, China), Qingye Wang (Peking University, China), and Jingyue Li (Norwegian University of Science and Technology, Norway)</i>	
Author Index	337