2021 International Conference on Embedded Software (EMSOFT 2021)

Virtual Conference
8 – 15 October 2021

IEEE Catalog Number: CFP21MSO-POD
ISBN: 978-1-6654-1725-9

Copyright © 2021, Association for Computing Machinery
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: CFP21MSO-POD
ISBN (Print-On-Demand): 978-1-6654-1725-9
ISBN (Online): 978-1-4503-8712-5

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

2021 International Conference on Embedded Software (EMSOFT)

EMSOFT 2021

Table of Contents

Message from the Program Chairs vii
Committees viii
Secondary Reviewers xi

Special Session

Towards Scalable, Secure, and Smart Mission-Critical IoT Systems: Review and Vision 1
Xiaolong Guo (Kansas State University), Song Han (University of Connecticut), X. Sharon Hu (University of Notre Dame), Xun Jiao (Villanova University), Yier Jin (University of Florida), Fanxin Kong (Syracuse University), and Michael Lemmon (University of Notre Dame)

Industry Session

Model-Driven System-Performance Engineering for Cyber-Physical Systems 11
Bram van der Sanden (ESI (TNO), Eindhoven, Netherlands), Yonghui Li (ESI (TNO), Eindhoven, Netherlands), Joris van den Aker (ESI (TNO), Eindhoven, Netherlands), Benny Akesson (ESI (TNO), Eindhoven, Netherlands and University of Amsterdam, Amsterdam, Netherlands), Tjerk Bijlsma (DEMCON), Martijn Hendriks (ESI (TNO), Eindhoven, Netherlands), Kostas Triantafyllidis (ESI (TNO), Eindhoven, Netherlands), Jacques Verriet (ESI (TNO), Eindhoven, Netherlands), Jeroen Voeten (Eindhoven University of Technology, Eindhoven, Netherlands), and Twan Basten (Eindhoven University of Technology, Eindhoven, Netherlands and ESI (TNO), Eindhoven, Netherlands)

EMSOFT Work-in-Progress

Work-in-Progress: Generative Strategy based Backdoor Attacks to 3D Point Clouds 23
Xiangyu Wen (University of Electronic Science & Technology of China), Wei Jiang (University of Electronic Science & Technology of China), Jinyu Zhan (University of Electronic Science & Technology of China), Chen Bian (University of Electronic Science & Technology of China), and Ziwei Song (University of Electronic Science & Technology of China)

Work-in-Progress: OHTLoc: An Online Heterogeneous Transfer Method on WiFi-based Indoor Localization System .25
Lufei Han (University of Electronic Science & Technology of China) and Chen Bian (University of Electronic Science & Technology of China)

Work-in-Progress: WCET-Aware Reachability for Verified Simplex Design .27
Ole Lübke (Hamburg University of Technology, Institute for Software Systems) and Sibylle Schupp (Hamburg University of Technology, Institute for Software Systems)

Work-in-Progress: Timing Diversity as a Protective Mechanism .29
Mischa Möstl (TU Braunschweig), Robin Hapka (TU Braunschweig), Anika Christmann (TU Braunschweig), and Rolf Ernst (TU Braunschweig)

Work-in-Progress: Detecting Deepfake Videos by Visual-Audio Synchronism .31
Zhufeng Fan (University of Electronic Science & Technology of China), Jinyu Zhan (University of Electronic Science & Technology of China), and Wei Jiang (University of Electronic Science & Technology of China)

Work-in-Progress: Improving Fault Tolerance of DNNs through Weight Remapping based on Gaussian Distribution .33
Ruoxu Sun (University of Electronic Science & Technology of China), Jinyu Zhan (University of Electronic Science & Technology of China), Wei Jiang (University of Electronic Science & Technology of China), and Yucheng Jiang (University of Electronic Science & Technology of China)

Work-in-Progress: Large-scale Timer Hardware Analysis for a Flexible Low-level Timer-API Design .35
Niels Gandraß (Hamburg University of Applied Sciences), Michel Rottleuthner (Hamburg University of Applied Sciences), and Thomas C. Schmidt (Hamburg University of Applied Sciences)

Work-in-Progress: Performance Analysis and Optimization of Decision Tree Classifiers on Embedded Devices .37
Anish Krishnakumar (University of Wisconsin-Madison) and Umit Y. Ogras (University of Wisconsin-Madison)

Work-in-Progress: Determining MPSoC Layout from Thermal Camera Images .39
Michal Sojka (Czech Technical University in Prague), Ondřej Benedikt (Czech Technical University in Prague), and Zdeněk Hanzálek (Czech Technical University in Prague)

Work-in-Progress: Towards Assurance Case Evidence Generation through Search Based Testing .41
Yumeng Cao (Arizona State University), Quinn Thibeault (Arizona State University), Aniruddh Chandratre (Arizona State University), Georgios Fainekos (Arizona State University), Giulia Pedrielli (Arizona State University), and Mauricio Castillo-Effen (Lockheed Martin Advanced Technology Laboratories)

Work-in-Progress: The Cyber-Physical Immune System .43
Bo Pang (University of California, Berkeley), Ashank Verma (University of California, Berkeley), Jingchao Zhou (University of California, Berkeley), Inigo Incer (University of California, Berkeley), and Alberto Sangiovanni-Vincentelli (University of California, Berkeley)

Work-in-Progress: An Energy-Aware Optimization Model for Real-Time Systems Analysis and Design . 45
Suzanne Elashri (Ontario Tech University) and Akramul Azim (Ontario Tech University)

Work-in-Progress: Strong APA Scheduling in a Real-Time Operating System . 47
Richi Dubey (Birla Institute of Technology and Science Pilani), Vijay Banerjee (University of Colorado Colorado Springs), Sena Hounsinou (University of Colorado Colorado Springs), and Gedare Bloom (University of Colorado Colorado Springs)

Author Index 49