2024 IEEE International Conference on Autonomic Computing and **Self-Organizing Systems Companion** (ACSOS-C 2024)

Aarhus, Denmark 16-20 September 2024



IEEE Catalog Number: CFP24Y92-POD **ISBN:**

979-8-3503-8977-7

Copyright © 2024 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:	CFP24Y92-POD
ISBN (Print-On-Demand):	979-8-3503-8977-7
ISBN (Online):	979-8-3503-8976-0

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



2024 IEEE International Conference on Autonomic Computing and Self-Organizing Systems Companion (ACSOS-C) ACSOS-C 2024

Table of Contents

x
xii
xiii
xiv
xv
xvii
xviii
xix
xxi
xxii
xxiii
xxv
xxvi
xxvii
xxviii

11th Workshop on Self-Improving Systems Integration (SISSY)

The Idea of Optimization for Self-Improving Systems 1 A Aishwaryaprajna (University of Exeter, UK), Kirstie Bellman (Topcy 1 House Consulting, USA), and Christopher Landauer (Topcy House 1 Consulting, USA) 1
Steering Towards Maritime Safety with True Motion Predictions Ensemble
 Self-Aware Control for Autonomous Underwater Vehicles
An Agent-Based Model of Directional Multi-Herds

Integrating Objective Functions in Self-Modeling Systems
Multi-Paradigm Integration for the BDI Resurgence27Danilo Pianini (University of Bologna, Italy), Martina Baiardi(University of Bologna, Italy), Samuele Burattini (University ofBologna, Italy), and Giovanni Ciatto (University of Bologna, Italy)
Towards Adaptive Trajectories for Mixed Autonomous and Human-Operated Ships
A Roadmap for Causality Research in Complex Adaptive Systems
Towards a Hybrid Architecture for Self-Adaptive and Self-Organizing Systems

2nd International Workshop on Sustainable and Scalable Self-Organisation (SaSSO)

Surrogate Models of Self-Organising Systems
Towards Self-Organisation in Multi-Task Scheduling for Multi-Satellite Missions
 Towards a Comparative Analysis of Policy-Making Distribution in Hierarchical Organisations the Epidemic Management Case Study
A Socio-Technical Perspective on Fostering Sustainable Community Development via Social Capital and Social Cohesion
Online Learning of Temporal Dependencies for the Sustainable Foraging Problem
Meta-Level Scalability Issues in Analysing the Scalability of Self-Organisation

2nd International Workshop on Artificial Intelligence for Autonomous computing Systems (AI4AS)

Principled Transfer Learning for Autonomic Systems: A Neuro-Symbolic Vision
Machine Learning to Predict Risk Management Applications Performance
Meta-Adaptation Goals: Leveraging Feedback Loop Requirements for Effective Self-Adaptation 91 Raffaela Groner (University of Gothenburg, Sweden), Ricardo Diniz Caldas (University of Gothenburg, Sweden), and Rebekka Wohlrab (University of Gothenburg, Sweden)
Multi-Objective Deep Reinforcement Learning for Optimisation in Autonomous Systems
Towards a Multi-Armed Bandit Approach for Adaptive Load Balancing in Function-as-a-Service Systems
Gabriele Russo Russo (Tor Vergata University of Rome, Italy), Enrico D'Alessandro (Tor Vergata University of Rome, Italy), Valeria Cardellini (Tor Vergata University of Rome, Italy), and Francesco Lo Presti (Tor Vergata University of Rome, Italy)
Generative Models for Temporal-Based Task Definition
Safety-Aware Adaptive Reinforcement Learning for Mobile Assistive-Care Robots

Tutorials

Runtime Verification of Autonomous Systems Utilizing Digital Twins as a Service
Complex Systems, Self-Organisation, and Simulation
Under Control: A Control Theory Introduction for Computer Scientists

Artifacts

SALSA: Swarm Algorithm Simulator	40
Overcooked Plus: A Comprehensive Cooking Scenario TestBed for Enhancing the Evaluation of Autonomous Planning Algorithms	46
Jinyu Cai (Waseda University, Japan), Jialong Li (Waseda University,	. 10
Japan), Nianyu Li (ZGC Laboratory, China), Mingyue Zhang (Southwest University, China), Ruijia Yang (Waseda University, Japan), and Kenji	
Tei (Tokyo Institute of Technology, Japan)	

Doctoral Symposium

Supporting Autonomic Computing via BDI Tooling	152
Multiplatform Self-Organizing Systems Through a Kotlin-MP Implementation of Aggregate Computing	155
Towards Self-Adaptive Cooperative Learning in Collective Systems	158
Intelligent Pulverised Collective-Adaptive Systems	61
An Adaptive Autonomous Aerial System for Dynamic Field Animal Ecology Studies	64
Many-Objective Centralized Adaptation Planning: Towards Hybrid Self-Adaptive and Self-Organizing Systems	167
Adaptive Multi-Agent Programming with Promises	170
Towards Interference-Resilient Multi-Tenant Microservices via Spatio-Temporal Models of Self-Configuration	173

Posters and Demos

Formal Methods for Attack Detection in Autonomous Driving Systems: the FORESEEN Project 176

Cinzia Bernardeschi (University of Pisa, Italy), Giuseppe Lettieri (University of Pisa, Italy), Alessio Vivani (University of Pisa, Italy), Alessio Bechini (University of Pisa, Italy), Alessio Vecchio (University of Pisa, Italy), Federico Rossi (University of Pisa, Italy), Christian Quadri (University of Milano, Italy), Alessia Galdeman (University of Milano, Italy), Adriano Fagiolini (University of Palermo, Italy), Salvatore Pedone (University of Palermo, Italy), Antonella Santone (University of Molise, Italy), Vittoria Nardone (University of Molise, Italy), Francesco Mercaldo (University of Molise, Italy), Simona Correra (University of Molise, Italy), and Giulia Varriano (University of Molise, Italy)

Automatic Adaptation Rule Optimization via Large Language Models1	.80
Yusei Ishimizu (Tokyo Institute of Technology, Japan), Jialong Li	
(Waseda University, Japan), Jinglue Xu (University of Tokyo, Japan),	
Jinyu Cai (Waseda University, Japan), Hitoshi Iba (University of	
Tokyo, Japan), and Kenji Tei (Tokyo Institute of Technology, Japan)	
ExpEngine: A Tool for Data Analytics Workflow Optimization Through User-Driven	
Experimentation	.82
Keerthiga Rajenthiram (Vrije Universiteit Amsterdam, The Netherlands),	
Milad Abdullah (Charles University Prague, Czech Republic), Ilias	
Gerostathopoulos (Vrije Universiteit Amsterdam, The Netherlands), Petr	
Hnětynka (Charles University Prague, Czech Republic), and Tomáš Bureš	
(Charles University Prague, Czech Republic)	

Author Index	185
--------------	-----