

2025 XV Symposium on Computing Systems Engineering (SBESC 2025)

**Campinas, Brazil
24-27 November 2025**

IEEE Catalog Number: CFP2597R-POD
ISBN: 979-8-3315-5440-8



Copyright © 2025, IEEE

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:	CFP2597R-POD
ISBN (Print-On-Demand):	979-8-3315-5440-8
ISBN (Online):	979-8-3315-5439-2
ISSN:	2324-7886

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

TABLE OF CONTENTS

Exploring Wireless Time-Sensitive Networking and QoS in V2X Scenarios	1
<i>Gabriel De O. Aguiar, Giovani Gracioli</i>	
Multi-Objective Optimization of LoRa Network for Cattle Monitoring in Open Environments	7
<i>João Victor de Barros Felix, Abel G. S. Filho, Adriano Sarmento</i>	
Hybrid Control Strategies for Greenhouse Climate Regulation: PID, Fuzzy, and Neuro-Fuzzy Comparative Implementation in Temperate-Dry Crop Systems	13
<i>Cristian Márquez Zurita, Flávio Assis</i>	
Soft Computing towards Inverse Kinematics	19
<i>Gustavo H. G. Ledandek, Mateus Coelho Silva</i>	
Lane Detection with Centerline Calculation and Temporal Tracking for Autonomous Driving	25
<i>Rodrigo Santos de Carvalho, Giovani Gracioli</i>	
Pipeline for Data Collection and Real-Time Inference for Semantic Segmentation of 3D Point Clouds	31
<i>João Victor C. de Figueiredo, Rogério Albert M. P. Mozer, Victor M. Silva Souza, Analucia S. Morales Iwens G. Sene, Lucas Araújo Pereira</i>	
Enabling On-the-Fly Automotive Suspension Health Monitoring with Vision-based Vibration Model	37
<i>Leonardo Pezenatto da Silva, Antônio Augusto Fröhlich, José Luis Conradi Hoffmann Luiz Fernando Martins Pastuch</i>	
Embedded Operation Effort Estimation: A Machine Learning Performance-Efficiency Trade-off Analysis	43
<i>Enzo Nicolás Spotorno, Leonardo P. Horstmann, José Luís C. Hoffmann, Antônio Augusto Fröhlich</i>	
Optimising Embedded Neural Network Inference in Smart Traps for Fruit Pest Detection via Quantization-Aware Training and FPGA Acceleration	49
<i>Lucas C. Freitas, Isadora V. Dias, Victor R. S. Santos, Paulo R. Ferreira, Julio C. B. De Mattos Lisane B. De Brisolara</i>	
PyGame Simulation Model for Assessing Drone Swarm Utilization in Wildfire Suppression	55
<i>Ryan Guilherme Morais Nascimento, André Alves De Freitas, Antonio Cesar De Andrade Marcelo Martins Da Silva, Thiago Werlley Bandeira Silva</i>	
BatFed: Battery-Aware Federated Transfer Learning Strategy for Remote Monitoring by UAV	61
<i>Hector Batista Ribeiro, Anderson Thyago De Jesus Carvalho Baptista, Mizael Pereira Gonçalves Ricardo De Andrade Lira Rabelo, José Rodrigues Torres Neto</i>	
AADL Model for Temporal Tuning of the Failsafe Triggering Mechanism from a Fire Fighting Drone	67
<i>L. B. Becker, M. L. Pinto, J.-P. Bodeveix, M. Filali</i>	
Towards a Scalable Server-Side Architecture for Real-Time Distributed Image Analysis	73
<i>Nivardo A. L. Castro, Cidcley T. Souza, A. Wendell O. Rodrigues, Carlos H. L. Cavalcante</i>	
Synthetic Data Generation with Few-Shot Adaptation for HAR Using Wearable Sensors via Conditional SeriesGAN	79
<i>Jonathan C. F. Silva, Mateus C. Silva, Vicente J. P. Amorim, Pedro S. O. Lazaroni, Ricardo A R Oliveira</i>	

Adaptive Model Switching for Dynamic Inference Serving in the IoT-edge-cloud Continuum	85
<i>Tiago Knorst, Michael G. Jordan, Guilherme Korol, Mateus Beck Rutzig, Antonio Carlos Schneider Beck</i>	
Lightweight Cryptography for the Internet of Things: A Multi-Metric Experimental Assessment	91
<i>Yuri Silva Vaz, Júlio C. B. Mattos, Rafael Iankowski Soares</i>	
A multi-device Android mobile raw log Dataset for intelligent analysis	97
<i>João Alfredo Bessa, Ricardo Miranda Filho, Raimundo Barreto, Rosiane de Freitas</i>	
Computing Continuum implementation using a FaaS architecture with Repurposed TVBoxes	103
<i>Igor de Almeida, Rafael Czerniej, Guilherme Galante, Marcio Oyamada</i>	
Flexible Wrapper for Ensemble Machine Learning Trees Targeting High-Performance HBM-FPGAs	109
<i>Icaro G. S. Moreira, Olavo Silva, Lucas Bragança, Racyus D. G. Pacífico, Ricardo Ferreira</i> <i>José Augusto M. Nacif</i>	
Go Fast: GPU Optimizer for FPGA-LUT Approximate Simulation and Tuning	115
<i>Olavo Barros, Isabela Freitas, Pedro Coura, José Augusto M. Nacif, Ricardo Ferreira, Adrián Alcolea</i> <i>María Villarroja-Gaudó, Javier Resano</i>	
NeuroHLS: A Flexible Framework for Accelerating SNNs on FPGAs	121
<i>Renan Carlos Gomes de Farias, Fernando Pedrazzi Pozzer, Mateus Beck Rutzig</i>	
TORVS: A Lightweight Dual-Issue Superscalar RISC-V Core for FPGA-Based Systems	127
<i>Lucas Arruk Mendes, Maurício Figueiredo, Ricardo Menotti</i>	
A Lightweight RISC-V Vector Merge Instruction to Boost SpMxDV Algorithm	133
<i>Manuel Osterno, César Marcon, Jarbas Silveira, Jardel Silveira</i>	
A Simulation Methodology for Transparent Coarse-Grained Reconfigurable Architectures	139
<i>Thiago R. B. Da S. Soares, Ivan Saraiva Silva</i>	
MLBFA: A Machine Learning-Guided Framework for Efficient Bit-Flip Attacks on Deep Neural Networks	145
<i>José Ronaldo, Otávio Alcântara de Lima, Nayra Sousa</i>	
Sherlock Holmes of Threats on Internet of Drones	151
<i>Luiz H. C. M. Marques, Linnyer B. Ruiz</i>	