

2021 IEEE 12th International Conference on Software Engineering and Service Science (ICSESS 2021)

**Virtual Conference
20-22 August 2021**



**IEEE Catalog Number: CFP2132J-POD
ISBN: 978-1-6654-3046-3**

**Copyright © 2021 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:	CFP2132J-POD
ISBN (Print-On-Demand):	978-1-6654-3046-3
ISBN (Online):	978-1-6654-1506-4
ISSN:	2327-0586

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

Table of Contents

Session 1

001-N009	Performance-based Software Architecture Design and Blockchain as a Service for Peruvian E-government <i>Félix M. Santos López, Jhon M. Portella Delgado, Eulogio G. Santos De la Cruz, Edgar L. Cáceres</i>	1
002-N010	Modelling Dynamics in Aspect-Oriented Programs <i>Hayden Cheers, Yuqing Lin</i>	6
003-N021	The Impact of Feature Selection Techniques on Software Defect Identification Models <i>Huiquan Gong, Yuwei Zhang</i>	12
004-N030	Architectural Approaches for Emerging Technologies-based Mobile Apps-a Systematic Mapping Study <i>Alvaro Fernández Del Carpio, Yasiel Pérez Vera</i>	16
005-N036	A Directed Percolation Routing Algorithm Based on Self-Organization for LEO Satellite <i>Rongzhen Li, Jiali Bian</i>	24
006-N057	A Configurable Framework for Satellite Software <i>Frank Flederer, Sergio Montenegro</i>	28
007-M055	EBFT: A Hierarchical and Group-Based Byzantine Fault Tolerant Consensus Algorithm <i>Wenzheng Li, Mingsheng He</i>	32
008-M004	An Image Encryption Algorithm Based on Four Dimensional Hyperchaotic System <i>Yantong Xiao, Xiaojun Tong</i>	38
009-M015	Research on Modeling and Simulation of CPPS and Its Cascading Failure Mechanism <i>Ziheng Zhao, Tianyang Zhou, Qingxian Wang, Wenlong Gao, Ziqiao Zhou</i>	42
010-M035	Analysis and Modeling of UAV Swarm Operation Process in Uncertain Environment <i>Li Ma, Hao Chen, Weidong Bao, Ji Wang, Xiaomin Zhu, Wen Zhou</i>	48

Session 2

011-M045	Performance Prediction Model Based on Multi-Layer Attention Mechanism for Programming Ability <i>Chao Li, Zhaojing Zhang, Changhai Zhao</i>	54
012-N004	A Block Image Encryption Algorithm Based on 2D Chaotic System <i>Sen Yang, Xiaojun Tong</i>	61
013-M060	A Secure Access Scheme for Internet of Things Devices Based on Blockchain <i>Wenzheng Li, JiYue Ying</i>	65
014-M005	Image Encryption Algorithm Based on Fractional Order Chaotic System <i>Jingjin Wei, Miao Zhang, Xiaojun Tong</i>	72
015-M031	Quality Assurance for Microservice Architectures <i>Thomas Schirgi, Eugen Brenner</i>	76

016-N002	A Research on Data Rate and Computation Offloading in Joint Optimization for Fog Computing <i>Wenle Bai,Ziyang Ma</i>	81
017-N003	Research on Entity Recognition Based on Multi-criteria Fusion Model <i>Yin Qiyu</i>	85
018-N026	Automatic Deployment Method of USV Software Based on Functional Domain <i>Cai Qing,Zhu Lei,Li Feng</i>	89
019-N032	Design of ABOM Reconfiguration System Based on Digital Twin <i>Jianming Zou,Xiaojun Liu,Siqiu Xu</i>	96
020-N045	Research on Chinese Event Extraction Method Based on RoBERTa-WWM-CRF <i>Zhengan Li,Nanchang Cheng,Wenchao Song</i>	100
Session 3		
021-M048	Design and Application of a Practical Decision-Making and Commanding Platform for Emergency Rescue <i>Xiaohui Huang, Jixing Yang, Wenbo Jin, Yudong Fang, Li Cu</i>	105
022-M050	Research and Application of Rapid 3D Modeling Technology based on UAV <i>Xiaohui Huang, Jixing Yang, Xiaotong Liu, Zhi Zhang, Li Cui</i>	109
023-M010	A Non-Intrusive Load Monitoring Method Based on Multi-scale Wavelet Packet Optimization and Transient Feature Matching <i>Zhang Lu,Shi Shaowei</i>	113
024-M018	Definition of Process Realization Pattern and Automatic Generation Method of Recognition Rules <i>Zhenshan Gao,Chunlan Jiao,Jianbin Liu,Hao Zhang</i>	118
025-M038	Visual Loop Closure Detection Based on Lightweight Convolutional Neural Network and Product Quantization <i>Liang Huang,Maojing Zhu,Mingming Zhang</i>	122
026-M040	Forecasting Time-aware Nonfunctional Service Attributes Using Deep Learning <i>Junju Liu,Qianqian Zhang</i>	127
027-N001	Deep Reinforcement Learning for Joint Offloading and Resource Allocation in Fog Computing <i>Wenle Bai,Cheng Qian</i>	131
028-N016	Application of Naive Bayesian Classifier Based on Gaussian Distribution in Plant Recognition <i>Liqiang Zhu</i>	135
029-N022	Research on The Word Segmentation Model Construction Based on CNN+BiLSTM+HMM <i>Xuemei Sun,Bin Wen,Rong Fu</i>	140
030-N023	Named Entity Recognition Method for Educational Emergency Field Based on BERT <i>Kangwei Wei,Bin Wen</i>	145
Session 4		
031-N039	End-to-End Chained Pedestrian Multi-Object Tracking Based on Multi-Feature Fusion <i>Haiyun Zhou,Xuezhi Xiang,Xinyao Wang,Wenkai Ren</i>	150
032-N041	CNN-DBN: Quality Assessment and Optimization of Content-Based Image Retrieval Services <i>Tianhao Yuan,Pengcheng Zhang,Huiying Jin,Xuewu Zhou,Shengdong Du</i>	154

033-N042	A Few-shot Learning Method Based on Bidirectional Encoder Representation from Transformers for Relation Extraction <i>Yifei Gao,Rongzhi Qi,Shuiyan Li</i>	158
034-N046	Research on System Architecture Based on Natural Disaster Monitoring and Early Warning Service <i>Wen Wang,Zhi Zhang,Tao Wang,Yan Zhang,Wenhao Xu</i>	162
035-N048	Improving Long-tail Relation Extraction with Knowledge-aware Hierarchical Attention <i>Xiaohan Zhao,Rongzhi Qi</i>	166
036-N049	Cyber-Physical System Intrusion Detection Model Based on Software-Defined Network <i>Yunting Xiao,Jingyong Liu,Lichen Zhang</i>	170
037-N051	Research on Cyber-Physical Systems Based on Software Definition <i>Chen Zhang,Boyi Wei,Lichen Zhang</i>	174
038-N052	Task Scheduling Algorithm of Cyber-Physical System Base on Complex Industry and Big Data <i>Jiji Rong,Tao Zhang,Lichen Zhang</i>	178
039-N053	Spatiotemporal Modeling Method of Cyber-physical System Based on Object-oriented <i>Liangliang Deng,Yixun Jiang,Lichen Zhang</i>	182
040-N054	Design and Modeling of Intelligent Home Security Monitoring System Based on CPS <i>Chen Sun,Lichen Zhang</i>	186
Session 5		
041-M027	Practice of ERP Cloud Development and Evolution <i>Longye Tang,Wenjie Xu</i>	190
042-N033	A Systematic Mapping Study on Issues and Importance of Documentation in Agile <i>Basit Habib,Rohaida Romli</i>	198
043-N047	A Survey on QoS-based Service Composition in Cloud System Environment <i>Jesus Ekie,Bassirou Gueyey,Ibrahima Niangy,Tresor Ekie</i>	203
044-N055	Software-Defined Modeling Method of Cyber-Physical System Driven by Big Data <i>Tianhe Cheng,Zhenjuan Liu,Lichen Zhang</i>	211
045-N064	Research on Path Selection Based on Moving Trajectory Big Data <i>Zhang Miao,Yu Wanjun</i>	215
046-M051	Research and Application of Intelligent Route Planning Method based on 3D Model <i>Xiaohui Huang,Jixing Yang,Xiaotong Liu,Yi Wang,Zeyu Jia</i>	219
047-N067	Improve the Performance of LSM-Tree Based Key-Value via Multiple Immutable MemTables <i>Yuan Gao,Ping Xie,Wendi Hua,Meng Lv,Peixuan Li</i>	223
048-N066	Simulation of Exit Choice Behaviour in Evacuation Considering the Obstacles and Pedestrian Distribution <i>Mengting Liu,Yafei Wang,Wei Zhu,Mengmeng Yin,Jianchun Zheng</i>	228
049-M003	Research on Chinese Minority Clothing Based on Deep Convolution Neural Network <i>Ying Zhang,Wenfeng Zhong,Xuefei Li</i>	235
050-M020	The Intelligent Redesign of Traditional Chinese Wooden Toys from Embodied Cognition <i>Jiuqiang Fu,Jue Chen</i>	239

Session 6

051-N058	Recognition of Real-life Activities with Smartphone Sensors using Deep Learning Approaches <i>Sakorn Mekruksavanich, Anuchit Jitpattanakul</i>	243
052-N062	Flooding Forecasting System Based on Water Monitoring with IoT Technology <i>Sakorn Mekruksavanich, Kiattikul Sooksomsatarn, Anuchit Jitpattanakul</i>	247
053-N017	Developer's Perspectives on Unit Test Cases Understandability <i>Novi Setiani, Ridi Ferdiana, Rudy Hartanto</i>	251
054-N070	A Study on Lightweight And Secure Edge Computing Based Blockchain <i>Wenzheng Li, Mingsheng He, Wei Zhu, Jianchun Zheng</i>	256
055-M002	Research on Data Preprocessing Method of Mongolian Medicine Prescriptions for Treating Heat Syndrome <i>Tuya, Chunsheng Zhang, Jingang</i>	262
056-M008	Ergonomics Analysis of Bus Seat Based on Jack <i>Heyu Nie, Mingmao Hu, Fengting Yin</i>	266
057-M029	Design of Intelligent Atmosphere Lamp Based on Chinese Traditional Wooden Structure <i>Zhao Liu, Jiuqiang Fu</i>	270
058-M052	Stability Evaluation of Tunnel Surrounding Rock Based on Data Mining <i>Junyi Tang, Wanjun Yu</i>	274
059-N056	Application of Improved NSGA-II Algorithm in Ship Entry and Exit Dispatching <i>Guowei Liu, Hongxiang Ren, Fuquan Xu, Yi Zhou</i>	277
060-N059	Metamorphosis Relationship Generation Based on Fixed Memory Step Gradient Descent Method with Noise <i>Longchi Zeng, Zan Yang, Shan Liao, Cancan Yang, Wei Nai, Dan Li</i>	282

Session 7

061-N060	An adaptive DNN Partition Algorithm Greedy Algorithm (ADPA) <i>Zhang Lei</i>	287
062-N063	T-Distributed Stochastic Neighbor Embedding Based on Cockroach Swarm Optimization with Student Distribution Parameters <i>Mengdie Qiu, Zan Yang, Wei Nai, Dan Li, Yidan Xing, Kai Li</i>	291
063-N065	Analysis and Research on Fire Safety of University Dormitory Based on Bayesian Network <i>Zhang Min, Yu Wanjun</i>	295
064-N029	Research on Software Life Cycle Model Suitable for Aerospace System Engineering <i>Chuyang Dong, Haihong Fang, Hongjie Zhang, Yuexi Wang, Xianqing Ling</i>	300