

2022 International Conference on Computers and Artificial Intelligence Technologies (CAIT 2022)

**Quzhou, China
4-6 November 2022**



**IEEE Catalog Number: CFP22CT9-POD
ISBN: 979-8-3503-9618-8**

**Copyright © 2022 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:	CFP22CT9-POD
ISBN (Print-On-Demand):	979-8-3503-9618-8
ISBN (Online):	979-8-3503-9617-1

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

2022 International Conference on Computers and Artificial Intelligence Technologies

(CAIT 2022)

Table of Contents

PREFACE	v
ORGANIZING COMMITTEES	vi

➤ Machine Learning and Algorithm

Adapt to Non-stationary Environments via Multi-teacher and Single-Student Process.....	1
<i>Wangyang Yue, Yuan Zhou, Guang Kou</i>	
BAN-MPR: Defending against Membership Inference Attacks with Born Again Networks and Membership Privacy Regularization	9
<i>Yiqing Liu, Juan Yu, Jianmin Han</i>	
Smart Tourism Route Planning System Based on Machine Learning Algorithm	16
<i>Zhenzhen Yu, Shan Wang</i>	
Improvisational Dance Piano Accompaniment System Based on BP Neural Network.....	21
<i>Hongyu Liu</i>	

➤ Computer Model and Intelligent Calculation

Use Maxent Statistics to Learn Models to Analyze the Suitable Area of the Spodoptera Frugiperda in the Central and Eastern Yunnan Province	26
<i>Zhang HanRui, Lu Ying, Xu QuanYuan, Chang JuMei</i>	
Transformer Based on Deconstruction and Dot Product for Time Series Forecasting of Air Quality.....	31
<i>Huosheng Xie, Jiawei He</i>	
Predicting the Future Suitable Area of Spodoptera Frugiperda in the Central and Eastern Parts of Yunnan Province, China, Using the Maxent Statistics Learning Model	38
<i>Zhang HanRui, Lu Ying, Xu QuanYuan, Chang JuMei</i>	

➤ Data Detection and Analysis

Generating Synthetic Data for Credit Card Fraud Detection Using GANs	42
<i>Emilija Strelcenia, Simant Prakoonwit</i>	

Research on the Application of Auto Spare Parts Sales Forecast in the Age of Big Data	48
<i>Cuoling Zhang, Deqing Zhang, Chun Zheng</i>	

➤ **Image Recognition and Detection**

Conv2NeXt: Reconsidering ConvNeXt Network Design for Image Recognition	53
<i>Jianwei Feng, Hengliang Tan, Wangwang Li, Ming Xie</i>	
Fer-MLP: Fast Expression Recognition Network Based on MLP	61
<i>Wanghao Xia, Xinmin Xu</i>	
Monkeypox Skin Lesion Detection Using Deep Learning Models.....	66
<i>Selen Gürbüz, Galip Aydın</i>	
MaskGAN: A Facial Fusion Algorithm for Deepfake Image Detection	71
<i>Dazhuang Liu, Zhen Yang, Ru Zhang, Jianyi Liu</i>	

➤ **Video Processing Technology and Method**

An Improved KCF Algorithm and Its Application in Video Tracking	79
<i>Li Wenhui, Hao Weipeng, Guan Wenchao, Yao Fan, Zhang Lu</i>	
Research and Application of Real-Time High-Resolution Video Matting Algorithm	85
<i>Beibei Duan, Xinggang Fan, Yanjing Lei, Zehui Feng, Sixian Chan</i>	

➤ **Next Generation of Artificial Intelligence Technology and Application**

Survey on Methodology of Intrusion Detection in Industrial Control System Based on Artificial Intelligence	93
<i>Ligang Li, Zhenyu Fu, Gaokai Zou, Zongjun Mu, Qiaoxia Zhang, Guangmin Wang, Pan Wang</i>	
A Spatial Feature-Based Adaptive Technique to Match Models for Motor Imagery EEG Signals	104
<i>Chuanlai Wang, Yuchen Wang, Jianwei Zheng, Xiaoyong Sun, Fenghao Chen, Zijie Fang, Yu Dai, Weifeng Ma</i>	
Analysis of Source Code Authorship Attribution Problem.....	109
<i>Alina Bogdanova, Mirko Farina, Zamira Kholmatova, Artem Kruglov, Vitaly Romanov, Giancarlo Succi</i>	

Author Index