

# **2024 4th International Conference on Information Technology and Contemporary Sports (TCS 2024)**

**Guangzhou, China  
13-15 December 2024**



**IEEE Catalog Number: CFP24AM8-POD  
ISBN: 979-8-3315-2987-1**

**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:	CFP24AM8-POD
ISBN (Print-On-Demand):	979-8-3315-2987-1
ISBN (Online):	979-8-3315-2986-4

**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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

## Table of Contents

<b>Experimental Study on the Impact of Intelligent Wearable Devices on Extracurricular Physical Exercise Effectiveness of College Students</b>	1
Yongfang Hu, Xizhe Bao	
<b>Yoga Pose Detection using MobileNetV3+pose comparison and instruction</b>	7
Xinyan Xie	
<b>Innovative Design Research on the Management Information System of University Sports Venues in the Era of Smart Sports</b>	13
Xiaogang Hao, Wenhui Dai	
<b>Research on the Practice Path of Artificial Intelligence-enabled College Students' Physical Health Promotion</b>	18
Debao Huo	
<b>Uncovering Gender-specific Technical-Tactical Demands in Elite 3x3 Basketball Using XGBoost and SHAP</b>	23
Zhijie Yuan	
<b>A Study on the Application of BP Neural Network and Correlation Coefficients in the Analysis of College Students' Physical Fitness</b>	31
Yuntu Wang, Hongqing Zheng	
<b>Optimizing Sprint Start Performance: A Study on Human Pose Estimation with Frequency Domain Integration</b>	36
Huan Li, Jingzhou Huang, Houpan Zhou, Yunlong Wang	
<b>Research on the Application of Facial Expression Recognition Model Based on BP Neural Network in the Assessment of Sports Fatigue of Young Athletes</b>	43
Shihan Liang, Simin Huang, Mingyuan Zhao, Yicong Jin, Gongbo Wei, Qingfa Dou	
<b>Application and Challenges of Smart Wearable Devices in Equestrian Training</b>	47
Rong Tan, Yi Tong, Yuhan Zhai, Min Hao, Shaohua Qian, Donghua Zhou	
<b>The Internal Logic and Promotion Strategy of Artificial Intelligence's supporting role in the Optimization and Upgrading of the Sports Industry Structure</b>	54
Chen Lin, Yang Nan	
<b>DSSO: A High-precision Action Recognition Model for Aerobics based on Dynamic Segmentation and Sequence Optimization</b>	60
Wenyue Liu, Denise Koh Choon Lian, Zhihao Zhang, Jianguo Qiu	
<b>"One Table" Empowering Sports Parenting Python Based Physical Education Teaching Aid System Development</b>	65
Xue Sun, Qiqi Chen, Desheng Liao	
<b>A CiteSpace-Based Bibliometric Analysis of Research on Swimming for Individuals with Disabilities</b>	70
Dongxiang Huang, Kaiwen Ou, Junlong Zhang, Xiaobing Wang, Zhuonan Huang	

<b>Enhanced LSTM-based Approach for Predicting Heart Rate During Exercise</b>	75
Congling Zhang	
<b>A Quantitative Approach to Tennis Uncover the Hidden Secrets behind the Momentum</b>	79
Qiyue Gao	
<b>A Study of Multiple Linear Regression and Correlation Coefficients in Physical Fitness Analysis of College Students</b>	85
Shupeng Huang, Hongqing Zheng	
<b>Hot Spot Focus of International Basketball Teaching Research Based on Cite Space and Implications for China's Basketball Teaching Research</b>	90
Haoran Zhuang, Tong Li	
<b>The analysis of discrete data by machine learning Taking momentum in tennis match as an example</b>	95
Jiarui Feng, Zhuoran Wang, Junqi Xu	
<b>Shot Prediction in the Attacking Third Based on Spatio-temporal Features: A Dynamic Time-series Model Approach</b>	99
Bingnan Gong, Jorge Diaz-Cidoncha Garcia, Rui Zhou, Zhimo Jiang	
<b>Predicting Health Benefits of Yoga: A Conceptual Framework for Data Collection and Analysis in Sports Science</b>	105
Jiangke Ling, Xiaoqing Wen	
<b>Time-Wheel based Multi-Series Sequence Partitioning for Athlete Pain Detection Modeling</b>	110
Jiadong Huang, Tao Lin, Biyuan Lin	
<b>Application of Deep Reinforcement Learning in Team Competitive Strategy Prediction</b>	115
Kai Chang	
<b>Construction of a physical health monitoring platform for adolescents driven by big data</b>	120
Peng Chen, Jianhui Li	
<b>Author Index</b>	124