Application of Artificial Intelligence and Transformation of Sports Communication

WANG Xiangfei[1], *WANG Zhenzhen*[2], *YAN Yiran*[3]

Abstract: The application of artificial intelligence in the field of sports communication is systematieally studied. It believes that its application has covered many aspects including the collecting and writing of sports news, the editing and integration of communication content as well as its distribution and supervision, and the human-machine interactive transmission and experience, which will bring all-round influences on all elements of communication activities such as communicators, content, platforms, users, and effects. These influences are as follows: the core value of the transmitter is changed from the production of sports content to the guidance and creation of sports value; the value of content is extended from the information transmission to the connection of scenes; the traditional sports media under the pan-content ecological platform seeks new directions; the live broadcast of AI events under the background of technology integration enhances the user experience; and sports communication risks hence rise. In this regard, attention is paid to the value guidance and creation of sports communication, communication scenarios are built to enhance user experience, importance are attached to the construction of AI platforms and technology cooperation, and various risks brought by AI communication are reasonally avoided.

Key words: artificial intelligence; sports communication; big data; communication scenario; live broadcast of event; user experience

Authors' address: 1. Periodical Department, Wuhan Sports University, Wuhan 430079, Hubei, China; 2. School of Physical Education, Henan University, Kaifeng 475000, Henan, China; 3. Graduate Faculty, Wuhan Sports University, Wuhan 430079, Hubei, China

·新视点·

大数据和人工智能背景下运动鞋生物力学研发思路及启示

近年来,随着大数据技术和人工智能的发展,运动鞋生物力学领域的研发创新逐渐由单一的实验测试科学转变为实验科学与数据科学并重的模式。美国学者Booth等首次将机器学习算法应用在运动鞋楦的设计改良领域,采用主成分分析(PCA)、线性及非线性模拟等方法,将足形指标简化降维为关键指标,研究结果显示,大样本量精准的足形数据采集有利于机器学习精度的提升,同时随着机器学习算法的改良和大数据的积累,有望将运动鞋楦的设计误差降低至亚毫米级。部分国际运动品牌研发团队聚焦运动鞋舒适性的提升,基于4 199名运动员足形,构建大规模人群的足部统计形态模型(statistical shape modelling,SSM)。其采用PCA降维方法对足部三维解剖构形进行二维精细描述,基于迭代最接近点算法,实现了足部模型与模板网格的自动刚体对齐,将复杂的三维足部形态特征用传统的二维足形测试指标进行描述。基于不同人种的大数据足形精细参数的获取和建模,有助于进一步提升运动鞋舒适度。我国学者顾耀东等开展基于机器学习算法和大数据足形特征的生物力学指标预测工作,开发、训练和测试了基于足形多变量的机器学习偏最小二乘回归(partial least squares regression,PLSR)模型,现已收集近3 000人的精细化足形参数,预测普通人群在着鞋和裸足状态下的足底压力特征。随着足形大数据的进一步积累和机器学习算法的优化,预计预测精度可达0.95以上。笔者认为:当前人工智能和大数据技术在运动鞋生物力学研发领域的应用已得到学界和业界的广泛关注和共识;未来运动鞋生物力学研发应充分结合多学科前沿研究成果,寻找新的学科增长点,不断融合生物力学、计算机科学及人工智能等领域的前沿技术,拓宽研究深度及广度,提升运动鞋科技研发能力。

(宁波大学 顾耀东,孙 冬,梅齐昌)