



Editorial: Special issue on artificial intelligence technologies in sports and art data applications

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For every major sport, analysts can and often do extract large amounts of data, which can be leveraged by media and fans (for entertainment), athletes (to improve individual and team performance), and organizations (to yield a deeper understanding of the sport itself). All major professional sporting events today—ranging from the Olympic Games and the Soccer World Cup to Formula One Racing, the NFL Super Bowl, and Wimbledon—generate multitudinous amounts of real-time data that, when curated and transformed, can provide valuable and potentially novel insight. These efforts are often done in collaboration with leading technology vendors, who also have recognized the tremendous value of sports analytics. A major—potentially unachievable—challenge in computational arts is constructing algorithms that assess properties such as novelty, creativity and the aesthetic properties of artistic artefacts or performances. This Special Issue will focus on both the use of complexity ideas and artificial intelligence methods to analyse and evaluate art and sports systems, including but not limited to: music, sound, images, animations, designs, architectural plans, choreographies, poetry, text, jokes, soccer, ice hockey, tennis, etc. The selected papers are summarized as follows.

Ren completes the automatic language description of sports video based on time-sharing memory algorithm. Wang takes sports decision as the core and introduces tasks of different difficulty and video training into research. Kim et al. constructs a graph model structure between the comprehensive compressed data and the input data. Wang and Shi take basketball, basket, and athletes as the feature

extraction objects. Luo dedicated to the research of image aesthetics, using computers to simulate human perception, and realize the evaluation or beautification of images in-line with human aesthetics. Based on the background of supply and demand uncertainty, Wang et al. establish the fuzzy-integrated optimization model of logistics supply chain system by using LR fuzzy numbers. Zhang et al. provide an in-depth analysis and study of the simulation of 3D human animation visualization techniques by enhancing machine learning algorithms. Guo presents an in-depth study and analysis of the design of the symbolization of art graphics through a linear regression algorithm.

Wu et al. combine machine learning and human-computer interaction technology to construct a supply chain management model, and uses wireless sensor networks as the basis of machine learning and human-computer interaction supply chain models. Xu uses simulation comparison method, data integration method, and step-by-step construction method to collect samples, analyse the data collection system, and streamline the algorithm. Yuan et al. analyse and summarizes the development and application of background modelling-based methods in moving target detection, and points out the applicability and limitations of traditional methods, which lays the foundation for the further research of moving target detection based on background modelling in the complex background. The spatial domain noise reduction method and the transform domain noise reduction method are integrated by Zhang, and the two types of algorithms complement each other to obtain a better denoising effect. Chen et al. discuss the judgement of Cheerleading athletes' action safety in sports competition based on Kohonen neural network. Lu combines the ergonomics theory to determine the influencing factors of physical fatigue, puts forward a set of evaluation index system for the effectiveness analysis of physical fatigue, and establishes a more objective and systematic

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independent component analysis and evaluation model of physical fatigue. Li and Han combine machine learning technology and Internet of Things audio technology to improve the music audio recognition algorithm. Ye et al. construct a dynamic image analysis method and applies it to dynamic image fusion to improve the quality of the fused dynamic image.

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