

Editorial: Artificial Intelligence for Mobile Robotic Networks

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Editorial:

The integration of artificial intelligence and multimedia communication networks has become a topic of increasing interest for both researchers and developers from academia and industry worldwide. It is foreseeable that artificial intelligence will be the main approach to the next generation of mobile robotic networks. The explosive number of artificial intelligence methods and the increasing computational power of network-based computers have significantly extended the number of potential applications for mobile robotics. It has also brought new challenges to the artificial intelligence community. The aim of this special issue is to provide a platform to share up-to-date scientific achievements in this field.

This special issue features six selected papers with high quality. The first article, “MT-AAAU: Design of Monitoring and Tracking for Anti-Abuse of Amateur UAV”, proposed a monitoring UAV (M-UAV) for security purposes. In particular, the relevant design issues of M-UAV monitoring are discussed; possible solutions are given, and finally, the feasible communication architectures for coordinating multiple monitoring UAVs (MM-UAVs) for Anti-Abuse of Amateur UAV (AAAU) in no-fly zone are summarized.

The second article titled “Anxiety Level Detection Using BCI of Miner’s Smart Helmet” presented an emotional state evocation paradigm to find the brain area where the emotion feature is best. Then a fusion algorithm of the anxiety level is proposed to evaluate the miner’s mental state by using the θ , α , and beta rhythms of EEG. Finally, the miner’s smart helmet system is built to collect the human state which includes the mental parameters of the anxiety level, the fatigue level, the concentration level, and the environmental parameter in coal mine.

In the next article with the title “A Voting Aggregation Algorithm for Optimal Social Satisfaction”, the authors investigated the applications of social choice and innovatively proposed a formula called Social Satisfaction Degree (SSD) for single-winner and multi-winner voting system.

Optical imaging is widely regarded as one of the most promising technologies for underwater observing networks. The fourth article entitled “Non-uniform De-scattering and De-blurring of Underwater Images” proposed a hierarchical transmission fusion method and a color-line ambient light estimation method for high turbidity inhomogeneous underwater image restoration from a single input image. The proposed scheme overcomes the non-uniform scattering and blurring issues of the captured underwater images in underwater observing networks.

The fifth article, “Development of Mobile Magnetic Measurement System Using Laser Beam and Image Processing” proposed a method for new magnetic measurement using posture information. With this new method, it is possible to move magnetic sensor and to enable the magnetic measurement of the object.

The last article titled “Brain Intelligence: Go Beyond Artificial Intelligence” investigated a comprehensive review of deep learning algorithms and brain intelligence and how they can be applied in real world engineering. The proposed “Brain Intelligence (BI)” model generates

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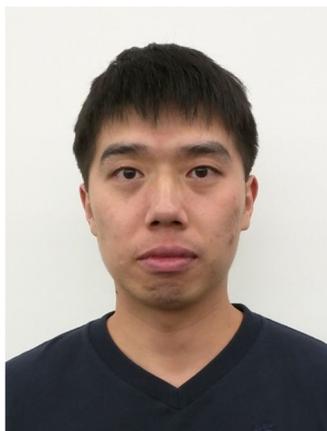
new ideas about events without having experienced them by using artificial life with an imagine function. The authors conducted demonstrations of the developed BI intelligence learning model on automatic driving, precision medical care, and industrial robots.

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