Prof. Mei Wang
Xi'an University of Science and Technology, China

Wang Mei received her PhD from Xi'an University of Science and Technology in 2006. She is a professor in XUST, the institute director of the brain-computer interface and intelligent control of XUST, the review expert of the Chinese ministry of science and technology, the Sanqin-talent allowance expert of Shaanxi province. She was the visiting professor in Imperial College London, UK, 2007-2008, and National Chin-yi University of Technology, Taiwan, 2012-2013, and Macquarie University, Australia, 2018, respectively. She had served as the academic leaders of XUST respectively in control science and engineering, control theory and control engineering, pattern recognition and intelligent system. Her research interests include brain-computer interface, robot control system, image processing, pattern recognition, intelligent computation, sensing and decision-making and applications. She published more than 100 papers and hosts 30 invention patents, and won 3 awards of Shaanxi higher education science and technology.

Speech Title: "Support Vector Machine of Particle Swarm Optimization for Motor Imagery Recognition using Feature Fusion"

Abstract: To solve the problem that a single feature is not adequate for the classification accuracy of the motor imagery electroencephalograph (EEG) signals, a multi-domain feature fusion method is proposed by using the wavelet packet transform, the common space pattern and the sample entropy of EEG signals. Moreover, the improved particle swarm optimization algorithm is developed through a decreasing inertia weight of the velocity. Another contribution of this paper is the support vector machine optimized by using the developed particle swarm algorithm for the motor imagery EEG signal classification. The average recognition accuracy of the proposed multi-domain feature fusion method is 92.92%. It is increased respectively by 14.7%, 12.68%, 9.58%, 6.2%, 7.12%, 4.6% compared with the recognition accuracy using the features of the wavelet packet transform, the common space pattern, the sample entropy, and the combinations of the two types of the features, respectively. The developed particle swarm optimization support vector machine method increases the recognition accuracy by 5.1%, 4.68%, 3.22%, respectively compared with the recognition accuracy using the traditional support vector machine, the genetic support vector machine, and the artificial bee colony support vector machine.