Xiyu Liu, Full professor, business school, Shandong normal university, China, received Ph.D. degrees in Fundamental Mathematics from Shandong university, in 1990. He works in Shandong Normal University and currently serves as the Dean of the Academy of Management Science. He was selected as the "Taishan Scholar" Distinguished Professor, the Young and Middle-aged Experts with Outstanding Contribution in Shandong Province, and the Outstanding Postgraduate Tutor in Shandong Province. At present, he has presided over more than 10 national and provincial projects, including 3 projects of National Natural Science Foundation of China, and published more than 150 academic papers. He is mainly engaged in the research of biological computing, computing intelligent and nonlinear analysis.

Talk: Complex topological membrane systems and application in medical image processing

Abstract: Membrane computation (also called a membrane system or P system) is a novel paradigm that has gained popularity in the past few years because it offers promising features such as the data encapsulation, simple information representation, and especially, parallelism. However, for computation purposes, the traditional membrane systems simplify real membrane structures and do not use the complex membrane structures to solve problems with complicated structures in the field of ecology, optimization and so on. Therefore, making use of the complex structures of membranes may improve the performance of membrane systems in real applications.

Based on the above consideration, the main motivation of this work is to use membrane systems to develop a learning framework for medical image processing. We propose a membrane system with hybrid structures, where the hybrid structures combine the advantages of classical membrane structures, such as tissue-like, cell-like and neural-like P systems.