（背景）Fencing is a sport that relies heavily on the use of tactics. The adoption of effective strategies for different opponents can help the fencer increase the possibility of winning. However, almost all fencing data analysis methods are based on statistical models, which are difficult to discover hidden tactics. . Unlike the sequential game such as tennis and table tennis, fencing is a kind of simultaneous game,thus the existing sports visualization methods cannot work well on it either.

（工作）In this work, we cooperate with experts in fencing to analyze technical and tactical characteristics in fencing competition. To meet their requirements, we design and implement an interactive visualization system for fencing competition data - FencingVis. The sequences of the fencers’ actions in the bout are first analyzed to find patterns of behaviors. Then a graph model is constructed to show the combination of the tactical behaviors.. We further design a tactical flow map to show the tactical model and provide multiple interactive ways to explore it. We also provide a number of well-coordinated-views to supplement the tactical flow chart. They can display the information in the fencing competition from different perspectives and integrate organically with the tactical flow chart through consistent visual style and view coordination.

（评估）We demonstrate the usability and effectiveness of the proposed system by two case studies. According to the expert feedback, our system can help analysts find not only the tactical patterns hidden in the fencing game, but also the technical and tactical characteristics of the contestant. In addition to analyze professional competition, our system is able to use for the teaching to fencing beginners, and the tactical demonstration to fencing enthusiasts.