

Motion Interpretation Via Human-Computer Interaction

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Human-Computer-Interaction may allow people to communicate with machines in intuitive ways by exploring new usability of cameras and sensors. The MINE Lab (<http://mine.csie.ncu.edu.tw/core/>) uses a number of cameras, such as Kinect, Leap Motion and Creative Senz3D, to design a series of virtual musical instruments. These instruments include Drum, Guitar, Bass Guitar, Piano, Xylophone, as well as a specially designed virtual instrument called the Spider King. Techniques include gesture tracking on human body and fingers. We follow three important principals. First, the performers should not carry anything in hand. Second, the performance must be understood and appreciated by general audiences. Third, music professionals may appreciate the designs. The MINE Virtual Band was introduced in May 2013. The concert performed in May 9th, 2013 and May 8th, 2014 received very good comments from the audiences. This presentation includes basic techniques and concepts of using different sensors, as well as the designs of virtual instruments. In addition to the virtual band, our performance includes special effects on large screen, for real-time interaction with the audiences.