Detection of Skateboarding Tricks Based on Gyroscopic Data

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With the rising popularity of skateboarding from large international events such as the Olympics, Street League Skateboarding and X Games, reliable and accurate trick detection gets increasingly important. However, under rapid movement and increasingly complicated tricks, it may be hard to accurately recognize a trick done in real-time. In order to improve competition fairness and real-time spectator commentary, pattern recognition methods and gyroscopes can be used to detect trick classification based off quaternions from its unique gyroscopic pattern changes. By utilizing a 6-axis gyroscopic sensor, an accurate recognition of the trick performed could be determined by the combination of the analysis of its angular velocity, angular acceleration, and magnetic force.

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