Computer Music Controller Based On Hand Gestures Recognition Through Web-cam
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Goal
• Inspired by “Flutter” app on iMac computer
• Real-time music controller based on hand gesture via webcam
• Detect hand, recognize gesture, and control music player
• Get rid of keyboard & mouse, enjoy music

Look familiar to you?

Algorithm and work flow

Open webcam & Skin detector → Noise filter by erosion & dilation → Motion differentiate between two frames → Vertical edge detection → Threshold to judge a hand → Trigger music player controller

Experimental results
• Hand detection rate is 80% from three samples of different hand color volunteers.
• Average trigger response lagging time is 2.4s.
• Function to play and pause the music is working well.
• Light condition and placement of hand may have some effect on our application’s performance
• Movement tracking is not accurate enough, so we remove the function to go “next” song or go “pre” song.