Preventing sudden infant death syndrome (SIDS) based on motion estimation and neural network

Abstract

What is SIDS? SIDS is known as Sudden Infant Death Syndrome or referred as the cot death; there are no explainable causes of death after the autopsy. No one knows what causes SIDS, however researchers have theorized that a dramatic drop in heart rate occurs just before death. Thousands of babies die from this phenomenon each year in the Malaysia. Very few babies who die of SIDS may have had one or more apparent life-threatening events (ALTE). During ALTE, a baby has abnormally long pauses in breathing (longer than 20 seconds). The skin changes color (bluish and blotchy) or becomes pale, and the body stiffens and then goes limp. The baby may also choke or gag. Machines (apnea monitors) that are commonly used to detect these periods of interrupted breathing have not been shown to prevent SIDS. Thus, all this minor change it's not visible to the human eye, but it's still there. We have developed algorithms to interpret the discoloration and translate them into AR Model coefficient motion pulses. It's widely assumed that baby's pulses motion slow down before SIDS, and this system could help prevent this.