**METHODS/TECHNIQUES**

**RPPG BASED HEART RATE ESTIMATION USING DEEP LEARNING:**

In this project, we used STEVEN-rPPGNet for implementations of deep based methods.

Diagram

Description automatically generatedThis deep learning-based method considers low-resolution input video clips to measure the heart rate. Its training occurs in two stages. The first stage involves a video enhancement network (called STVEN) whose output corresponds to spatially enhanced videos. The second stage involves a measurement network (called rPPGNet) whose output provides the heart rate. The measurement network rPPGNet is formed using a spatiotemporal convolutional network, a skin-based attention module, and a partition constraint module. The skin-based attention module selects skin regions. The partition constraint module enables an improved representation of the rPPG signal.

**REASON TO CHOOSE DEEP LEARNING METHODS:**

We planned to carry out our measurements with deep learning methods, which was our main approach. We hoped that deep learning reduced error rates as a result of these measurements. We used the model of the STVEN, which is a video-to-video translation generator aided with fine-grained learning and is the first video compression enhancement network to boost rPPG measurement on highly compressed videos. The rPPGNet, which featured a skin-based attention module and partition constraints, can measure accurately at both HR and HRV levels.

We want to conduct the cross-dataset test and show that the STVEN can generalize well to enhance unseen, highly compressed facial videos for robust rPPG measurement, which implies promising potential in real-world applications

There are many traditional methods and approaches. According to the information from literature

studies and our studies , we can say that deep learning-based methods generally give more correct

and faster results than traditional methods. we can say that deep learning-based methods play an

important role in the development of rPPG technologies and their introduction into our daily lives.