

## Problem

When using the EDA library for SCR detection I figured that the peak positions are determined incorrectly. The algorithm detects the saddle points after a peak onset instead of the peak itself. Figure 1 illustrates this issue. Red circles mark the points where the algorithm detects a peaks. Green circles mark the spots where the real peaks are located.

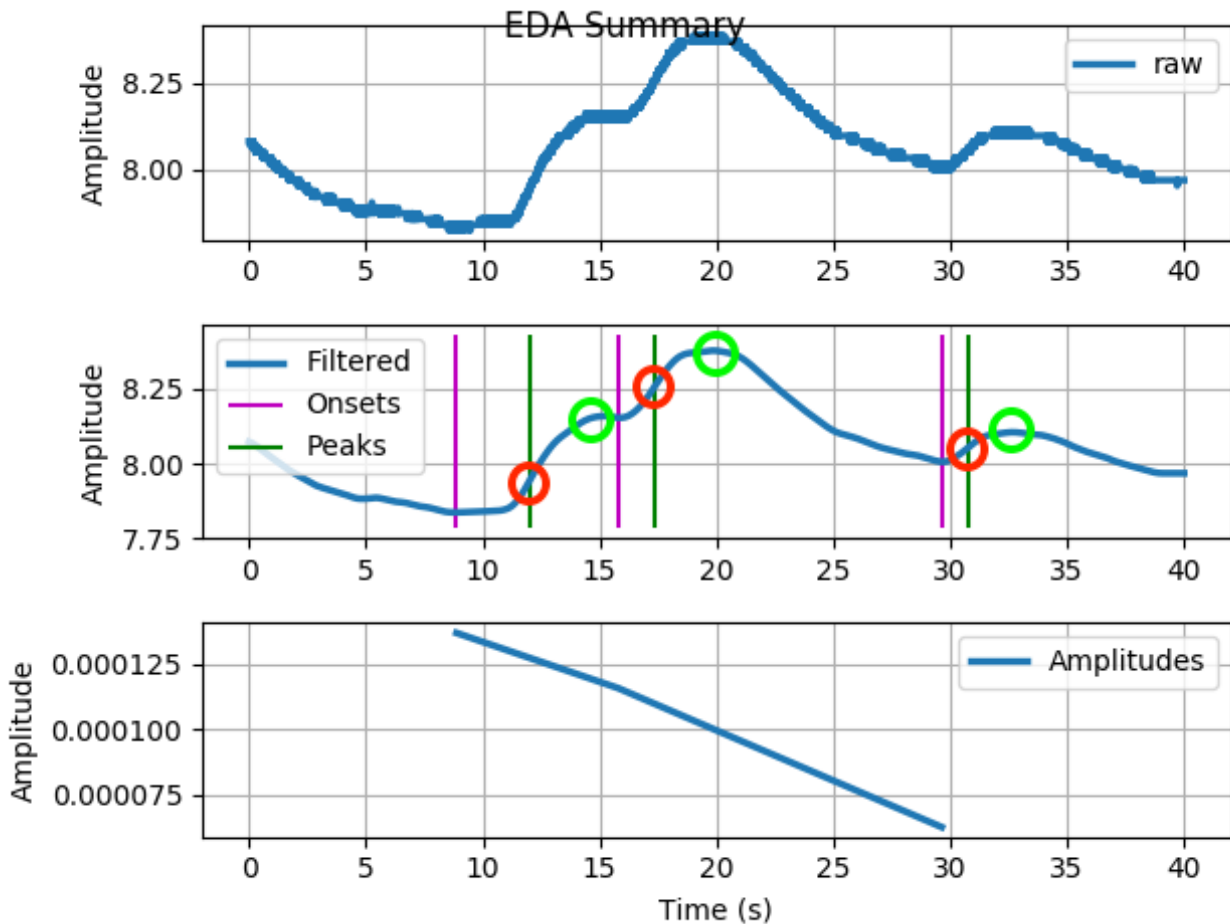
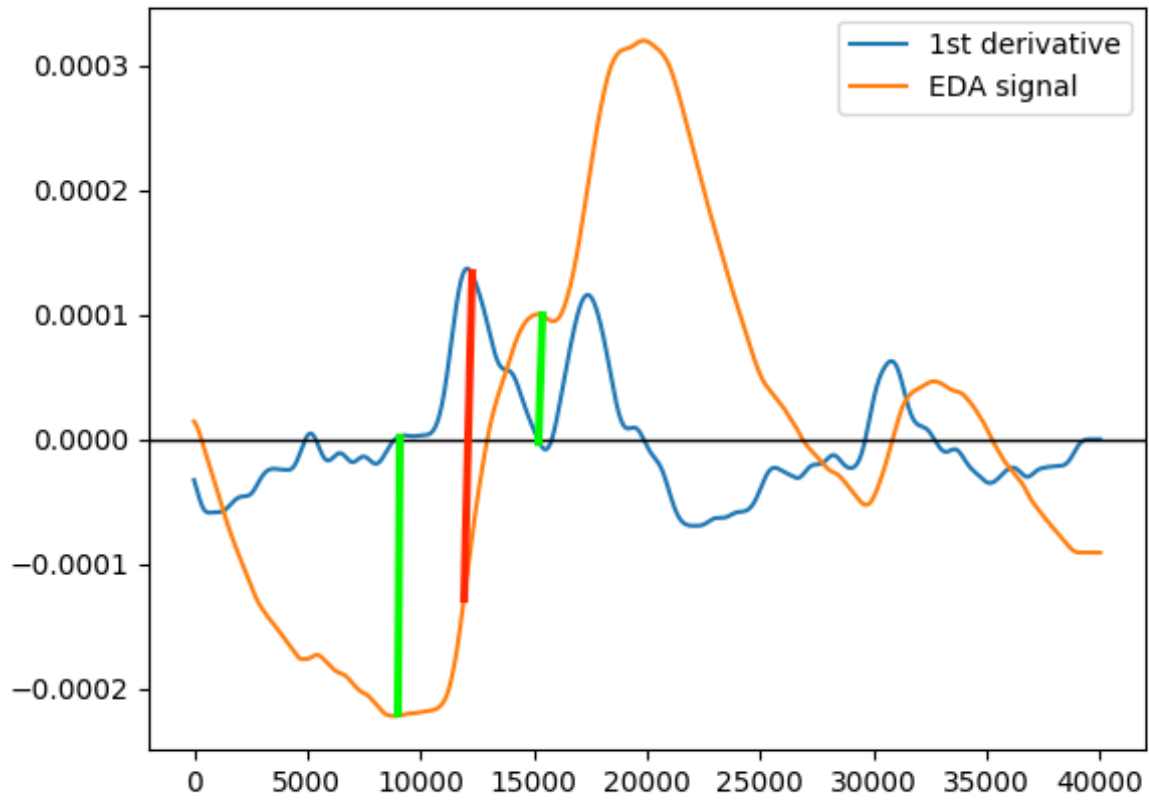


Figure 1: The peaks detected by the algorithm are actually the saddle points after the peak onsets. These are marked with red circle. Green Circles mark the real peaks.

## Possible Solution

In biosppy/signals/eda.py the kbk\_scr function is used by default. In line 232 the maximum of the derivative of the Eda signal is detected and in the following used as an index for the peak. Since the highest point of the derivative indicates the saddle point of the derived signal this leads to the wrong detection in the library. The second zero crossing of the derivative indicates peak. Figure 2 illustrates this circumstance. The first green line is the first zero crossing indicating the onset of the peak. The red line indicates the peak detected by the algorithm which is actually the saddle point of the peak. The second line marks the real peak of the signal which is located at the second zero crossing of the derivative.



*Figure 2: EDA signal and derivative. First green line indicates the correctly detected onset of the peak. The red line indicates the peak detected by the algorithm which is actually the saddle point of the peak. The second green line display the correct position of the peak which is located at the second zero crossing of the derivative.*