

# eCall triggering by determining a deviation in predicted pulse patterns

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Presentation of the project at the eCall Days

Jens Liebold, October 2020

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# Problem to be solved



- Motorcycling is a very action-packed and multifaceted hobby.
- You can do it alone or in a group. On roads and off the piste. If an accident happens, quick help is necessary. Here eCall systems support
- Aisles products only monitor the vehicle. How the driver is feeling is not taken into account.
- Especially with motorcycles, the vehicle may be damaged, but the driver is doing very well.
- For example, if the motorcycle simply tips over while the driver gets himself a coffee.

→ We want to put the driver in the foreground, not the vehicle.

→ But how can this work?

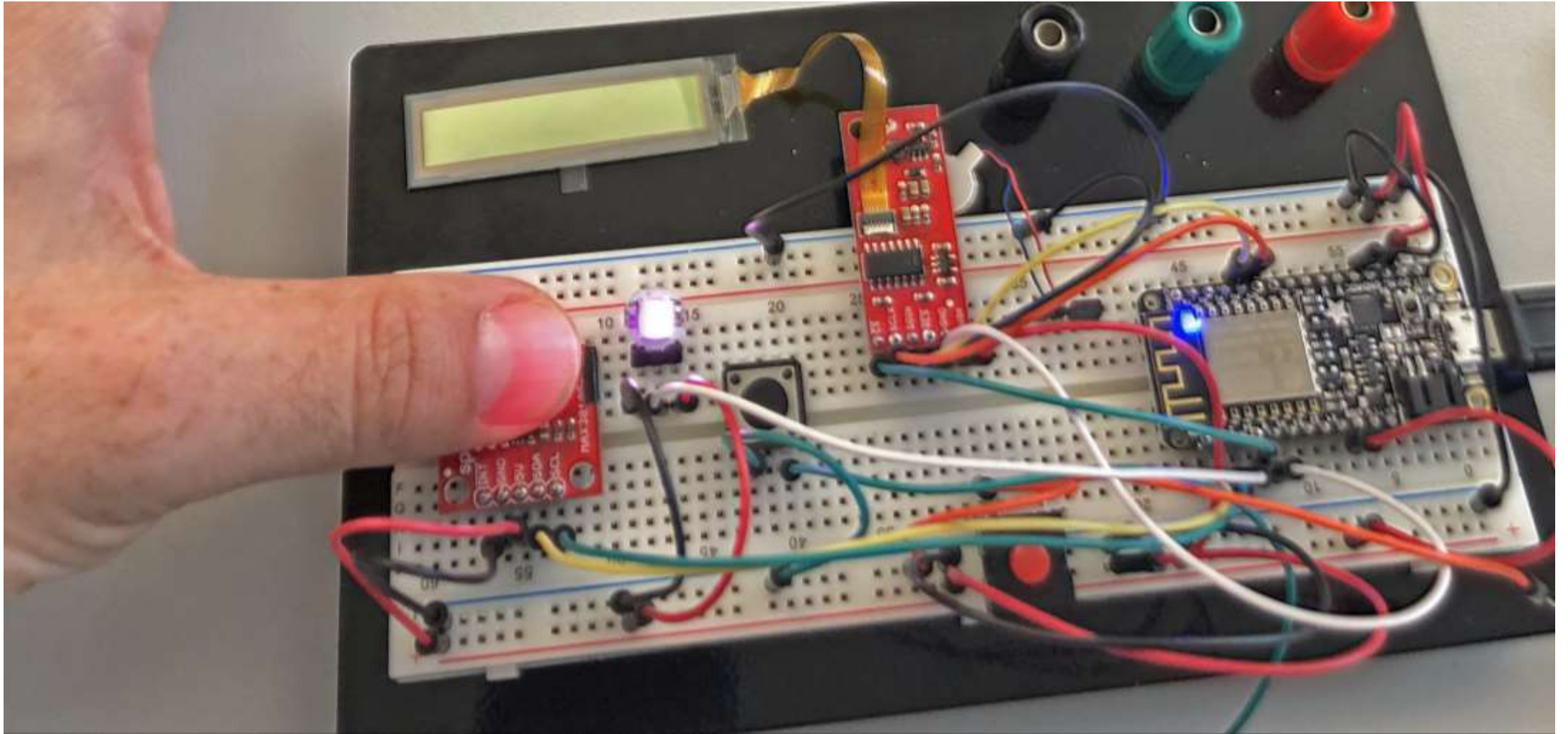
Product innovation driven by people  
and culture

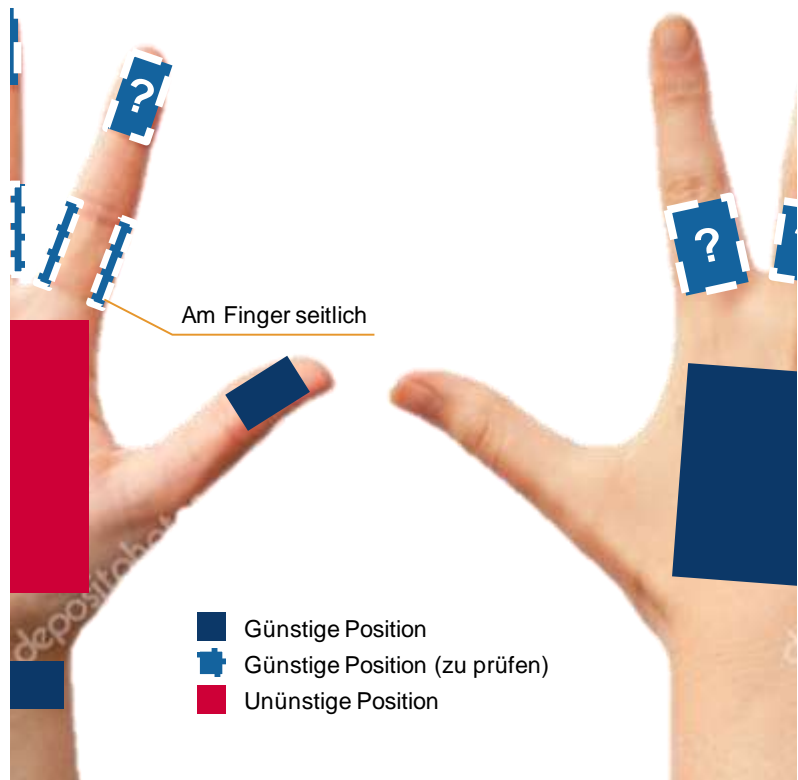
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# Minimum viable product



# Minimum viable product





## Housing of electronics and power supply in one glove

- After an evaluation of the signal quality of different positions, the vital sensor is integrated on the palm protector
- The control board and battery are located in the glove cuff, the display in the ankle protector

## Recognition of accidents based on vital functions

- By means of machine learning the "normal condition" can be determined  
Deviations are indicators for e.g. fright seconds or accidents
- Pending tests must be carried out to determine whether this is also possible outside the laboratory conditions in driving operation

## Triggering the eCall by cell phone

- With the help of an app for smartphones, communication takes place via the mobile network.
- In "group mode" other participants are informed about the accident and navigated to the accident site

# One idea – three different products

## Overview Landingpages



## Determining a deviation predicted pulse patterns

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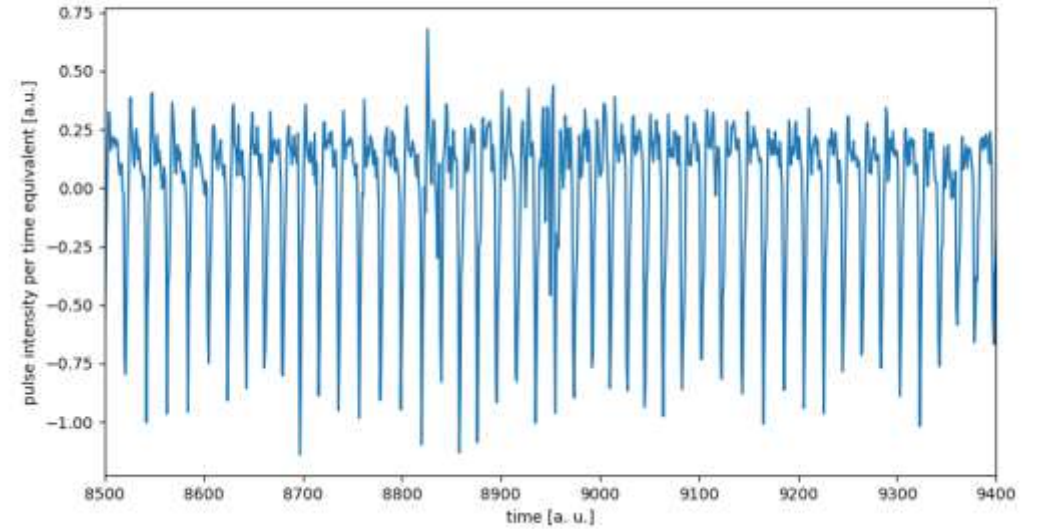
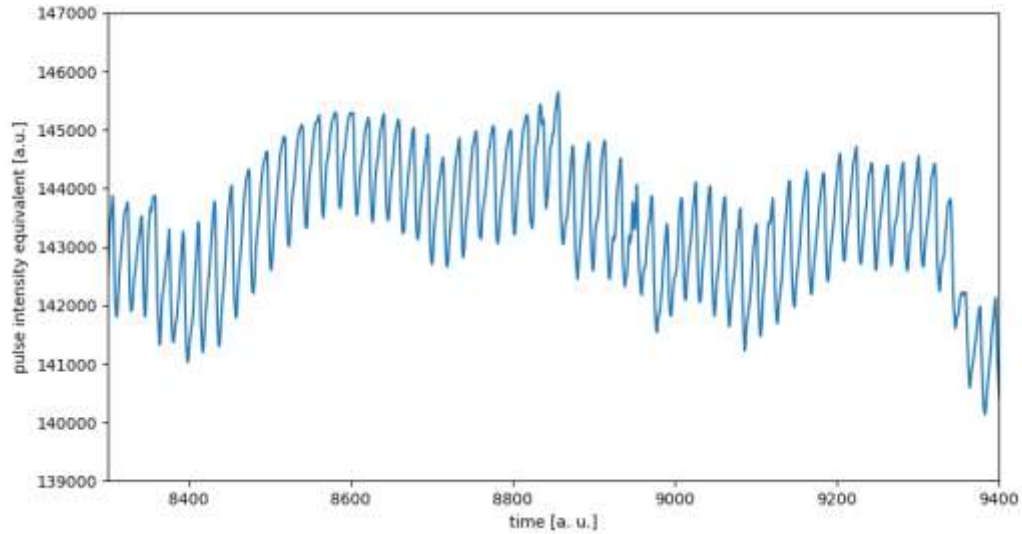


## Procedure of measuring

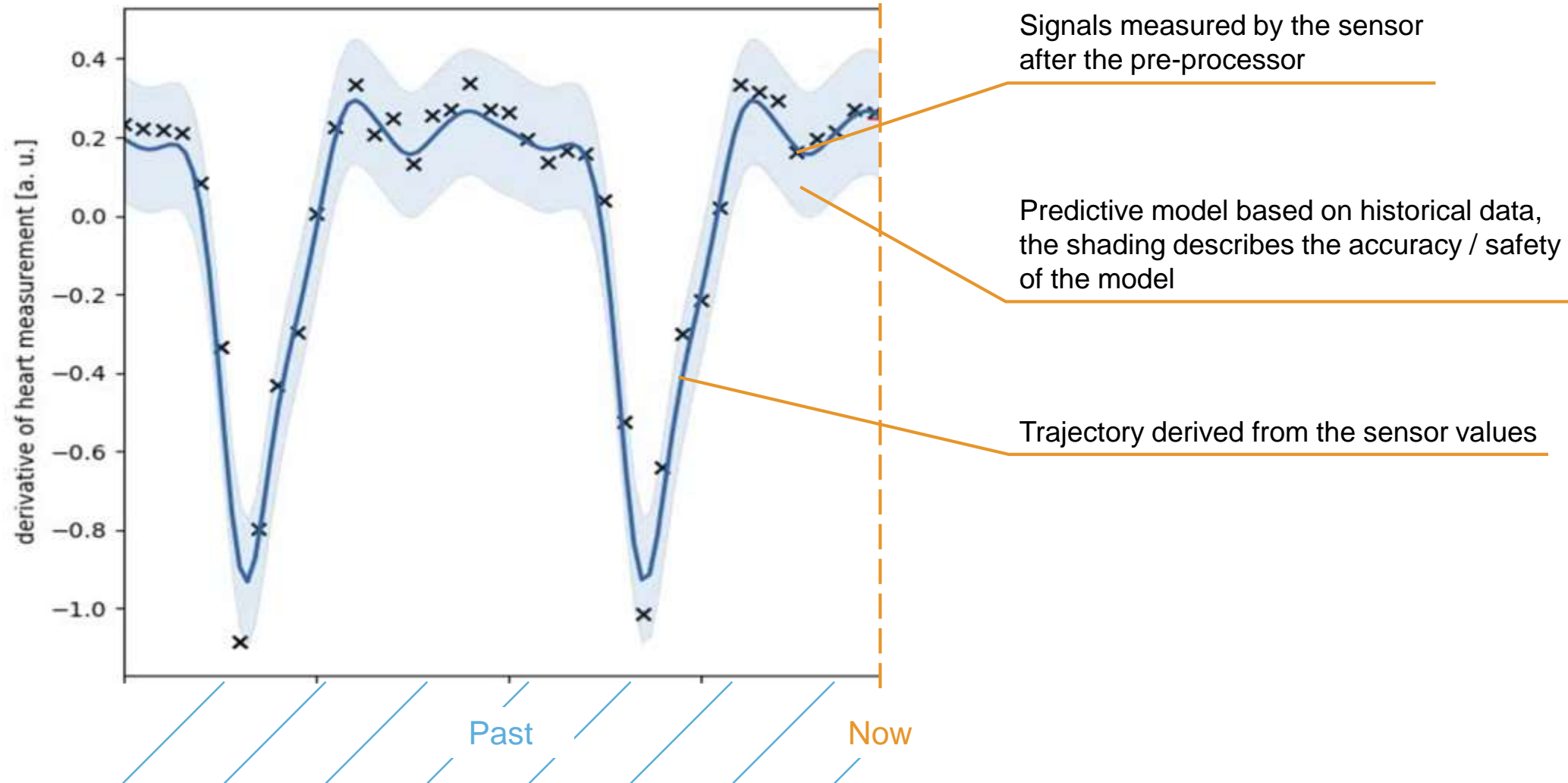
- The test persons were first placed in a pleasant atmosphere watching a video.
- This was changed abruptly and without notice into the opposite.
- 80 % of the people were frightened, which can be seen on the measurement data.
- The others suspected that something similar would come to them.

- This series of experiments will not meet scientific criteria.
- But gives an indication of what can be done with such data.

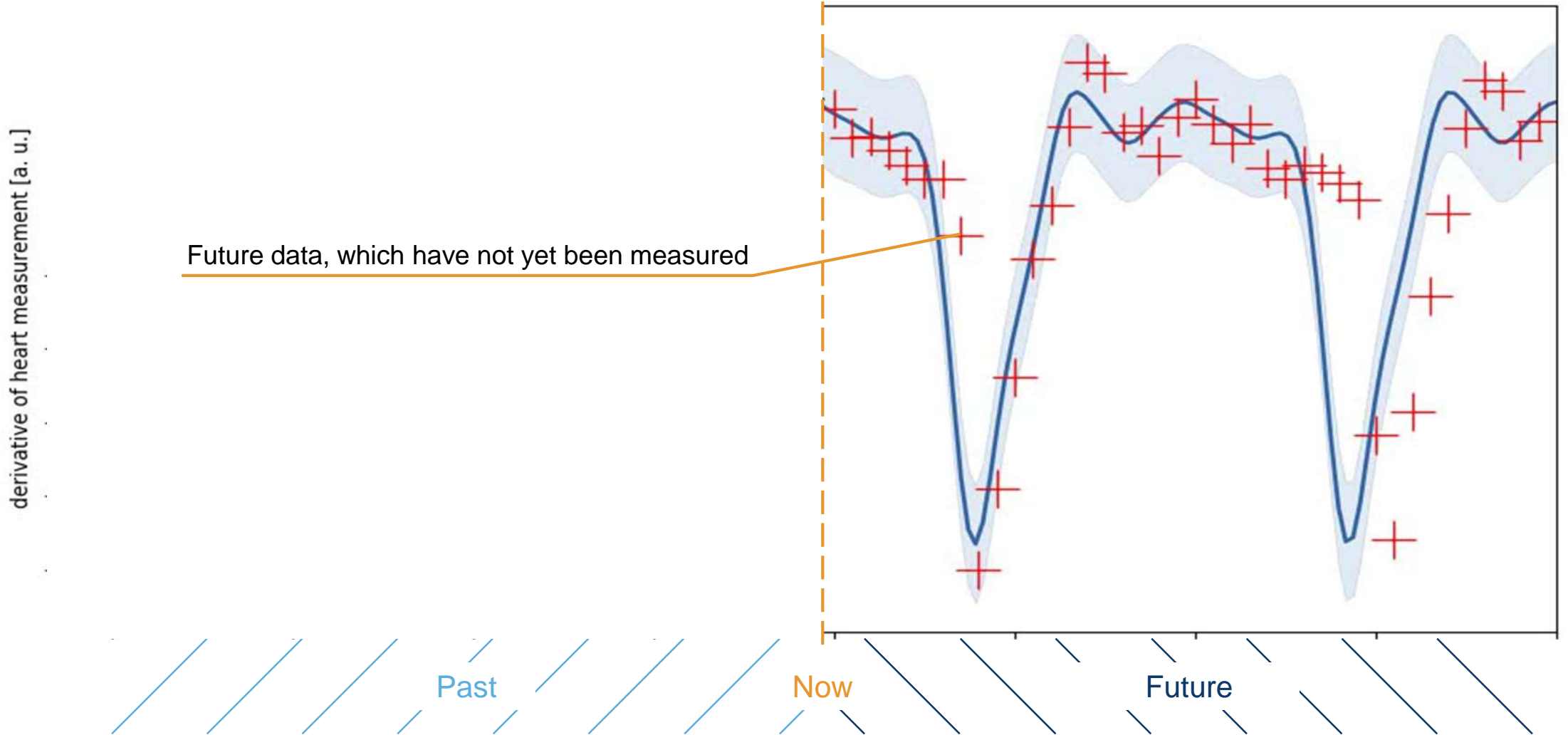
## Standardization and stabilization of data



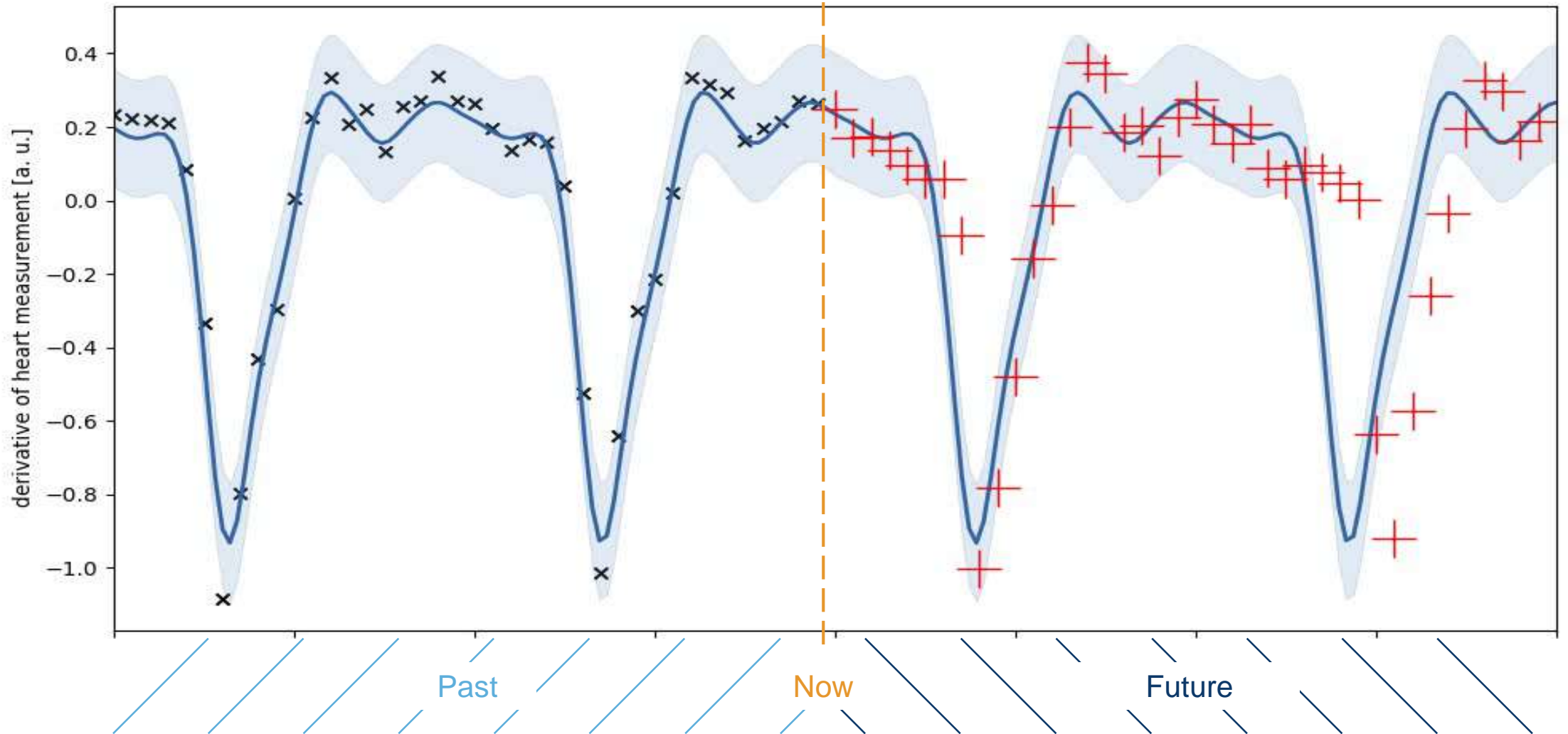
# Processing of the measured values



# Processing of the measured values



# Processing of the measured values





- Riding a motorcycle can be very dangerous
- The aim of this project was to find out whether eCalls based on vital parameters of the driver are possible
- Technically this is feasible as well
- Furthermore, it could be recognized that some sub-functions of the MVP trigger clear buying incentives

→ It is possible to determine unexpected events from high resolution measurement data of a pulse oximetry.

→ But there is still a long way to go.

# Contact

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