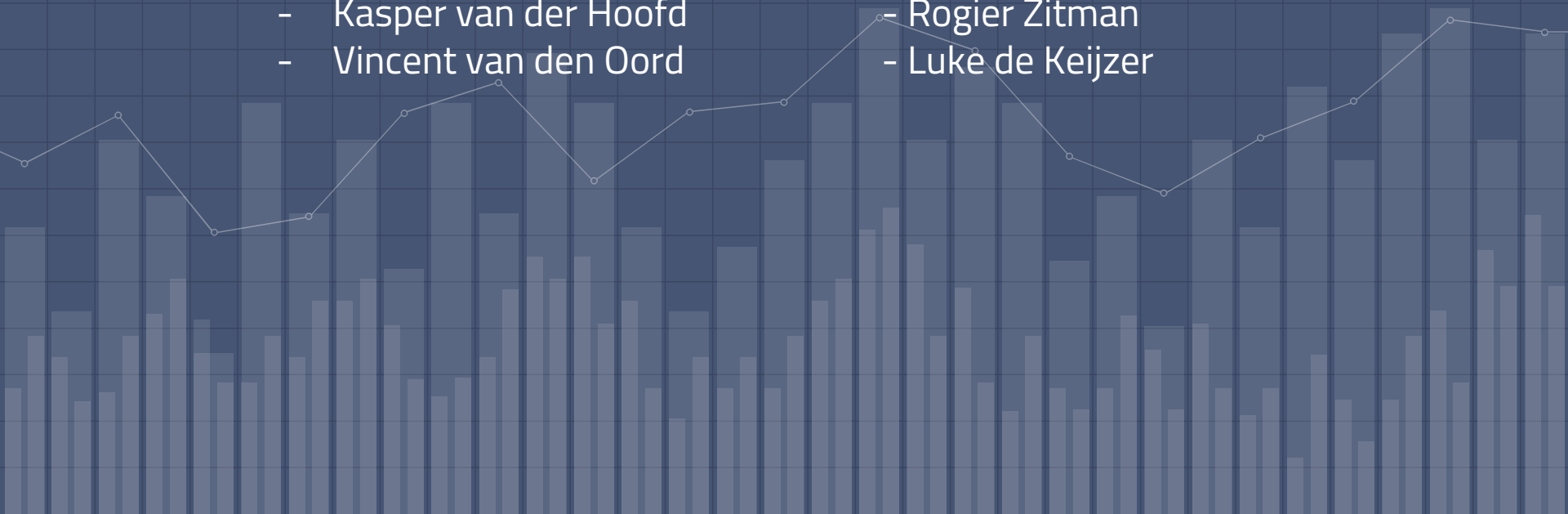
Ortho Eyes

Tony Andrioli

- Kasper van der Hoofd
- Vincent van den Oord
- Rogier Zitman
- Luke de Keijzer



The research question

- Research has been done on different patient groups. But it is unknown to what extend the data can be used to distinguish these patient groups.
  Or as put by Kolk et al., (2017):
  “investigate whether kinematic analyses of shoulder motion are useful for diagnostic purposes.”

  In data science terms: make a classifier to differentiate the patient groups.

Our Client

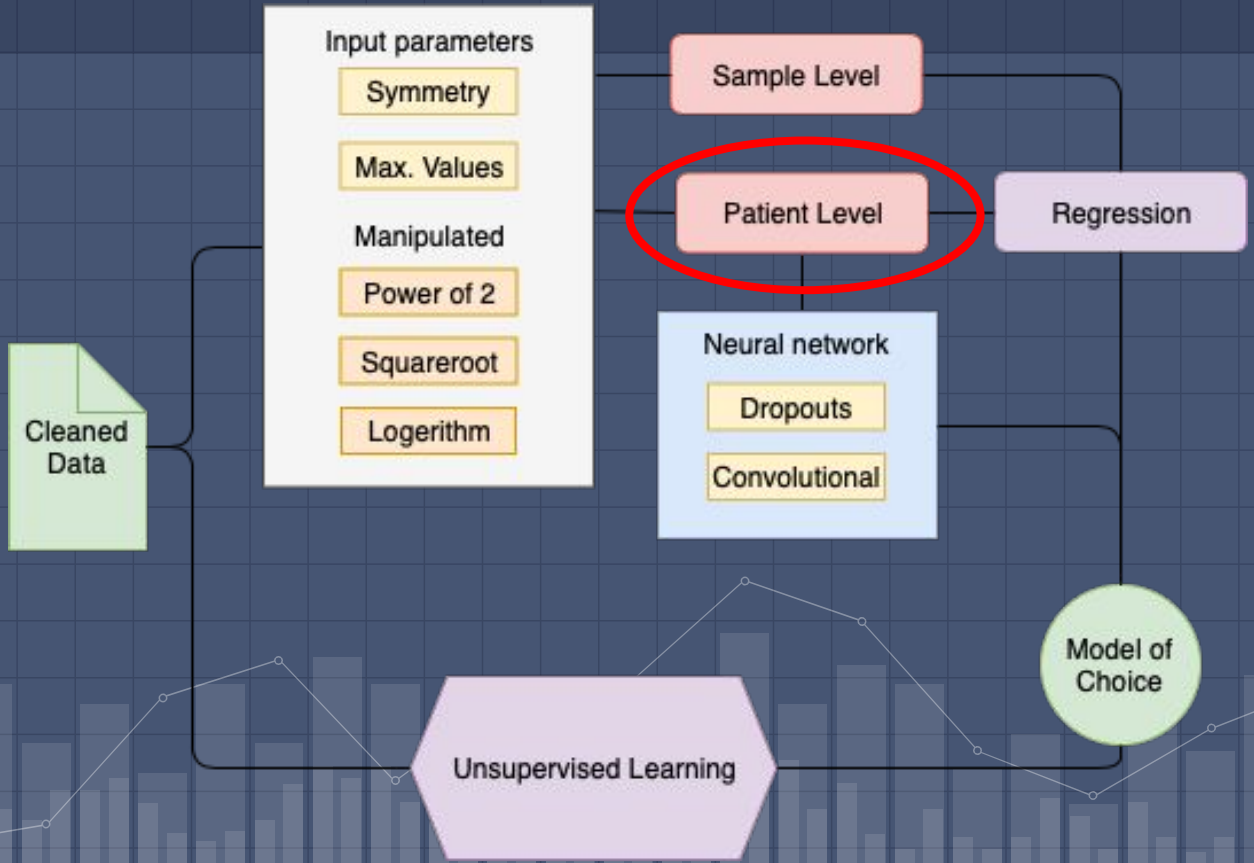
Dr. ir. J. H. (Jurriaan) de Groot

Hoofd Research and Development

Vakgebied(en)

- Innovatie in diagnostiek en behandeling (Centraal neurologische & Neuromusculaire aandoeningen, Schouderpathologie)
- Hoofd Laboratorium voor Kinematica en Neuromechanica (LK&N)
- Blokcoördinatie Technische Geneeskunde

Where are we now?

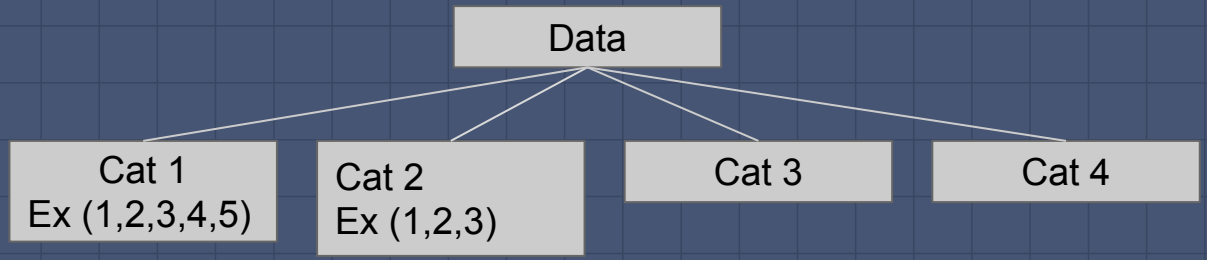


What have we achieved so far?

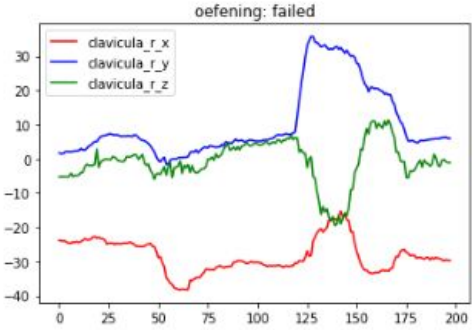
We built and tested several classifiers:

- Now we can distinguish patients that belong to category 1 or 4
- We have problems with distinguishing patients that belong to category 2 and 3

What was our goal this week?



We wanted to distinguish different exercises among the different categories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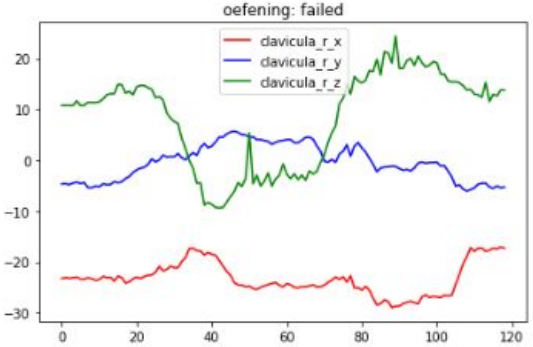
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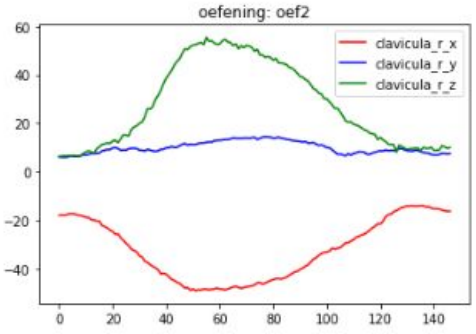
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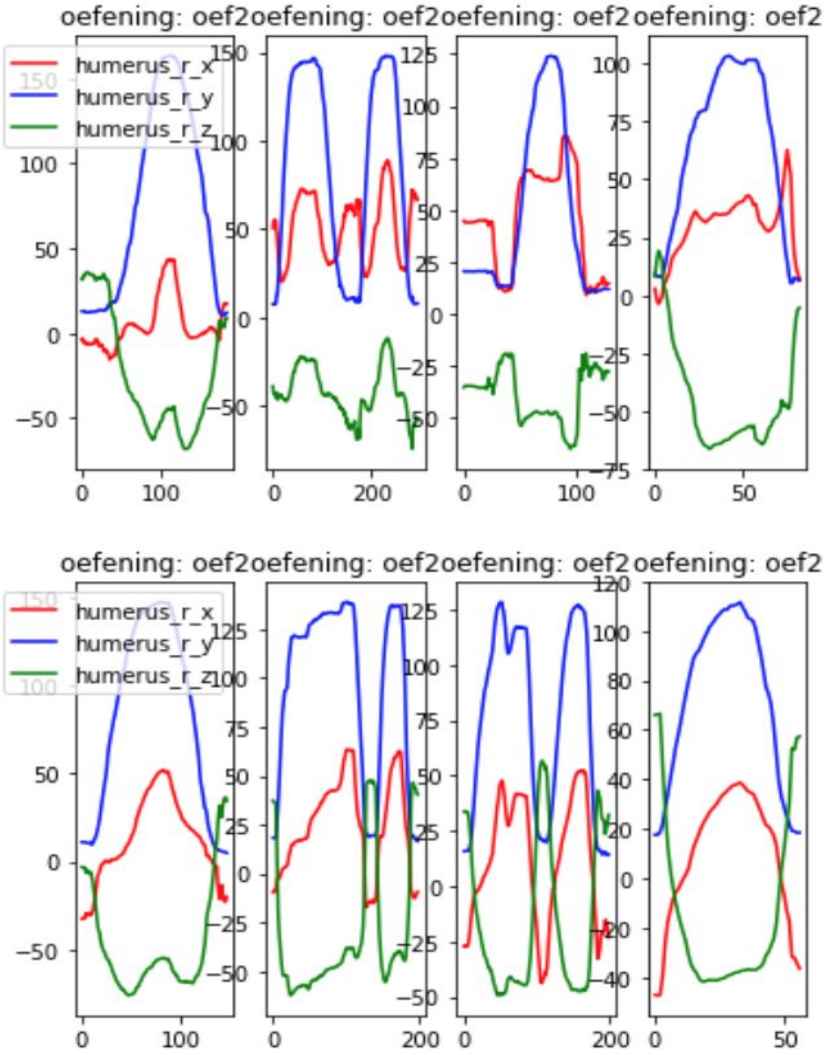
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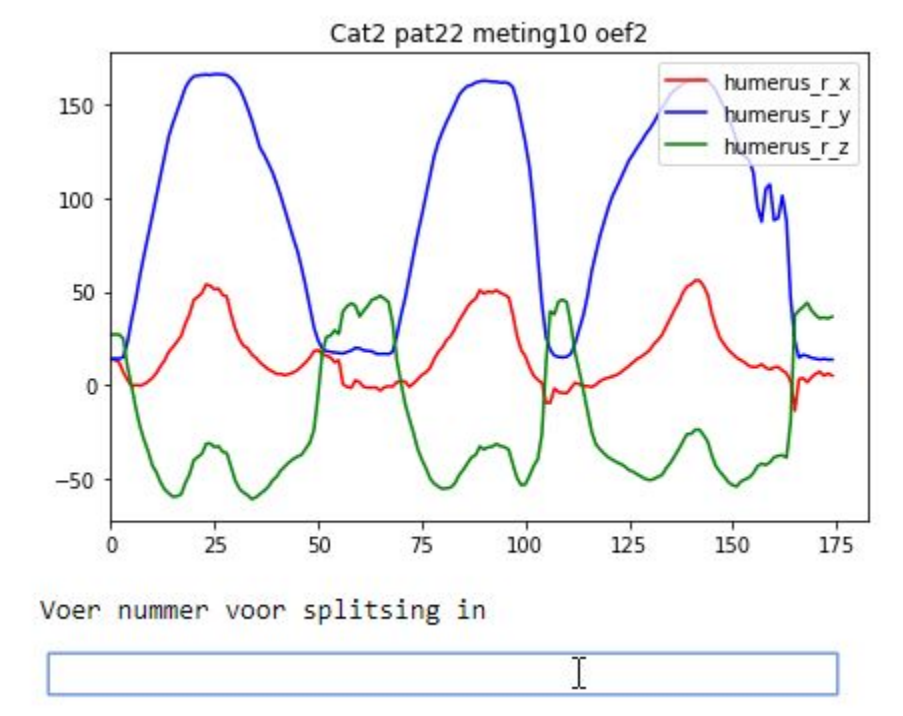
We found that:

- There are a lot of unnecessary frames
- Some exercises are done twice in a single measurement/exercise

We wanted to solve this problem

And (at the same time) increase the amount of samples

We have written a script/tool for this problem



Summary: What have we done this week

- Written a piece of the research paper
- Manually compared exercises between categories
- Written a script to clean and split data

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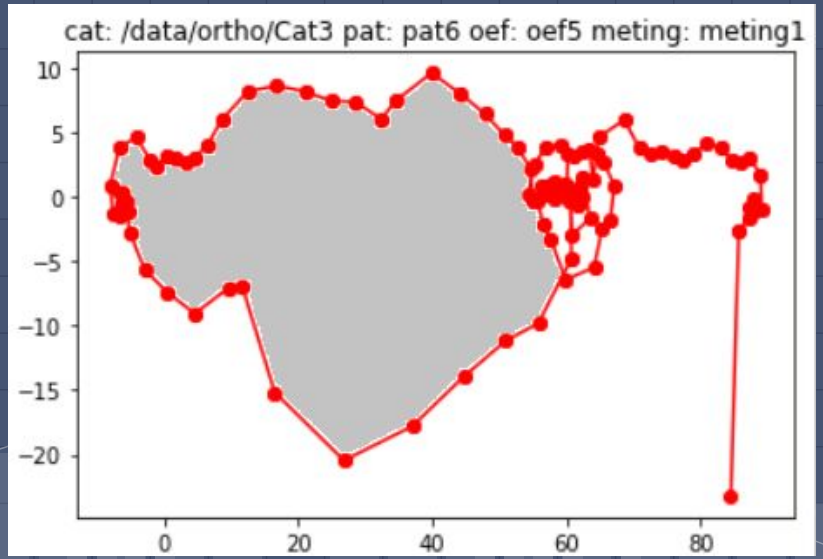
What is the next step with this?

Why do we want this?

- To calculate the surface area (new parameter)
- To use this new, cleaned and split data in new more general classifiers



Our planning for next week

- Clean and split our data (1220 exercises)
- Calculate the energy per exercise (surface area)
- Retrain classifiers with new super cleaned data (and new parameters)

- Continue writing the research paper

Any questions or suggestions?