Assignment 2: Ellipse

**Goal of the assignment**

* Learning how to work with the ellipses of the Ellipse programme
* Gaining insight into the use of 2D data and estimated percentage of excluded product users

**Material**

* A scatter plot with data (breadth across the elbow and popliteal height); see appendix 1

Alternative:

You can also create your own Ellipse plot by using the online Ellipse programme. Using the programme will probably enlarge your insight in the value of using ellipses. Moreover, you can use the created ellipses for completing this assignment.

Online Ellipse can be found on the DINED website: http://dined.io.tudelft.nl  
and choose the tab ‘Ellipse’. For logging into the programme the first time, you need to create an account on the DINED site (with the tab ‘sign up’). Next times you only have to ‘sign in’.

**Assignment**

The product is an office chair with adjustable seat and armrests. The armrests are 10 cm wide and their vertical adjustability is unlimited.

You are asked to determine the ranges of adjustment of the armrests (horizontal) and seat (vertical).

* Start with measuring the breadth across the elbows and popliteal height of at least 5 subjects.
* Put these values into the scatter plot (in appendix 1 or in your own created plot), so place coloured dots into the plot.

Draw a box around these dots. This box represents the adjustment ranges for the armrests (horizontal, inside/outside) and seat (vertical) for the group of subjects you measured.

Question: which users outside this box can use the chair as well? Consider tolerance in usage. What arm and leg angles are still comfortable? **Make clear drawings of the user positioned in the office chair.**   
Give argumentations and explanations based on these drawings.

Draw the larger box and motivate your choice for the boundaries.

Estimate the percentage of users that are excluded from comfortable use of the chair by using the scatterplot.

# Appendix 1

poplhgt_brdt-elbows uitgesneden copy.tiff