# The assumptions behind Machine Learning

- Jupyter notebooks gradually increasing complexity on ML topics.

- Some small exercises in-between.

- Detailed mathematical explanation of the methods in notebooks, so we can gain an understanding of how it works.

- Topics:
    - Basic line fits with uncertainties.
    - Representation Learning.
    - Simple non-linear extension of line fits.
    - Neural Networks (+ uncertainties).
    - Data classification with Support Vector Machines.
    - Gaussian Processes.
    - Bayesian Optimization.
    - Mixture Models.

Hands-On Automation

- Implement a simulated Beam Stabilization system in the Karabo SCADA system using Python
- Perform scans on the unstabilized and stabilized beam
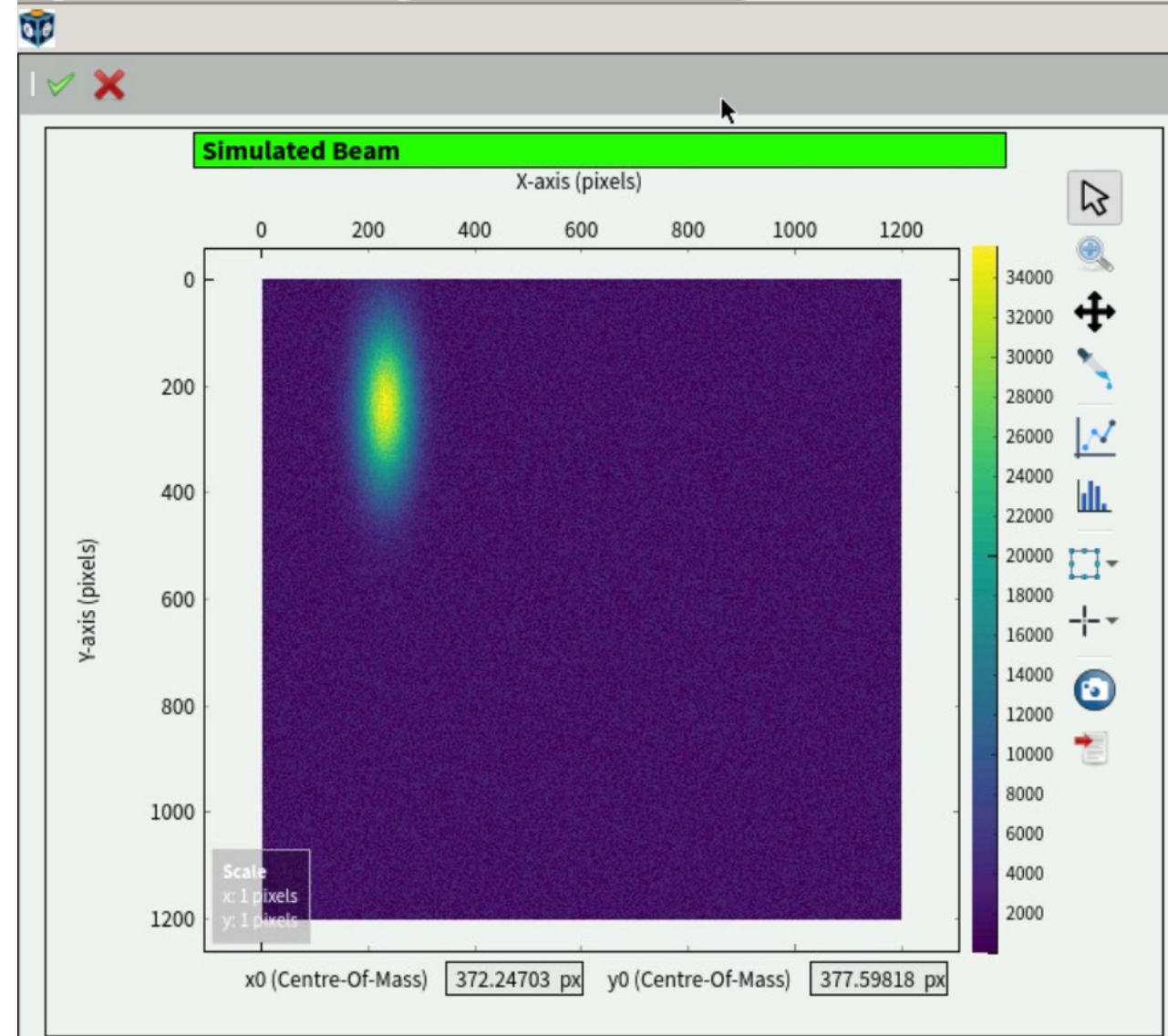
Please choose a session here

- We might need to assign a few people different from their wish to balance the number of participants in each session

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