**GENERAL IDEAS (Will evolve!)**

1. Creating a dashboard/user interface to navigate to the spectrometer database.
   1. Part one would be focused on baselines [3 weeks].
      1. Tracking KPI evolution for the baselines on each system.
      2. Different dashboard functionality
         1. Easily find and view specific measurements.
   2. If he is successful with this, we will expand the dashboard to whole dataset [2 months]:
      1. Implementing the spectrometer data quality check tools directly queries using the SQL database
      2. Provide up-to-date feedback on room air quality at clinical sites [2 week]
   3. Deploy Actuator scan SQL tools [2 weeks].
2. Work on the Spectrometer Measurement Processing (SMP) repository:
   1. Improve current automated validation tests using the spectrometer data.
      1. Baseline validation test.
      2. Tube cleanliness verification.
   2. Create new automated validation test for the spectrometer data.
      1. Validation against known substances.
      2. Sampler cleanliness verification report.
      3. Discuss with the operation team (and Bill) to evaluate any needs for data processing/automation in their sector.
3. Develop better frameworks to process spectrometer analytics.
   1. Error logs, spectrometer settings, etc. To be discussed.
4. Helping us with any ongoing task regarding the spectrometer data pipeline.
5. Create a dashboard for counting usages of the breath collection tubes. [2 weeks]
6. Classifier to detect if a sample is a breath or a room air.
7. Automated framework to perform refit

# General information’s:

* I’m here to help you. I appreciate meetings with organized questions.
* I value autonomy, independence and initiative!
* I value slower work that is well documented, so we can just make it work in 6 months!
* Schedule and [timesheet](https://picomole-my.sharepoint.com/personal/maxime_boudreau_breathebiomedical_com/Documents/Documents/Tasks%20for%20students/Srabon/New%20Microsoft%20Excel%20Worksheet.xlsx).

## Project 0 - Orientation and familiarization tasks

General orientation tasks.

* Get access to the VPN
* Get access to Krakatoa
* Get access to gitlab (https://sthelen.picomole.com/users/sign\_in )
* Read this: <https://drivendata.github.io/cookiecutter-data-science/> see if this is a good framework for our projects. If not, we can discuss why and identify similar resource well suited for our specific needs.
* Read, understand, and adhere to this git branching model:
  + <https://nvie.com/posts/a-successful-git-branching-model/>
* A bit on readme:
  + <https://www.freecodecamp.org/news/how-to-write-a-good-readme-file/>
* Have a look at Christian’s ML repository:
  + Latest branch (time-series) : <https://sthelen.picomole.com/tools/clinical-data-processing/-/tree/time-series/>
* Setup a Teams Account. Ensure you have your calendar set up.

## Project 1 – Metadata Viewer

[See Powerpoint.](https://picomole-my.sharepoint.com/personal/maxime_boudreau_breathebiomedical_com/Documents/Documents/Tasks%20for%20students/Srabon/Project%20–%20Metadata%20viewer.pptx)

## Project 2 – Baseline validation tools improvement

To be defined.

## Project 3 – Baseline KPI tracking dashboard

To be defined.