**GitHub**

“Executed\_code” > Documents the progression of code used to generate new sets of parameters. The 2 main ones that I used were “visc\_v4a\_2” and “visc\_v4a\_3”. The main difference between these 2 sets of code is that the older version minimizes percentage error of the transfer while the newer one minimizes the absolute percentage error.

* Divide: fast transfer time penalization
* Multiply: slow transfer time penalization
* None: no transfer time penalization
* All experiments are either done using half set or first data point of standard calibration.

“Opentrons\_experiments\_previous” > contains all the raw data frames, compiled csv and diagrams of experiments done using the ver3 codes (machine-learning segment). The progress and summary of the experiments are also documented in greater detail in report format (under “Reports\_archive”). It also contains csv of preliminary trials labelled “Viscous\_liquid\_ver2\_csv”. Detailed documentation of the human segment of this project can be found in the sub folder named “Version2”.

* All reports are saved in GitHub in 2 formats: Microsoft word and pdf.

“Opentrons\_experiment” > contains all the raw data frames, compiled csv and diagrams of experiments done using the ver4 codes. Most of the experiments in this folder are done with the new optimization algorithm, where the parameters are sampled in a way that tries to cover most values in the designated parametric space. This is the main difference between the 2 sets of code: “visc\_v4a\_1” and “visc\_v4a\_2”.

* Like the older experiments, detailed documentation of the experiments and short analysis are included in the corresponding reports.
* Due to an error in the code, only the csv and png with “amended” attached at the end of the name of the file used linear regression model.

“Std\_calibrations” > contains all the data frames created in the “human” section of this project. Detailed documentation of the human section is in the folder “Opentrons\_experiments\_previous/Version 2”

* Contains a folder named “Checks” that double checks the accuracy of the result of calibration for each standard.

“Utils” > this folder contains the code that can be used to generate graphs that analyze raw data.

* Some parts of the code might need to be changed due to the constant renaming of files.