

# neuroNLP dashboard manual

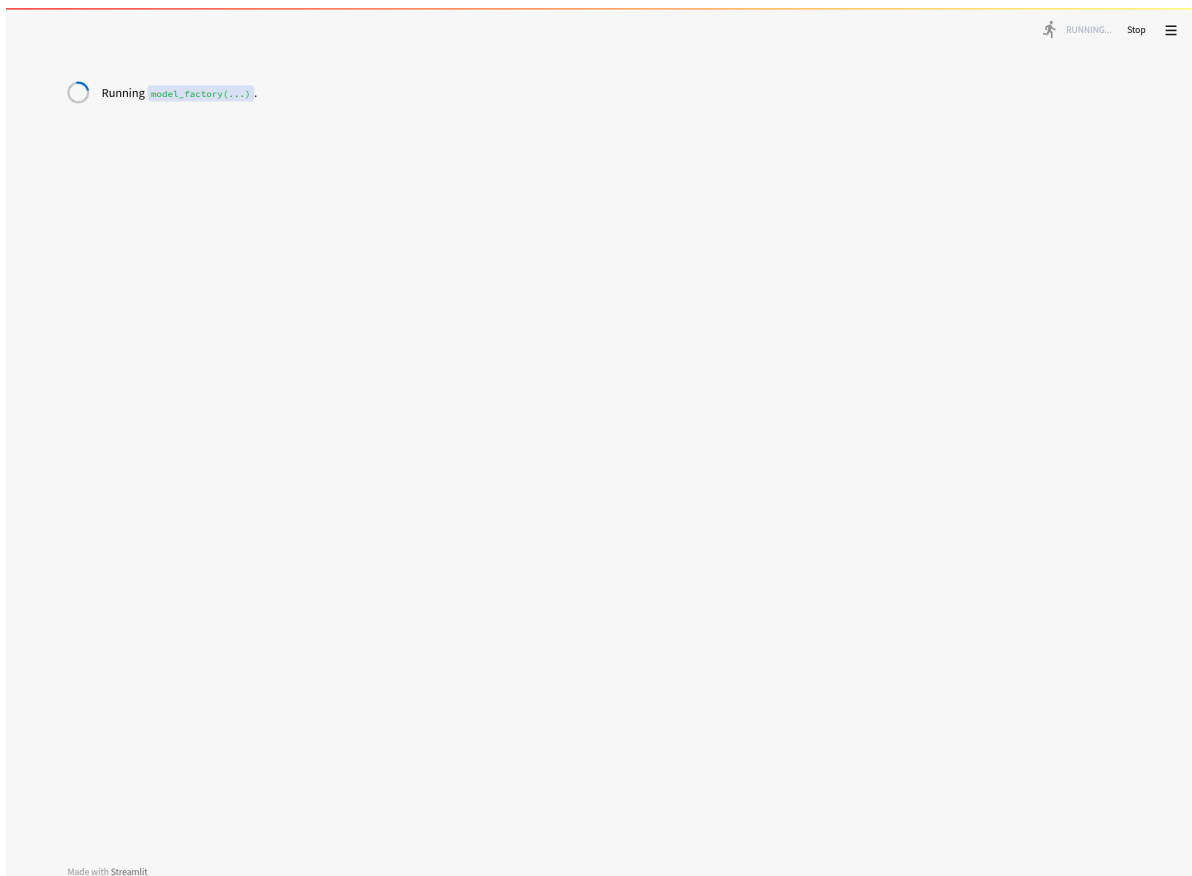
## Installation

Requirements:

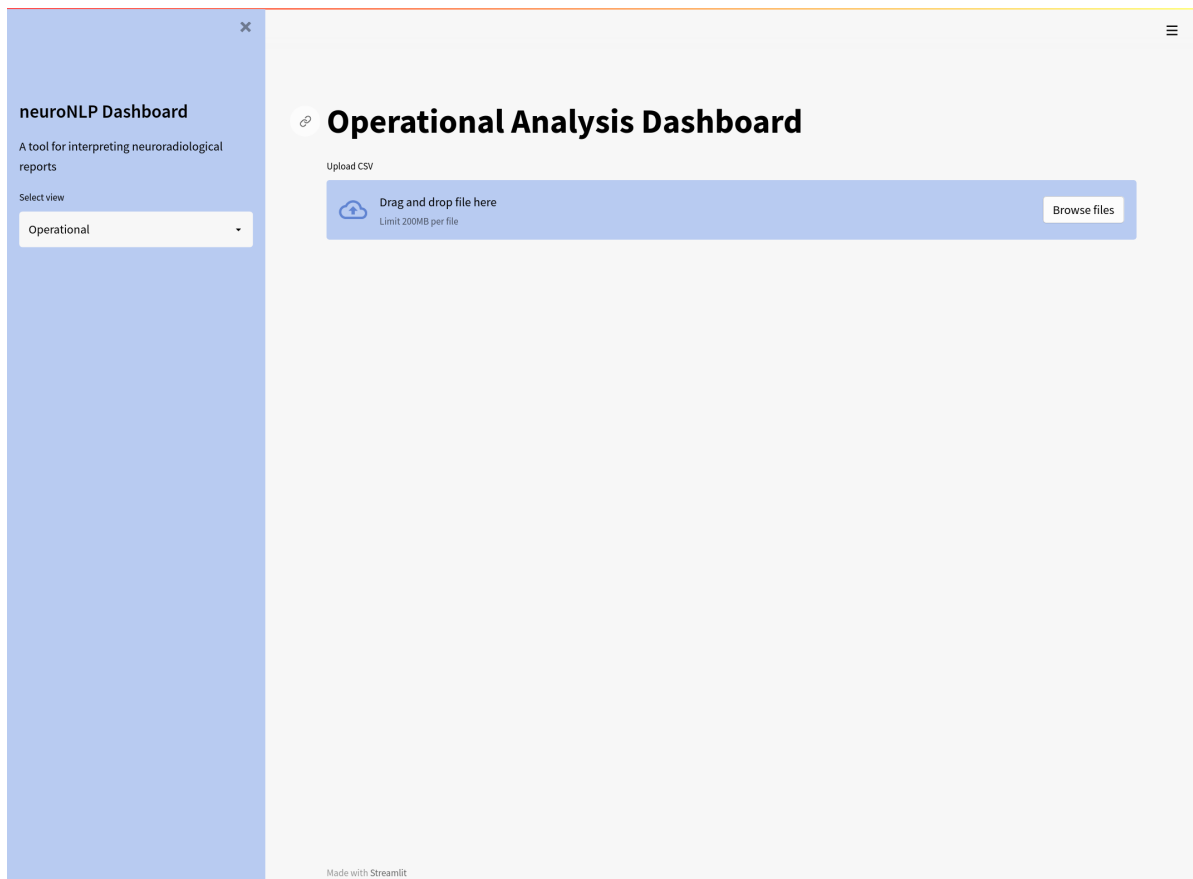
- A Linux OS computer with docker installed (version 20 or later).

The neuroNLP software is distributed as a docker image, as such it requires docker to run. The docker image can be acquired either from the docker registry or as a tarball (a .tar file).

1. If the image is supplied as a tarball, unpack the tarball using `docker load < imagename.tar`. This will add the image to the local docker registry.
2. Check the image has been successfully registered with `docker image ls`. You should see a new entry with the name of the dashboard image.
3. Start the dashboard container using the run command `docker container run -p 8501:8501 imagename`. This will spin up a locally running container of the neuroNLP software.
4. The dashboard runs on a local network, and is accessed via a browser. To check the container is running successfully, check the address `localhost:8501`. The browser should display something like



The AI models required by the software will take a couple of minutes to load up. Afterwards, one should see



The dashboard is now ready to use.

## Usage

### Uploading data

To use the dashboard, one must first upload some data you wish to analyse. Currently only CSV and XLSX files are supported. Drag-and-drop into the bar, or use the "Browse files" tab o upload your data. If your excel spreadsheet is password-protected, a box will appear, prompting you to provide your file password. Fill in your password and press enter, the press the 'Upload and process reports' button to complete the upload.

The dashboard also supports uploading multiple files. When you want to upload several files, simply drag and drop all your files into the bar, the dashboard will read in all these files separately then concatenate the data together.

### Selecting reports

Once the data has been loaded and processed, the dashboard will display a dropdown menu with selection options.

Report Selection

Ordering Department

all x

Department Specialty

all x

Base Patient Class

all x

Requesting Clinician

all x

Uses contrast?

all x

Quality Priority

all x

Procedure

all x

Interval Start Date

2000/02/23

Normality class

all x

Reporting Clinicians

all x

Interval End Date

2019/03/14

Age

0 22

Pathological domain

all x

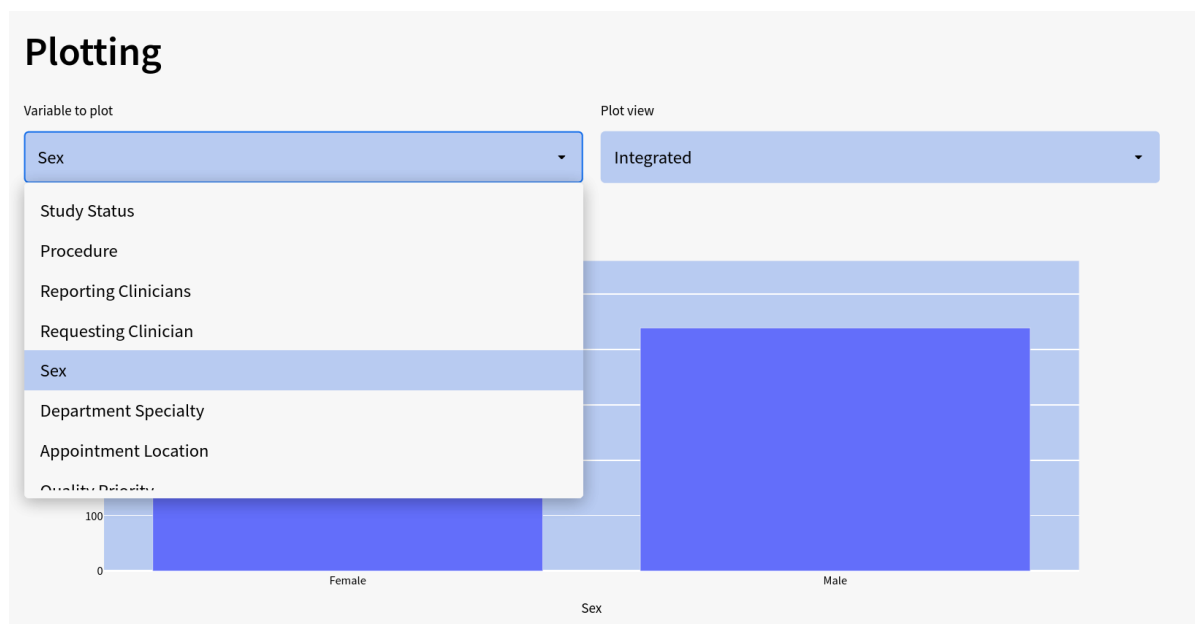
Sex

all x

You can use these tabs to specify criteria for report selection. You can choose a particular date range, age range, sex, department etc. The following plots and analysis will only consider the subset of reports that correspond to the specified criteria.

## Operational view

The dashboard has two "views", which can be toggled using the drop-down on the left-hand-side of the screen. The "operational" view provides statistics for a large number of reports, and plotting functionality to view the data. To plot a particular variable, select one from the 'variable to plot' dropdown and choose a plot view. These plot views allow you to create temporal or integrated plots, or to change the axis to a logarithmic scale. These plots are interactive! Try clicking a dragging, zooming in or displaying information by passing the mouse over the plot.



The operational view displays a summary panel below the plot that contains a statistical summary of the selected data.

Summary

	start_date	end_date	n_reports	n_unique_patients		Age	report_length_words
0	2000-02-23	2019-03-14	1000	991	count	1,000.0000	1,000.0000
					mean	10.9340	130.4170
					std	6.6379	87.6485
					min	0.0000	9.0000
					25%	5.0000	73.0000
					50%	11.0000	113.5000
					75%	17.0000	167.0000
					max	22.0000	634.0000

	Study Status	Procedure	Reporting Clinicians	Requesting Clinician	Sex	Dept Specialty	Appt Location	Quality Priority	Base Pt Class	Dept	Ordering Dept	Technologist	Authorising Clinician	Category	uses_contrast	normality_class	is_comparative
count	1000	653	1000	1000	980	1000	999	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
unique	1	10	20	309	2	44	28	4	7	5	4	6	7	83	2	2	2
top	Final	NH MRI Head	radiologist 7	MR N KITCHEN	Female	NEUROLOGY	AIU - MRI	Normal	Out Patient	dept 0	dept 0	techie 0	doctor 0	NHNN Outpatients Department	False	ABNORMAL	True
freq	1000	304	66	38	538	514	141	625	757	200	250	167	143	294	861	835	549

One can also export the results of the plotting and statistical summary using the "export selection as csv" and "export analysis as pdf" tabs. The "export selection as csv" button will download your selected reports in a CSV format. The "export analysis as pdf" button will download a pdf copy of the plot and summary created during the session.

Clinical view

The "clinical" view shows details of individual reports, including the results of machine-learning text recognition and clinical entity detection pipelines. The clinical view displays individual reports and associated metadata, including the AI-informed clinical concept detection. Select a subset of reports of interest then specify which particular report you wish to view using the "Patient ID" and "Report Row to select" tabs.

Report

	value
Name	IOANNOU
Sex	Male
Patient ID	41328637
Age	18
Procedure	NH MRI Head Post Gad
With contrast?	True
Normality class	ABNORMAL
Compared to previous imaging?	True
Requesting Clinician	J HYAM
Reporting Clinicians	radiologist 2
Pathological domains	Cerebrovascular, Interventional - Surgery, Haematological, CSF disorders

Asserted clinical entities

Clinical Concepts

6542552 28/06/2016 NH MRI Head 6542552 28/06/2016 NH MRI Head Post Gad Clinical Indications for MRI - pt had **craniotomy** **PATHOLOGY-ASSERTED** and **resection** **PATHOLOGY-ASSERTED** of posterior fossa tumour on 18/6/16, has EVD in situ, needs f/u MRI head with contrast on 27/6/16 to look for residual and before taking EVD out. Findings Comparison was made with the patient's previous scan on 16\~June\~2016. There has been interval **left occipital craniotomy** **PATHOLOGY-ASSERTED** and **partial resection** **PATHOLOGY-ASSERTED** of the **superficial medial locules** **LOCATION-ASSERTED** of the abnormally **enhancing** **DESCRIPTOR-ASSERTED** **extra-axial posterior fossa space** **LOCATION-ASSERTED** -occupying lesion. **Mass effect** **PATHOLOGY-ASSERTED** is reduced in the previously **compressed** **DESCRIPTOR-ASSERTED** and **distorted** **DESCRIPTOR-ASSERTED** **fourth ventricle** **LOCATION-ASSERTED** and **sylvian aqueduct** **LOCATION-ASSERTED** has been partially decompressed. There is a **blood products** **PATHOLOGY-ASSERTED** noted layering in the **occipital horns of both lateral ventricles** **LOCATION-ASSERTED** but there is no overall worsening of **hydrocephalus** **PATHOLOGY-ASSERTED** .