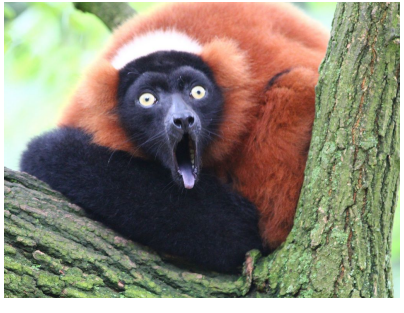
# Week of 9/25 Deliverables

Red Lemurs



# Deliverables: Finishing up preparation (Ryan)

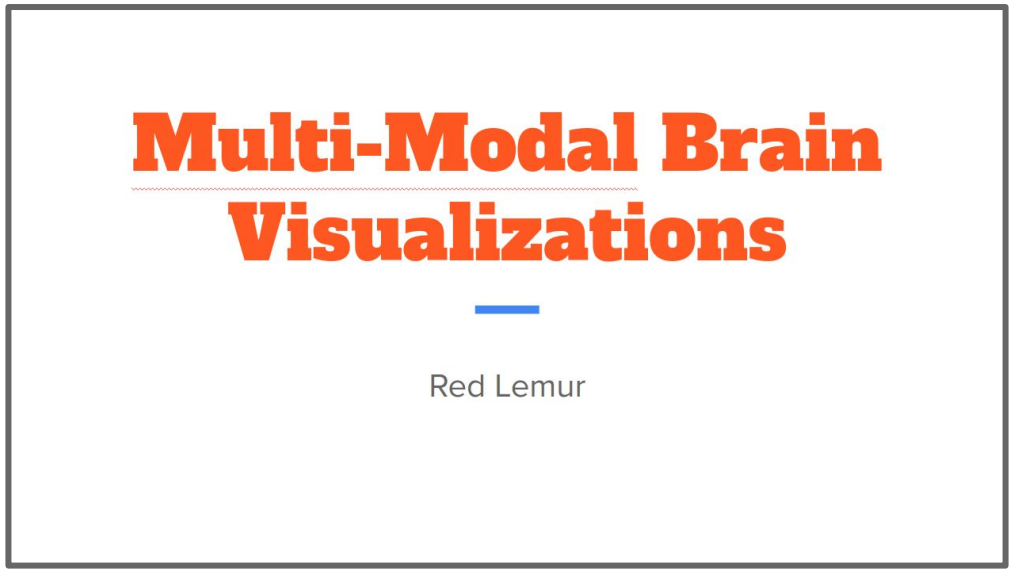
- Proposal slides deck
- Statement of work
- Re-visit PANDA pipeline with new data

# Progress

- Proposal slides ✔
  - DoD: link to slides .pdf on github
- Statement of Work ✔
  - DoD: link to .md table style
- Revisit PANDA ✔
  - DoD: jupyter nbviewer link

Proposal Slides. ✔

DoD: link to slides .pdf on github



## Statement of Work. ✔

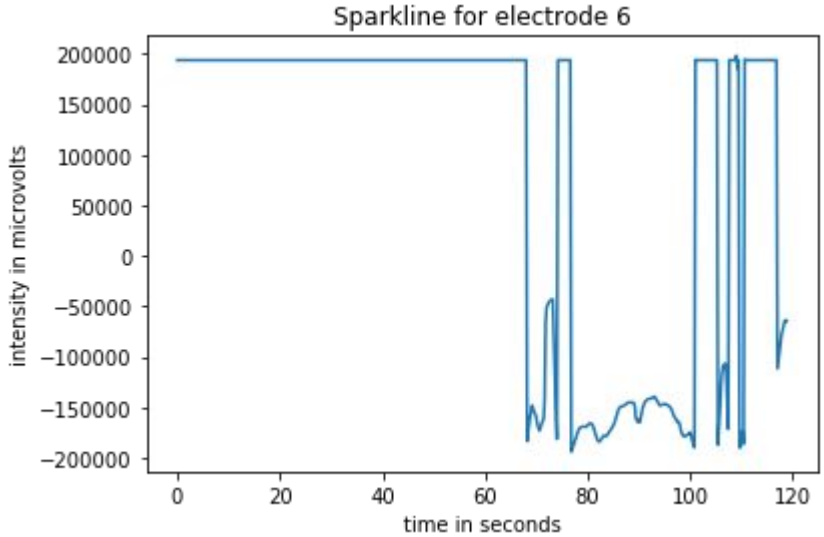
DoD: link to .md table style link to full propodal .pdf

| | | |
|---|---|---|
| Sprint 1: Top 10s | 11/1 | • Graphing library to produce top 10 plots for each modality<br>• Notebook to produce all 10 for a single subject<br>• choose a plotting library and design a uniform aesthetic for all plots |
| Sprint 2: Deployment of Top 10s | 12/15 | • Docker pipeline to generate all plots<br>• MVP webservice<br>• cloud based deployment<br>• Run and save views for whole HBNB dataset |
| Sprint 3: Cross-modal visualizations | 2/15 | • Visualizations derived from >1 modality<br>• Test dependence/independence of signals from different modalities<br>• Basic demonstrations of 'looking at' biomarkers cited in current research |
| Sprint 4: Wrap up webservice & analysis | 4/1 | • Add Sprint 3 work into webservice deployment, make 'production ready'<br>• get as many datasets as possible to work with tool<br>• Look for evidence for psych / biomarker theories from literature & collaborators |

Revisit PANDA pipeline on HBNB ✔

DoD: jupyter nbviewer link

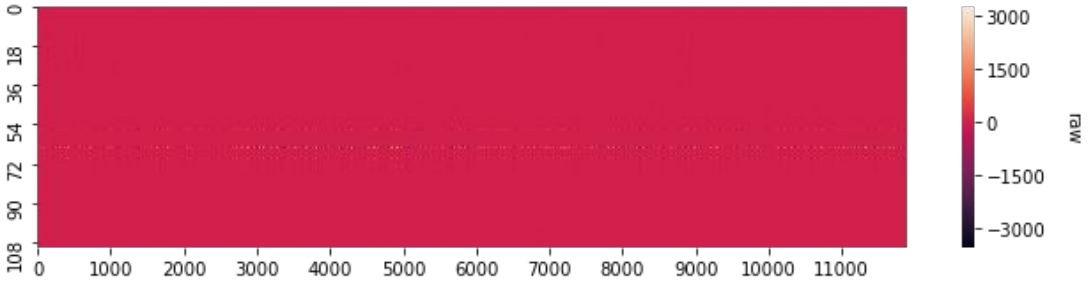
Problem: a new kind of ‘bad’ electrode which adversely affects intermediate preprocessing methods



## Revisit PANDA pipeline on HBNB ✔

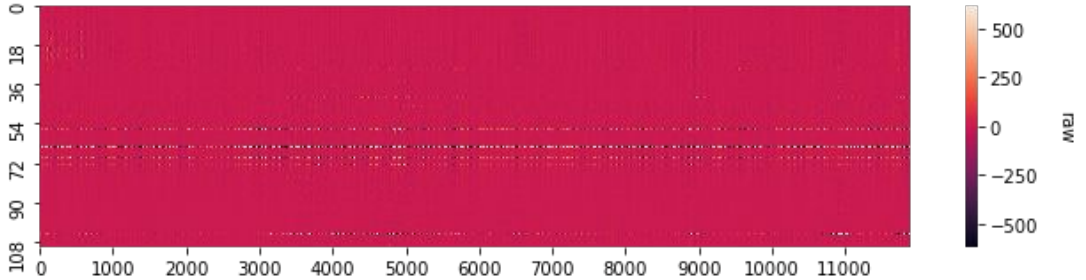
DoD: [jupyter nbviewer link]

Solution: apply bad electrode detection before any global denoising steps




← Bad electrode detection last

Bad electrode detection first →



# Deliverables: Basic Exploratory Plots and Bokeh vs Plot.ly (Nitin + Vidur)

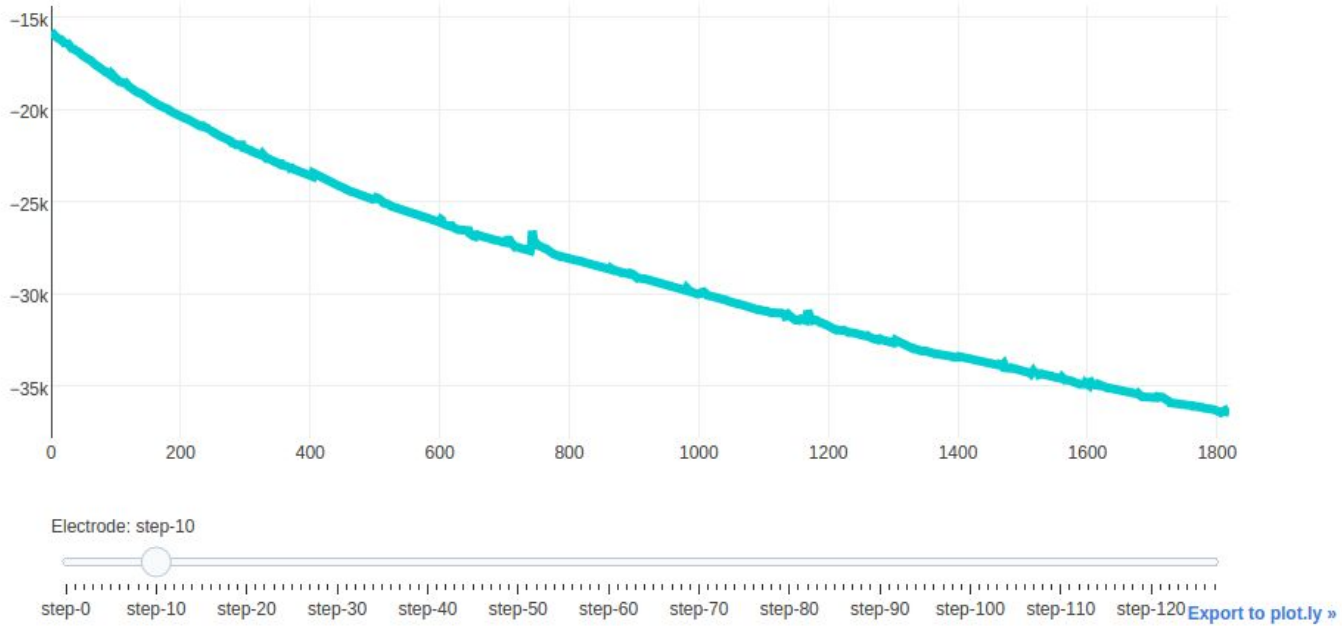
- Sparklines plot for EEG data
- Spectrograms plot for EEG data
- Bokeh vs Plotly

# Progress

- Sparklines plot for EEG data. ✔
  - DoD: https://nbviewer.jupyter.org/github/NeuroDataDesign/lemur-f17s18/blob/master/docs/notebooks/nkumar14/Sparklines%20Exploration.ipynb
- Spectrogram plots for EEG data . ✔
  - DoD: https://nbviewer.jupyter.org/github/NeuroDataDesign/eeg-panda-s17f18/blob/master/docs/notebooks/vidurkailash/Spectrogram%20Exploration.ipynb
  -
- Bokeh vs Plotly. ✔
  - DoD: Plots are done in each of above notebooks

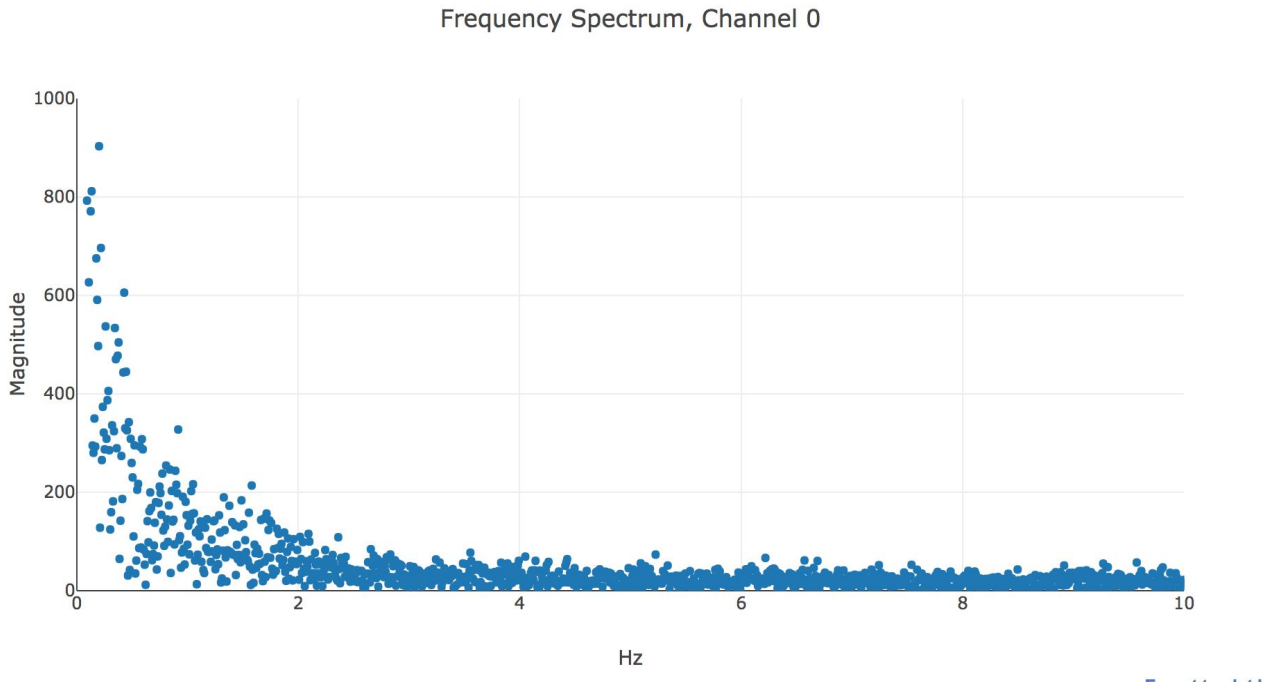
# Sparkline Plots for EEG Data. ✔

- Voltage on Electrodes vs Time
- View Notebook



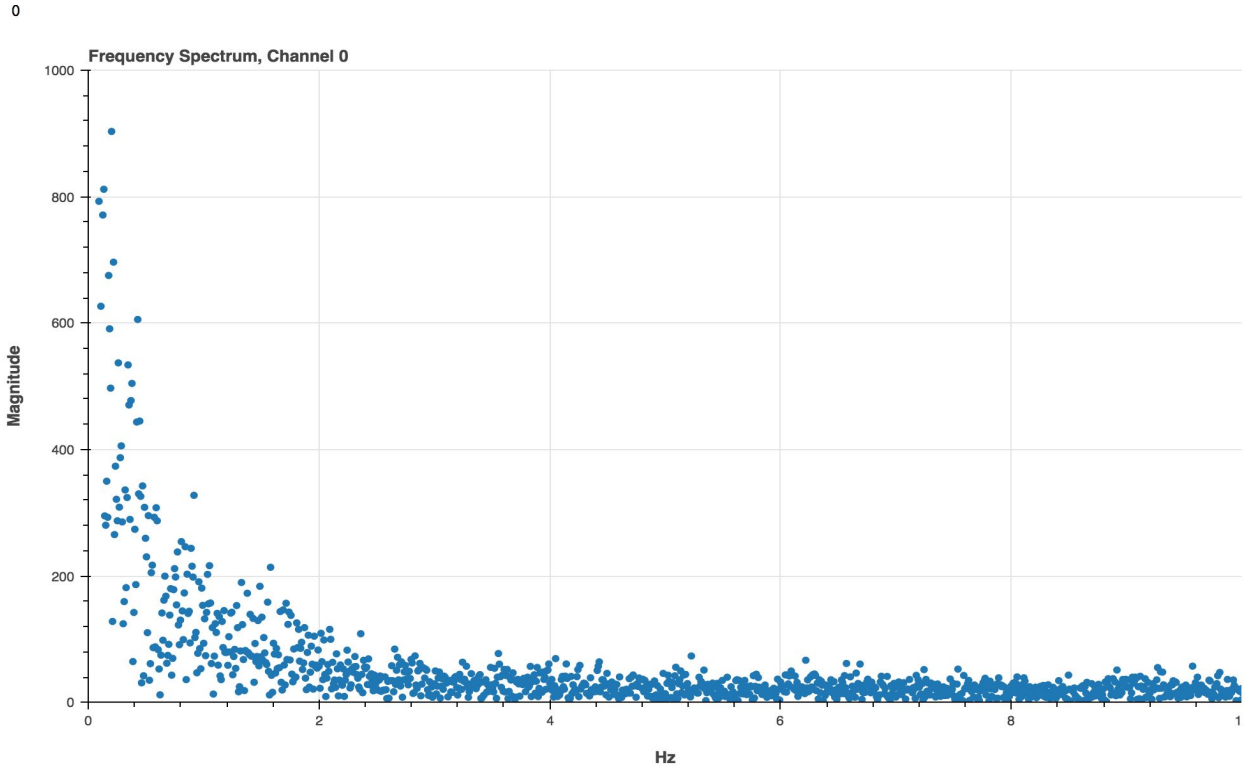
# Spectrogram Plots for EEG Data. ✔

Plotly:



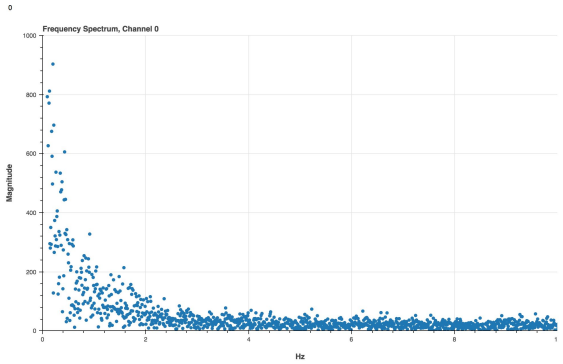
# Spectrogram Plots for EEG Data Cont. ✔

Bokeh:



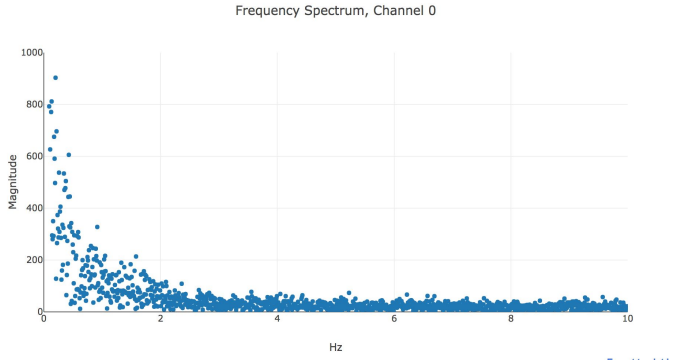
# Bokeh vs Plotly ✔

## Bokeh




- Some more interactive objects can be created (eg textboxes)
  - Albeit less straightforward to interact with
- 3D visualizations not native to framework

## Plotly




- Less interactive objects, easier to connect objects to main plots
- 3D visualizations ARE native and better looking/easier to work with
- Significantly heavier loading times compared to Bokeh
  - Especially subplots... crashed comp 4 times

Compromise; Bokeh for lighter plots, Plot.ly for 3D + heavier statistic plots

# Deliverables: Exploratory Plots using MEDA package in R (Ronak, Yuka)

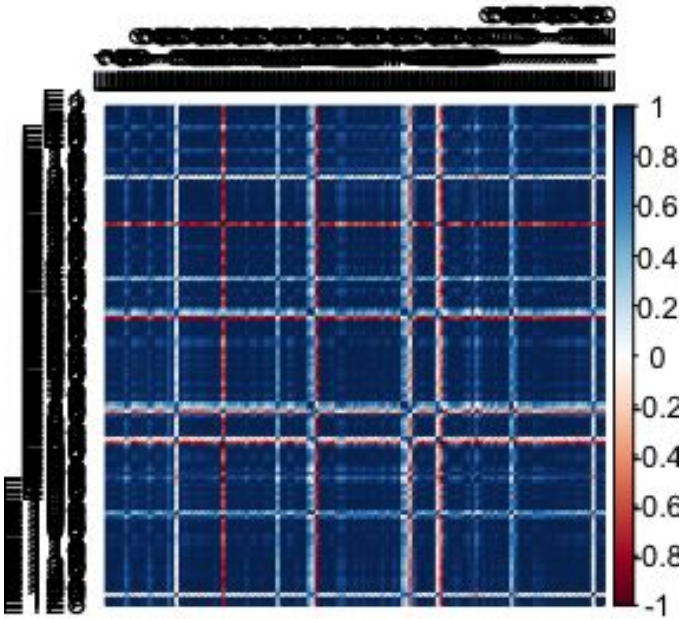
- Complete all plots shown here using EEG data.
- Implement two of the plots in Python.

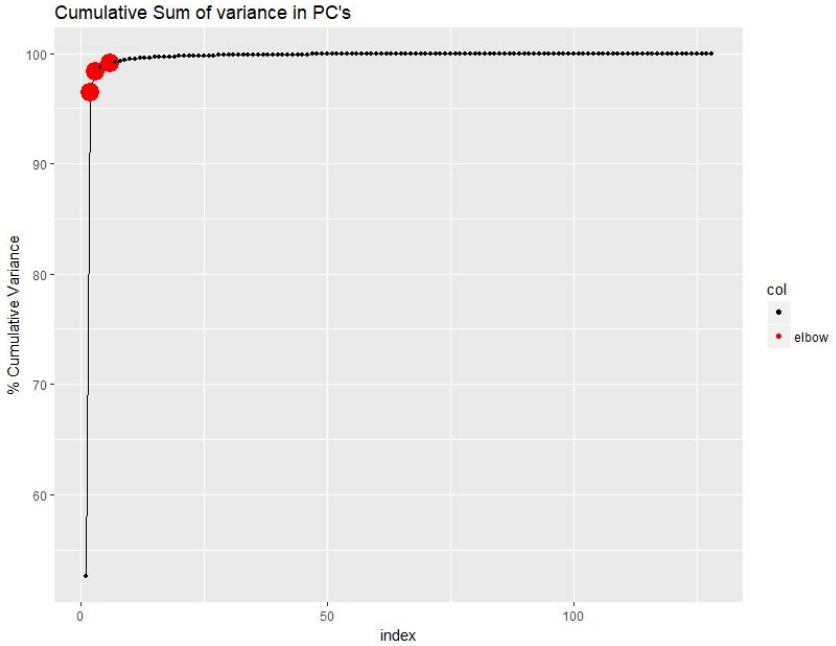
# Progress

- MEDA Plots in R. ✔
  - DoD: PDF and RMarkdown.
- Heatmap of Correlation Matrix in Python. ✔
  - DoD: Jupyter.
- Cumulative Variance Curve in Python (without elbow). ✔
  - DoD: Jupyter.

# Exploratory Plots in R. ✔

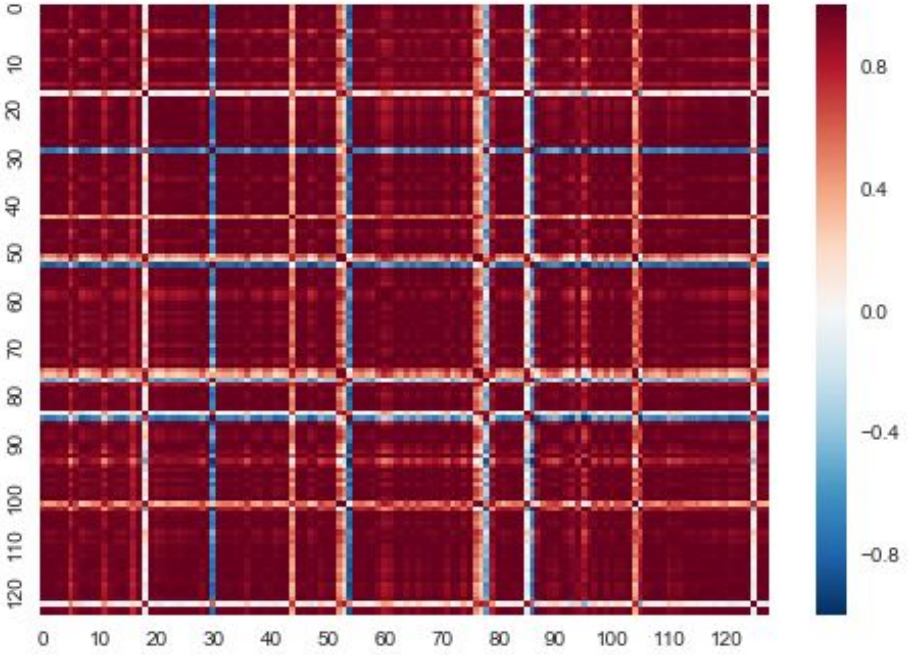
DoD: Shown below - correlation matrix and cumulative variance

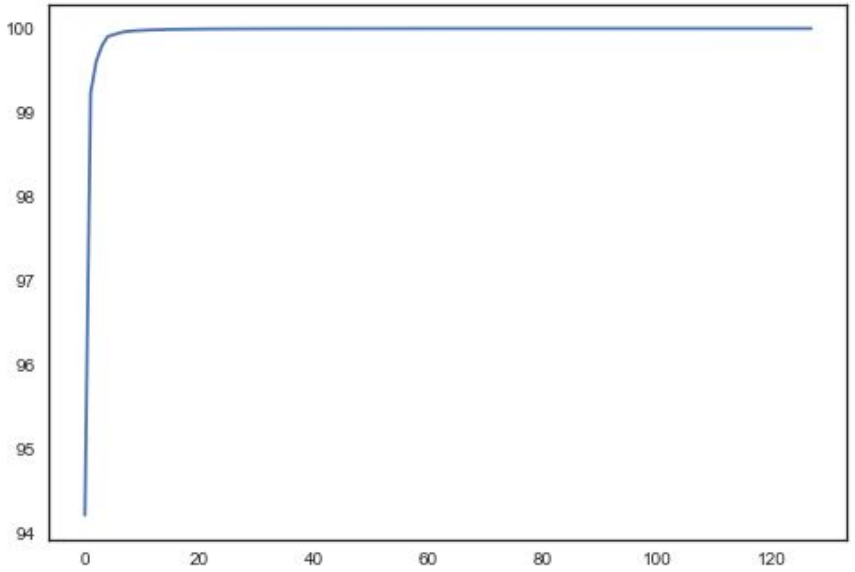


Plot Implementations in Python. ✔

DoD: Jupyter



# Goals for Next Week

- Process a small number of samples from BioBank and Kara ONE using EEG PANDA, report on quality.
- Finalize project decision.
- Draft project proposal
- Read more papers related to finalized project decision.