

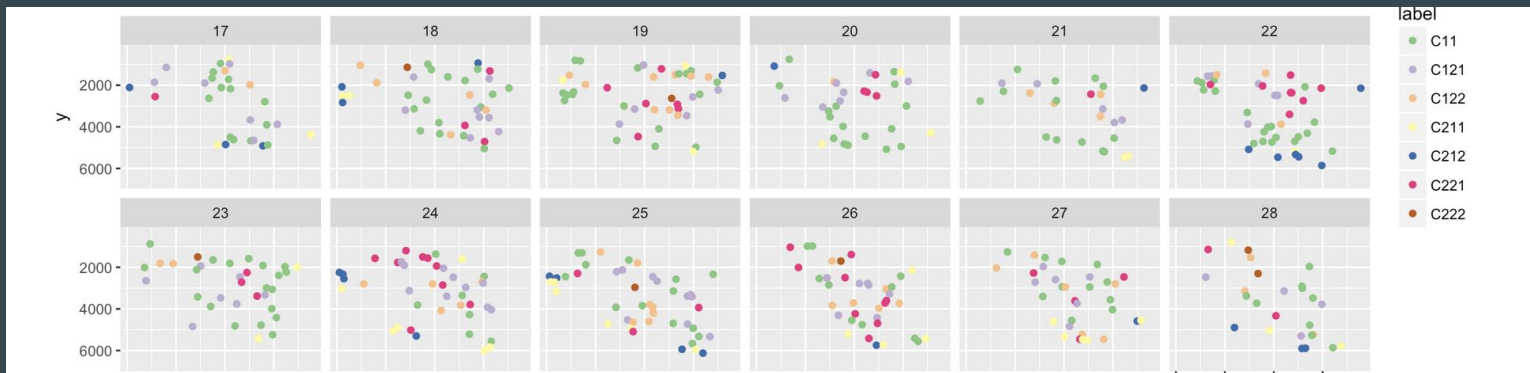
NOMADS



Neurodata's **O**pensource **M**ethod for
Autonomous **D**etection of **S**ynapses

Sprint 2 Goals

- Improved NOMADS predictions
- Synapse feature calculation (based on predictions or annotations), MEDA plots
- Port Jesse's Collman 14v2 Gaussian Weighted MEDA plots to Plotly (to add to a visualization package)

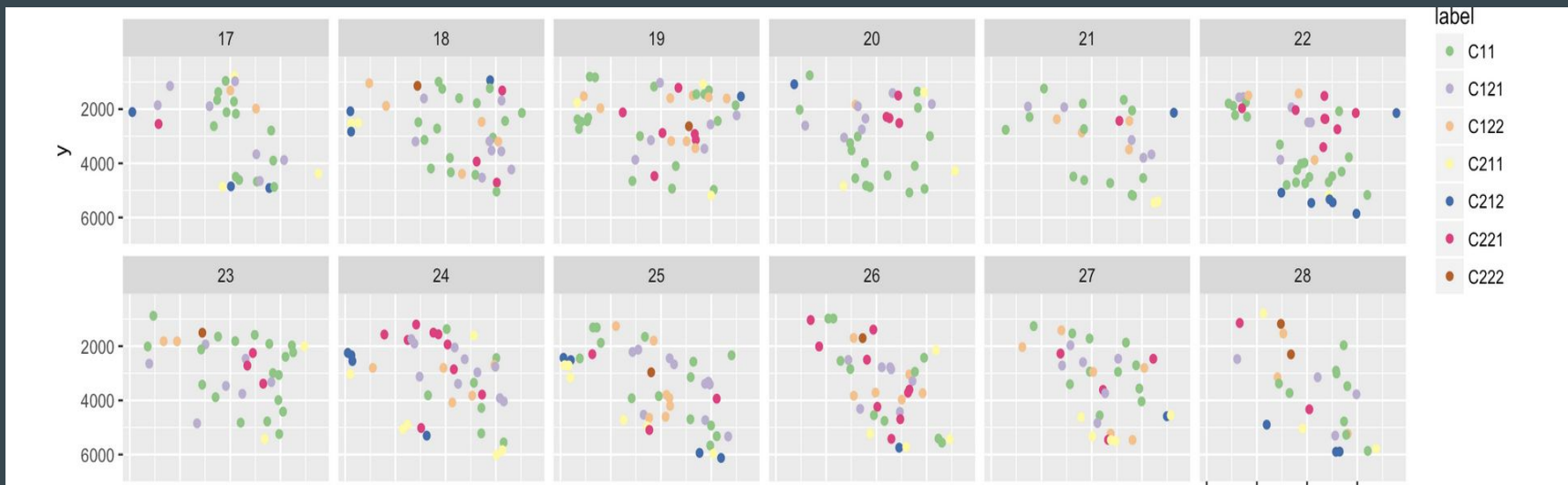


From Last Week

- Implement Lemurs MEDA Plots
- Ingest Glut and GABA synapses, and unsupervised algo detections for Collman15v2
- Port plot 1 - XYZ spatial Clusters
- How many of our errors are because of GABA?

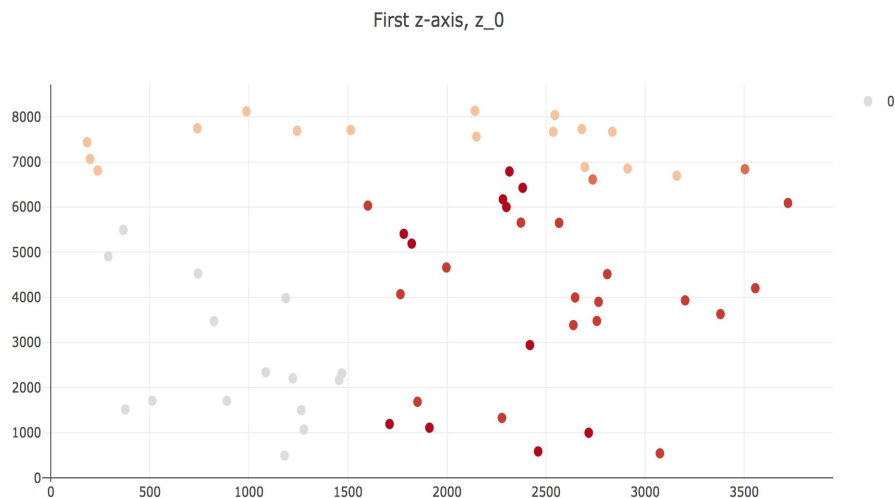
100% Complete, >50% Complete, 0% Complete

Jesse's XYZ Spatial Cluster Plots for Collman14v2

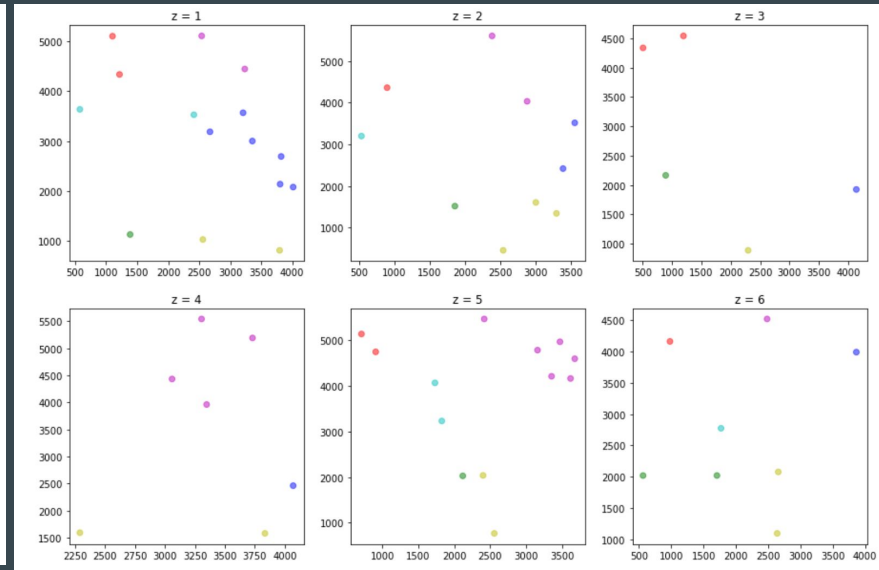


Plotly and Matplotlib version of XYZ spatial clusters

Clusters found by K-means clustering algorithm on centroids

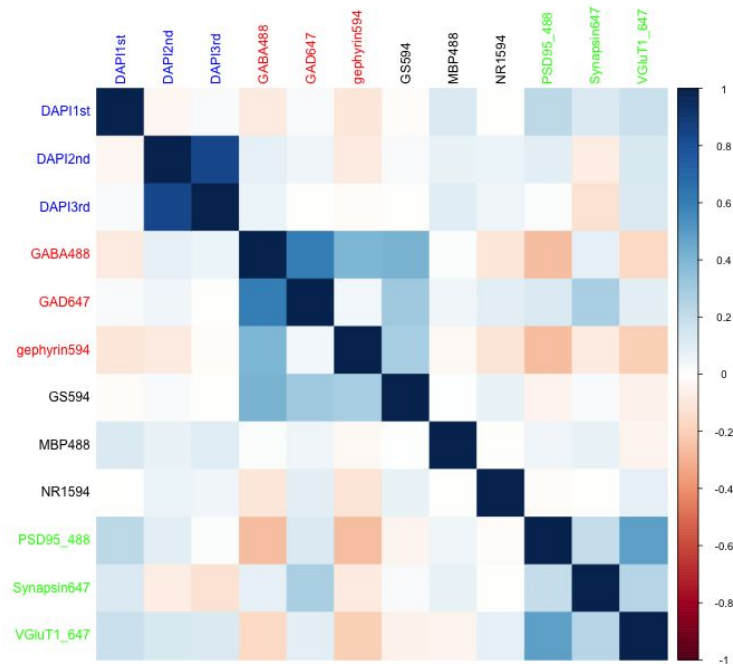


Collman 14 (Plotly)

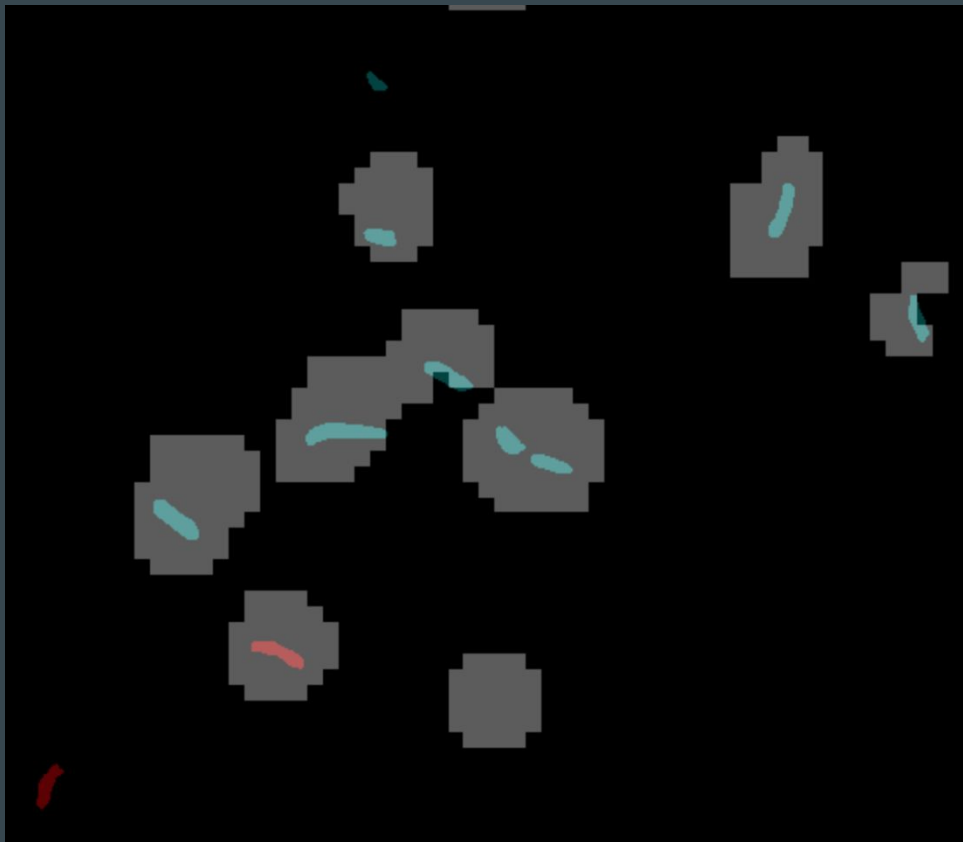


Collman 15 (Matplotlib)

Link



Glut and GABA Synapses + Unsupervised Algo Results in BOSS for Collman15



- White = algorithm detection
- Cyan = Glut synapse
- Red = GABA synapse

[NDWT LINK](#)

NOMADS Performs Better without GABA Synapses

[Link](#)

- 33% of Missed Synapses are GABAergic
- NOMADS performance on Glut only:
 - Recall: ~72%
 - Precision ~90%

For Next Week

- Resolve issues with large_vol_ingest
- Collman14v2 synapse classes?
- Add plotting customizations to Lemurs?
- Continue visual package development:
 - Plot XYZ spatial clusters, and histogram of clusters in XYZ coordinates
- Brandon will talk with JOVO on slack about this BEFORE Wednesday