Deliverables: 18 Sep 2017

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NOMADS

(**NO**vel **M**ethod of **A**utonomous **D**etection for **S**ynapses)

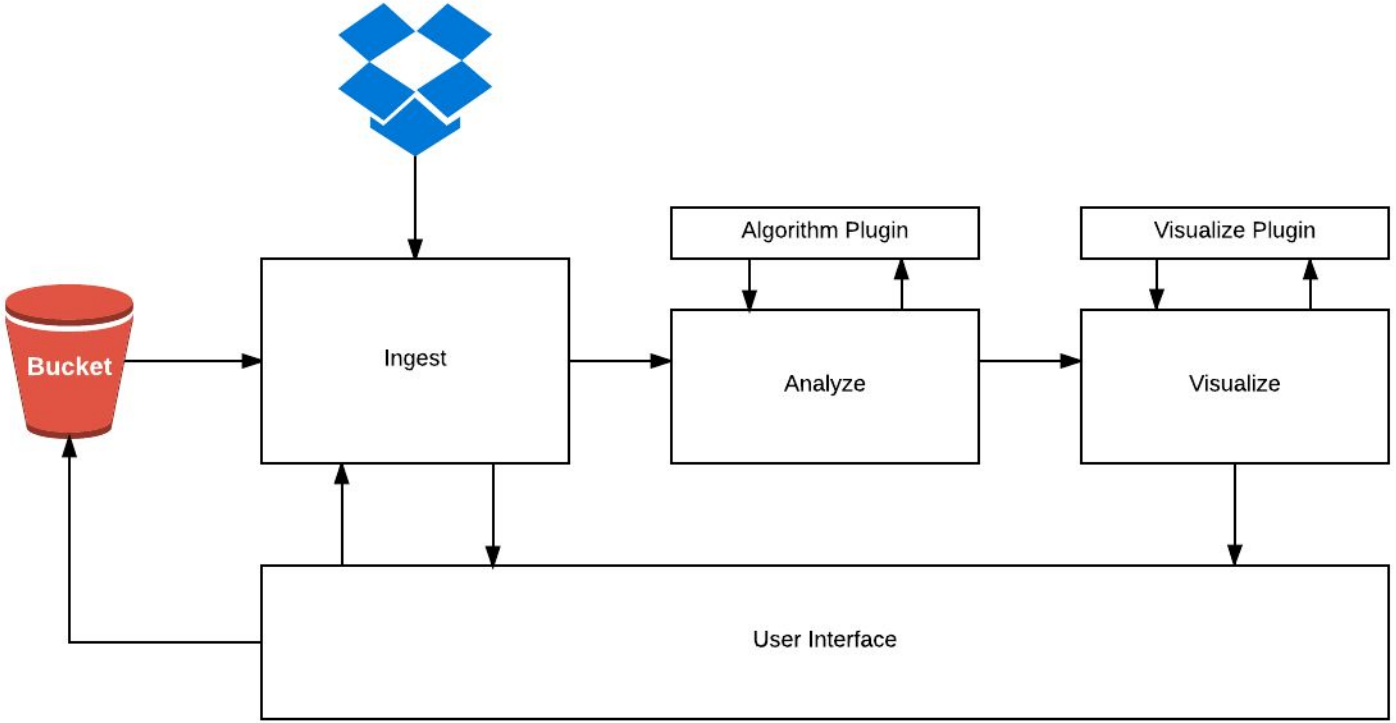
From Last Week

- Diagram of Overall Project Vision
- Detailed Analysis of Boss Download Speed
- Biomarker Glossary
- Data Sanity Check (Reach)
- Collman Algorithm Implementation (Reach)
- For Sharmini - Enroll in NDDI

From Last Week

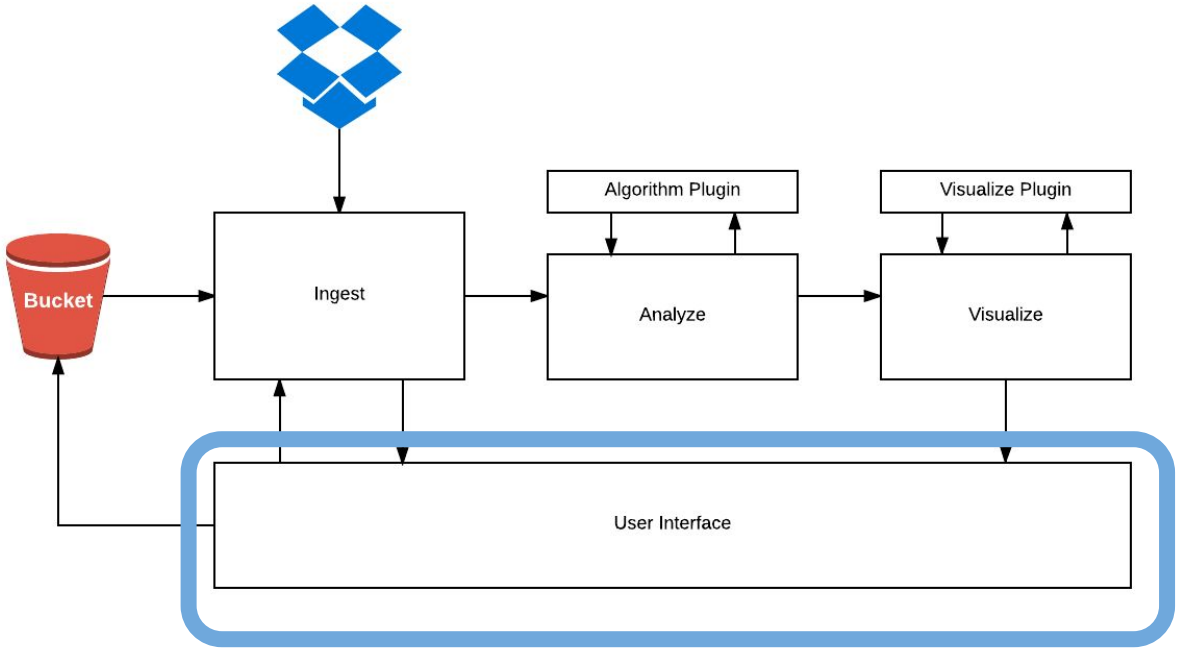
- Diagram of Overall Project Vision ☑
- Detailed Analysis of Boss Download Speed ☑
- Biomarker Glossary ½
- Data Sanity Check (Reach) ½
- Collman Algorithm Implementation (Reach) ☑
- For Sharmini - Enroll in NDDI ½

Project Vision



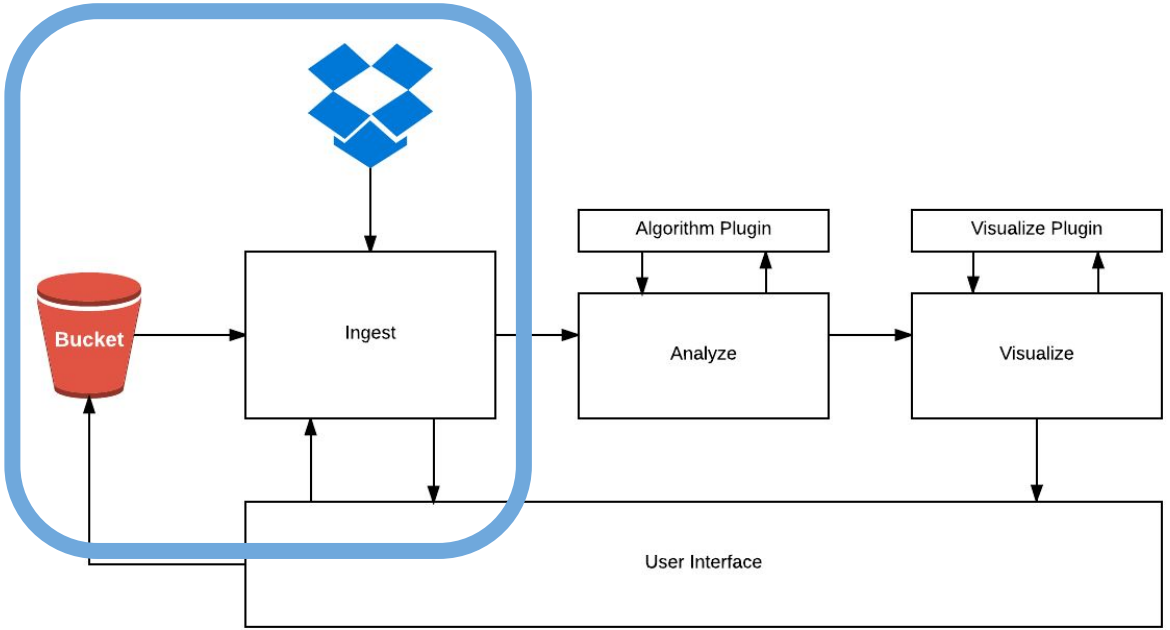
User Interface

- Web U.I.
- Form Based
- Large Data Ingest
  - One Click
  - S3 Bucket + Upload
- Pipeline Options
  - What algorithm?
  - What visualizations?



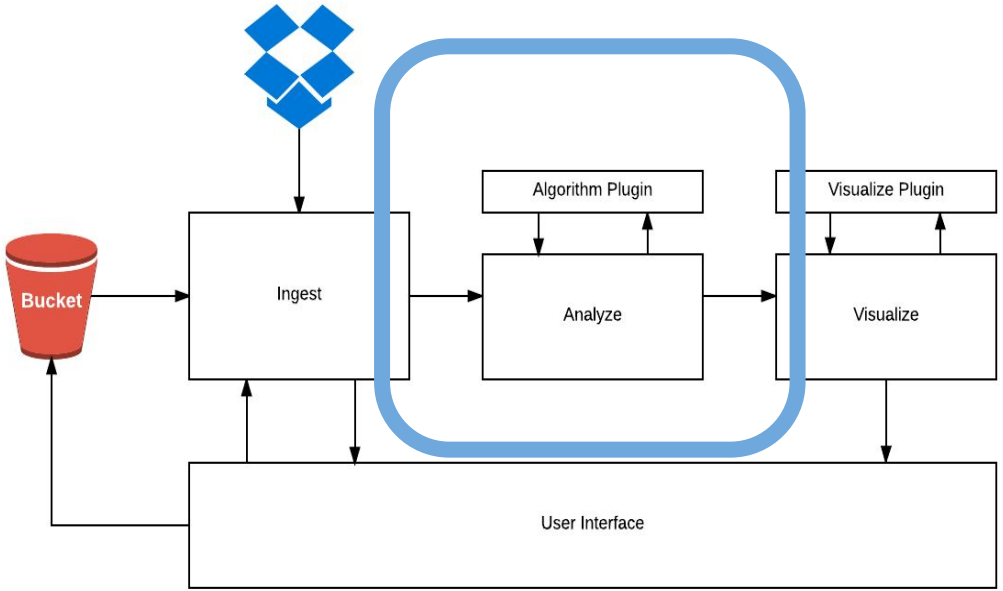
Ingest

- Based on User Input
  - S3 Bucket + Upload
  - Dropbox
  - Boss/NDStore?



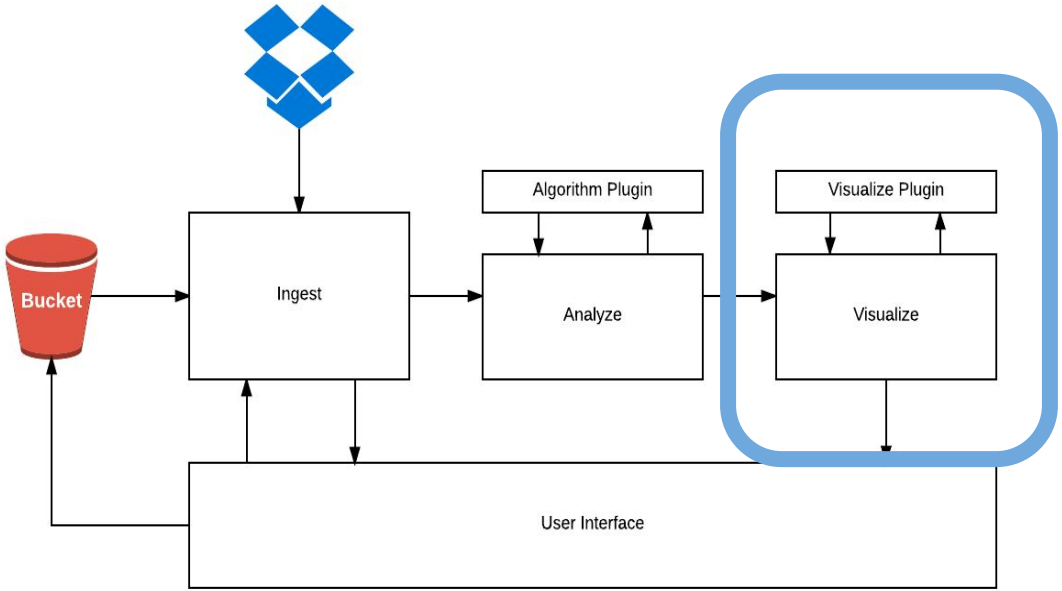
Analyze

- Biomarker Clustering
  - Given bright spot in EM, what biomarkers are in AT?
  - Attempt to characterize synapse types
- Detection
  - Given AT/EM, where are the synapses at?
- Hotswapping
  - Standard way to swap in & compare other algorithms



Visualize

- NDWebTools-esque result viewer
- Downloadable Raw Outputs
  - Work with FIJI
  - User Specified in form
- Charts
  - “Hotswappable” as visualize plugins
  - T-SNE for clusters



Boss Download Speeds

- Fastest way to download an entire would be to download using 2048x2048x16 chunks - would take about ~36 secs.
- Downloading an entire channel at once takes about ~54 secs.

https://nbviewer.jupyter.org/github/NeuroDataDesign/nomads-f17s18/blob/master/source/j1c/Boss_Chunk_Analysis/Boss_Chunk_Analysis.ipynb

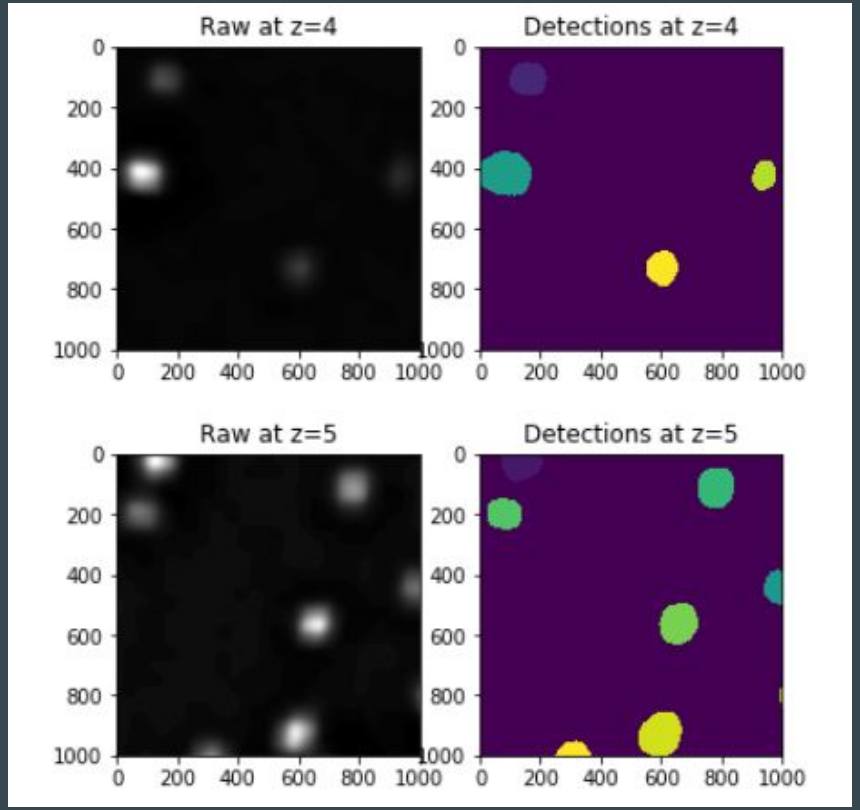
Biomarker Glossary

- Locations of biomarkers in Collman paper researched- separated into pre/postsynaptic and excitatory/inhibitory synapses
- Many unanswered questions- work will continue next week

https://github.com/NeuroDataDesign/nomads-f17s18/blob/master/source/dmannan/biomarkers/Colleman%20write%20up.docx

Collman Alg

- https://github.com/NeuroDataDesign/nomads-f17s18/blob/master/source/bstadt/Collman/Collman_Alg.ipynb



For Sharmini - Enroll in NDDI

- Enrollment already confirmed with Dr. Vogelstein - just need to make it official with JHU registration

---------- Forwarded message ----------
From: **Cathy Jancuk** <cjancuk@jhu.edu>
Date: Fri, Sep 15, 2017 at 4:41 PM
Subject: Active Approval for your course got turned off at 4:30
To: jovo Vogelstein <jovo@jhu.edu>

That is the deadline of electronic adds at the 2-week mark. Tell the student to show up with an add/drop form in my office on Monday. She'll have to get a couple of signatures so she can add this late.

Cathy

For Next Week

- Learn to read EM data- identify cell structures without relying on biomarkers
- Complete data-sanity check
- Check to see if biomarkers' location dependent on regions of the brain
- Collman SVM Implementation
- Collman Basic and Collman SVM Histogram Stats
- Clustering & T-SNE on Collman Synapses (Reach)