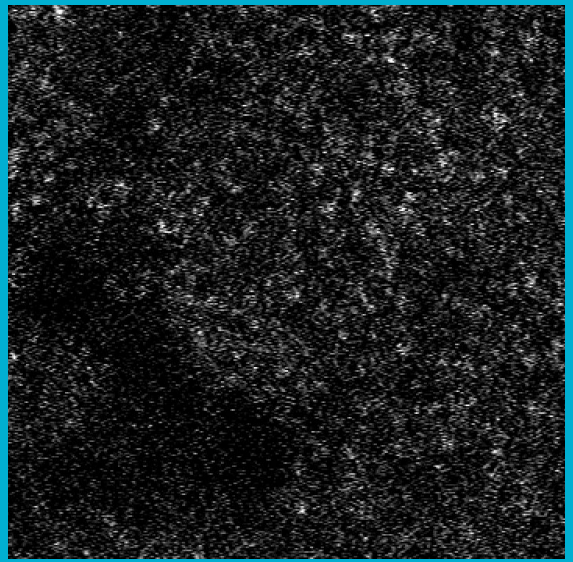
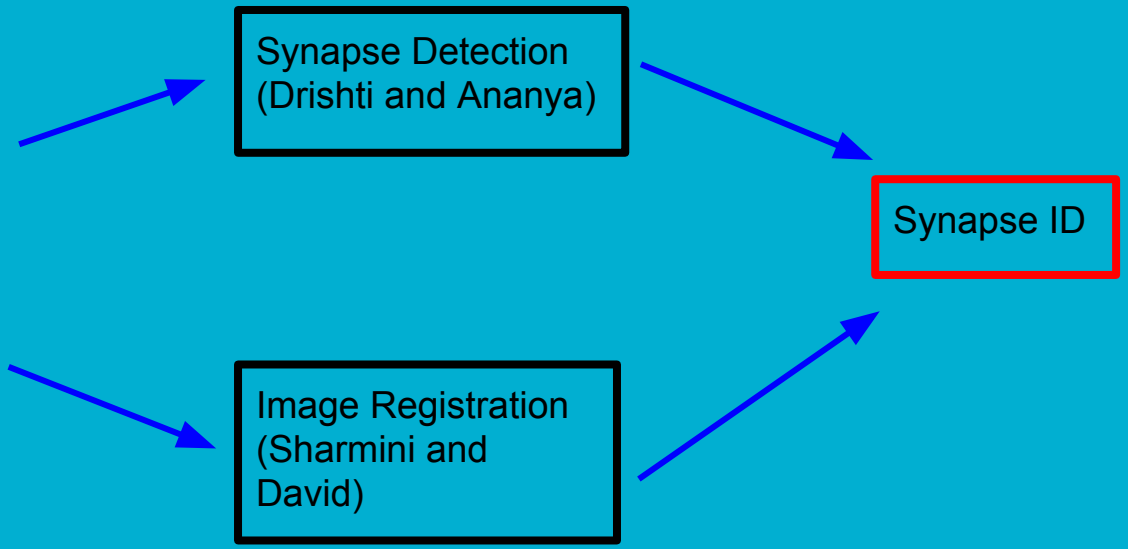
# LIDS

Week of 3/5 Deliverables

# The Idea




Synapse Detection
(Drishti and Ananya)
Image Registration
(Sharmini and
David)
Synapse ID

# Ananya/Drishti

Sprint 3

- Calculate Qualitative and Quantitative metric Performance of Bloby and NOMADS (Supervised)
  - DoD: Explain how each algorithm works, generate plots for quantitative metric and overlays for qualitative metric

# Ananya/Drishti

From Last Week

- Calculate Qualitative and Quantitative Metric Performance of *Bloby*

# Ananya

## Deliverables

Steps for *Bloby*:

1. Section stack into voxels
2. Use GMM to find distribution of voxel intensities. Find a threshold: determine point between “noise” cluster and “cell” cluster
3. Binarize:  assign each voxel a value between 0 and 1 (based on intensity)

# Ananya

## Deliverables

Steps for bloby (cont.):

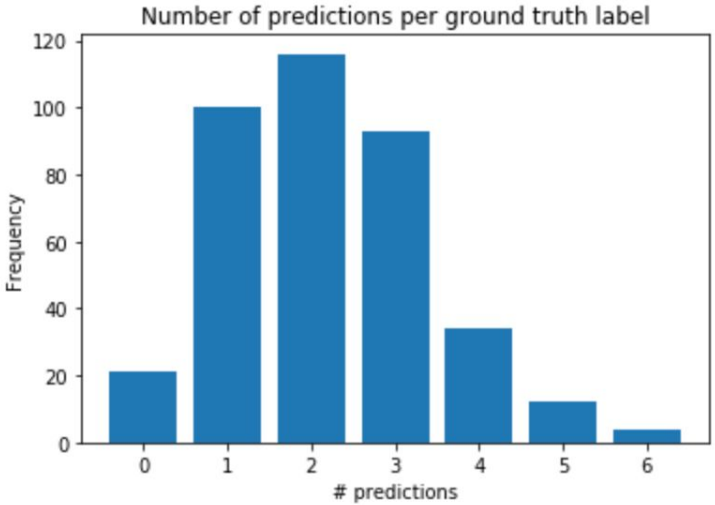
5. Use erosion to get rid of isolated bright specks (dust)

6. Use connected conformers to identify synapses

# Drishti

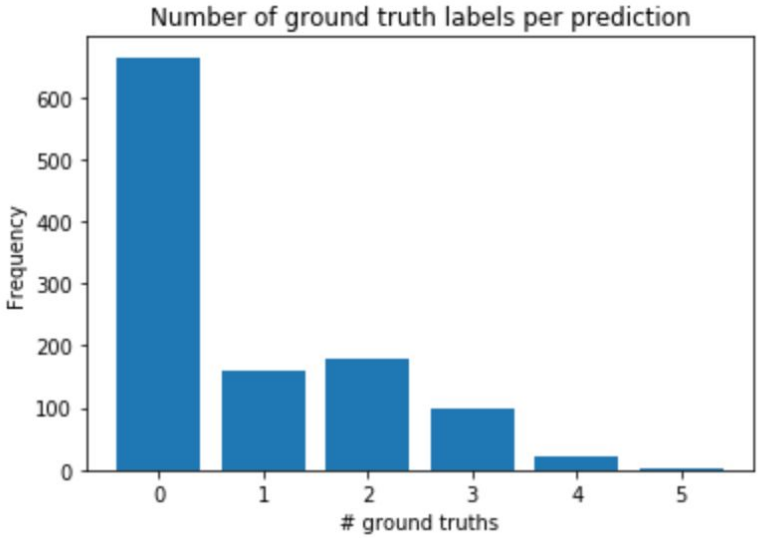
## Deliverables

Bloby ran on substack 359x359x16 voxels. Only ¼ of the substack labelled



# Drishti

Deliverables




Precision: 0.206

Recall: 0.237

# Ananya

## For Next Week

- Run NOMADS supervised algorithm
- Generate graphs for precision/recall (quantitative) as well as overlays (qualitative)

# Drishti

## For Next Week

- Github pages with team member's bios
- Calculate Qualitative and Quantitative Metric Performance of NOMADS (Supervised)
    - DoD: Precision/ Recall and overlay plots

# Sharmini

Sprint 3

- Match 3D Points Across Time
  - DoD: Jupyter notebook with python implementation of Hungarian Algorithm

# Sharmini

From Last Week

- Hungarian Algorithm Literature Review (*Assignment Problems* book)
- Update LIDS GH Pages

# Sharmini

## Deliverables

- LIDS
- Drishti will add information about contributors, etc.

# Sharmini

## For Next Week

- Minimum weight matching in bipartite graphs?
- *Assignment Problems* - chapter 4 (Linear Sum Assignment Problem)
- Sprint 3 Demo

# David

Sprint 3

- Incorporate n-way Image Registration into ndreg
  - DoD: Pull Request to ndreg

# David

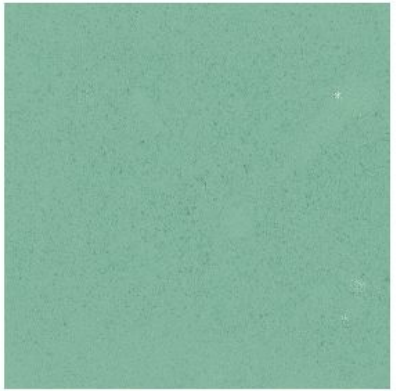
## From Last Week

- Pre-process and normalize images to improve registration
- 4-way registration on Huganir Data

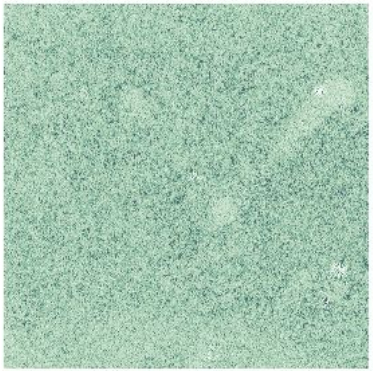
# David

## Deliverables

Timepoint 1 and Timepoint 2 Registered Overlay
(No Processing)
Slice 0



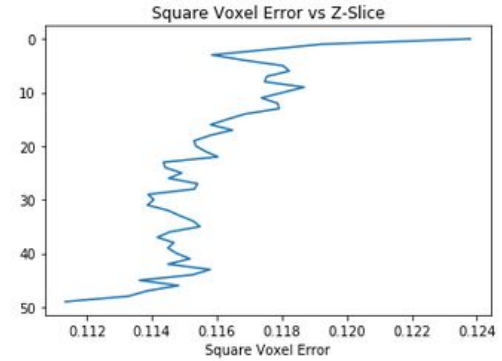
Timepoint 1 and Timepoint 2 Registered Overlay
Slice 0

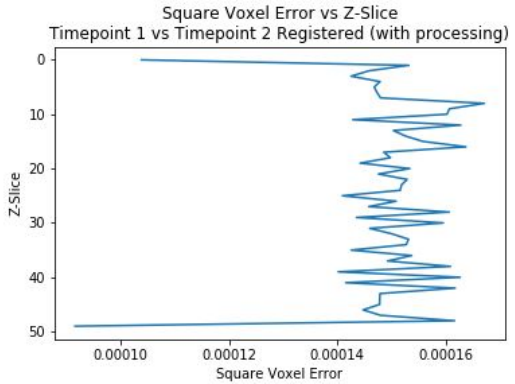


# David

## Deliverables

### Timepoint 1 vs Timepoint 2 Plots



# David

## For Next Week

- 4-way registration
  - DoD: Notebook with quant/qual plots