Anna: Potential deep learning framework:

* This used nematode eggs as dataset
* Used deep learning network, convolutional selective autoencoder
* Robust to debris and able to count eggs, even if they were sparse or occluded
* Used >600 samples for training
* Akintayo, A., Tylka, G.L., Singh, A.K. *et al.* A deep learning framework to discern and count microscopic nematode eggs. *Sci Rep* 8, 9145 (2018). <https://doi.org/10.1038/s41598-018-27272-w>

Nathaly - Counting

* <https://sciendo.com/pdf/10.2478/v10006-008-0008-9>
* As opposed to trying to clean image, try reversing contrast?
* Focus on circular aspects of images
* Reference:<https://sciendo.com/pdf/10.2478/v10006-008-0008-9>
* Look for denser pixel concentrations?
* Combine idea of deconvolution into counting algorithm innately
  + <https://www.nature.com/articles/s41598-018-27272-w>
  + Looks like need to stain eggs…I don’t think we'll be able to do that
    - Jk looks like they fix contrast in order to remove this step
  + Have GUI incorporation such that scientists can pick out eggs and tell the system what to be looking for of the recorded data
  + Incorporates pre-processing
  + Downloaded code from experiment from article page
  + Study how it works

Shinhaeng Lee

* Super Resolution algorithm from openCV for image enhancement
  + reference: <https://towardsdatascience.com/deep-learning-based-super-resolution-with-opencv-4fd736678066>
  + Upscaling images based on deep learning methods
  + Research about how the Super Resolution algorithm works based on different types of models
    - EDSR
    - ESPCN
    - FSRCNN
    - LapSRN
  + Make a demo version of SR by referencing outside sources in Google Colab
* Image detection by utilizing YOLO and Faster R-CNN algorithms
  + Image detection algorithms
  + Both can be worked in Google Colab to run the neural network
  + Research about how both can be worked in terms of image detections
  + Make a demo using either YOLO or Faster R-CNN by training with the microscope images in Google Colab