## Meeting Minutes 2/6

Milo: ClaSP integration

* Working on combining ClaSP segmentation with CNN
* Performance not really improved, somewhat surprising
* Possibly because this gives it the same information, just in a more refined form
  + Model might already internally be doing something similar to what ClaSP is doing
* Model given twice as much information, more complex model more likely to “memorize” the training data (overfitting)
* Since we have relatively little data, possible that CNNs may not be the best approach for this dataset — they are prone to overfitting

Zach: CRFs

* Take probabilities outputted from CNN, and combine with a transition matrix of rules to force it to create “legal” moves

Lilian: Aedes aegypti with random forests

* ~85% performance, similar to Tarsalis
* Similar barcoding issues

Mehrezat: GUI demo

* Click button to load data, click button to start automated labeling, can scroll and zoom etc.
* Add legend (?)

Devanshi: HMM Progress

* Written code to process data and test different covariances and initial conditions for training. Works reasonably well, found that tied covariance works best for a higher number of expected hidden states, needed for potential classification. Paves way for making a finalized model and verifying.
* Probe splitting works well in most cases, but it can struggle when comments give more information that is not present in the voltage series
* Add the probe splitter to the GUI, so it can be viewed and corrected by a human labeler

Paper discussion:

* Dr. Reif: discuss what to include in this manuscript. Maybe Aedes aegypti is not part of our core objectives with this primary manuscript.
* Zach: what is our role, what tasks should we work on, what is the scope of the publication
* Dr. Cooper: use figures we produce in weekly presentations and save them. Build a story around these models, using Tarsalis data only. The team needs to decide what models we will compare (publication-quality figures and performance metrics. Include a table showing the performance for every model).
* Zach; start compiling documents, briefs on each model how it performs and how it works
* Dr. C: how can we compare the output of these models, especially if they have different data sources
* Zach: we will have more standardized data so we can use metrics like accuracy and F1
* Milo: we can also try to use statistics like silhouette score, which work when we have a valid output. Also what is our timeline for when we can get a draft for a publication.
* Dr. C: it depends on when we finalize our models and get the performance of each model
* Zach: we will probably start wrapping up in March, and certainly be done by April. We will give things as we have them, but it will probably stop by mid-march.
* Dr. C: what models will be there, do we know the top 4
* Zach: we kind of already know. Compare pre-processing and post-processing with every base model
* Dr. C: get the model descriptions sent over in the next week or two so draft can be written. Include figures and story
* Milo: we will include 3 base models as sections, including how they work, with subsections on each different type of data they ingest. Include a big table with the performance for each model, different data type, and pre/post processing as well as ensambles to create a big table

Slides:



