Carson & Keith Running Meeting Notes

4/13

* Keith
  + Setup .basrc file with TACC analysis portal
    - Add path to bashrc file
  + See if youcan access carson file via path

03/30

* Ft Yarsh
  + Combined CNN heads, pass to merged head, learn time series through LSTM, binary detection classification, then run object detection
  + Autograd
* Tensorflow/pytorch deep learning number classifier
  + How the loss and backprop works
  + Forward pass you have to write
    - Look at example models and training scripts
    - CNN blocks

## 03/23

* Visualizations
  + Modify pyart to include lat/lon or sat data for context
* Would CNN still work with raw datax
  + 6x2 CNN or decision tree on raw data? Research
* Semi supervised/self supervised research
  + <https://paperswithcode.com/task/semi-supervised-image-classification>
  + <http://vigir.missouri.edu/~gdesouza/Research/Conference_CDs/IEEE_ICCV_2009/contents/pdf/iccv2009_065.pdf>
* Clarify use-case of RNN
  + LSTM application
  + Walk through <https://colah.github.io/posts/2015-08-Understanding-LSTMs/>
* Action Items:
  + Carson:
    - Scoring current detection system
    - Research RNN & build
    - Visualization feature (process diagram, geographic overlay)
  + Keith
    - Research semi-supervised methods
    - Research using all raw data for convolution

## 02/23

Meeting Agenda

* Go over bugs in RASR
* Work on dockerizing
* Notes

Exit Criteria

* Keith
  + Get conda on Ubuntu setup and try running rasr
  + Finish dockerizing rasr
    - See if conda and docker don’t get mad
* Carson
  + Fix RASR bugs
  + Get training running on Colab
  + Help Keith w/ Docker
* Next meeting:
  + MVP Docker

## 02/09

Meeting Agenda & Notes

* Go over entry criteria
* Work with Keith’s local
* Think about project goals a few weeks out

Notes

* Issues with yml
  + Add requirements.txt to readme
* Document how to interpret Sweep codes

Exit Criteria:

* Working RASR for Keith
* 30-day Goalposts
  + Keith
    - Round out the pipeline for data, test automation
      * Finish when capable of generating detection everyday
    - Parallelization on training on TACC
  + Carson
    - Finalize architecture for data pipeline, TACC
      * Finish when documented and MVP is passed on
    - Experimental RNN training on local
      * Finish when full time series is trained on or data utilized is otherwise expanded upon
    - Outline testing/accuracy strategy
* Email Danielle to get Keith on the invite list for Privateer

Entry Criteria:

* Carson
  + \*Setup CUDA - OR train model locally & move on
  + Check for contrails
  + Check data res. In Pyart
  + **Test file mgmt system, run on TACC**
* Keith
  + Test rasr
  + Pipeline
    - Rasr scripts
    - Accuracy metric - is it being improved
      * ROC curve/precision recall Read up

## 02/02

Meeting Agenda & Notes:

* Questions from Keith
  + Data sources, res, CNN
* Update on RNN setup

Exit Criteria:

* Keith To-Do
  + Setup Python environments, WSL or [add python to path](https://www.quora.com/Why-can-t-I-run-Python-in-CMD-but-can-in-Anaconda-Prompt)
  + Read more about data sources, try to find potentially related data sources
  + Experiment with codebase & file Mgmt pipeline
* Carson To-Do
  + Setup CUDA
  + Check for contrails
  + Experiment with CRNN
  + Test file mgmt system, run on TACC
  + Check data res. In Pyart

Entry Criteria for 02/09:

* Keith
  + Setup envs. & ran RASR Test
* Carson
  + CUDA running locally, tested file mgmt, env working in TACC
  + Compared pyart vis to NOAA res.