

## Progress report to PI (last week of March)

### What has been done in March

- Nov 29<sup>th</sup> → Group presentation
  - Use RF, DNN, and LSTM models to forecast ammonia.
  - Models were trained with different input size and with or without data smoothing filter.  
(Ammonia data was collected in May and June.)
- Dec 15<sup>th</sup> → Discuss thesis outline structure with Dr. Yin.
- Jan 21<sup>th</sup> → Group presentation
  - Use 5 more models to forecast ammonia.
  - Introduce a new data smoothing filter and outlier removal method to perform data cleaning.  
(Ammonia data was collected in Nov and Dec.)
- Feb 21<sup>th</sup> → Progress report to Dr. Yin (to confirm the ACS abstract content)
- Feb 25<sup>th</sup> → Last day of calibrating colour spectrophotometer in SHW.
- March 10<sup>th</sup> → Submission of ACS abstract.
- March 18<sup>th</sup> → Finalize the coverage of my reserach works. ## Future plan
- Apr 22<sup>th</sup> → Finish MPhil thesis 1st draft.
- Apr 22<sup>th</sup> → Group presentation.
- May 11<sup>th</sup> → EVNG 6050X presentation.
- May 27<sup>th</sup> → Finish MPhil thesis 1st revision. (Start to shcedule time for oral defense)
- June → Preparing for oral defense
- Jul-Aug → Oral defense

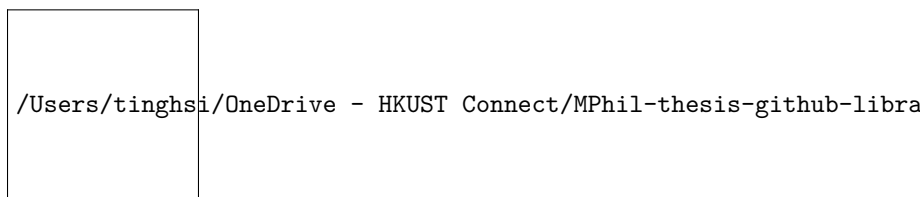


Figure 1: plan

## Progress report

### Key findings in Feb and March

1. Train ammonia forecasting model with colour decreased the model performance.
2. New method was used to increase the model training data quality (i.e., feature engineering).
3. New state-of-the-art model (Transformer) is used and a better model perfor-

mance is achieved compared to LSTM and DNN.