**To-do list for Sunday, September 3rd:**

* 1. Download and install Anaconda (Python)
* 2. Download Github
* 3. Fill out this spreadsheet: <https://docs.google.com/spreadsheets/d/1vpwrycgqYUpFWsrdNH9oxIqXQafBII3fAAYQwRQloeE/edit#gid=0>
* 4. Check this out (Optional):
  + Python Tutorial: <https://github.com/lotlouischoitslab/Computational_Transportation_Science/tree/main/00Transportation_Python_Intro>
  + Machine Learning Sample Project (EOH 2023 Project) <https://github.com/lotlouischoitslab/CUMTD_Bus_Analysis_Classification>
  + Deep Learning Sample Project (KTX Image Classification): <https://github.com/lotlouischoitslab/KTX_Image_Classification>
* **Programming Language**
  + **Python**
* **Topics:**
  + Brainstorm
    - Public Transportation Data
    - ML algorithms to analyze/predict trends
    - DL algorithms for vehicle image classification
* **Meeting time:**
  + Every Wednesday 6:30 pm
  + Newmark Civil Engineering Laboratory Room 1311

**Wednesday, September 6th 2023 Meeting:**

* Linear Optimization with routes reach out to:
  + Professor Ouyang ([yfouyang@illinois.ed](mailto:yfouyang@illinois.edu)u)
  + Professor Ria Kontou ([kontou@illinois.edu](mailto:kontou@illinois.edu))
  + Professor Lewis Lehe ([lehe@illinois.edu](mailto:lehe@illinois.edu))
* Greg Huang suggested we get connected to CUMTD for the data science project and try using their datasets
* Transportation stuff:
  + Cayden:
    - Increase in public transportation
    - Amtrak
  + Hyunjae:
    - Create multiple regression models
    - Using models, to show how traffic would improve
  + Charles:
    - Comparison, environmental impact of the transit
  + Praneeth:
    - Passengers per day data can be asked to CUMTD
    - What trends can we analyze?
      * Certain days people use more or less often
* Questions we can ask to Greg:
  + What data should we collect?
  + How to persuade people to take public transportation
  + Can we get people to go from one place to another using public transit?
  + Survey the number of people who have cars?
  + Type of metrics we can show to persuade people
  + If there are any optimization problems with CUMTD, can we try? Using traffic data, can we see people where they get off/get on often and try optimizing it?

**Tuesday, September 12th Meeting Notes:**

* Louis: Champaign-Urbana datasets: <https://data.ccrpc.org/da_DK/dataset>
* Machine Learning Tutorial I recommend:
* <https://www.youtube.com/watch?v=i_LwzRVP7bg>
* CUMTD Datasets:
* <https://data.ccrpc.org/da_DK/dataset/transit-ridership>
* Chicago Transit Authority:
* <https://www.transitchicago.com/data/>

**IMPORTANT NOTES TO MENTION!**

* We will be using Chicago Transit Authority Datasets
* <https://www.transitchicago.com/data/>
* Louis will send out a mass mail/form and using this link, select two files you guys want to explore
* Professor Lewis Lehe (Advisor): [lehe@illinois.edu](mailto:lehe@illinois.edu)
* For Engineering Open House (EOH 2024):
  + One poster for the CTA ML/Data Analysis and Visualization
  + One poster for the Deep Learning Vehicle Classification
  + Ask Professor Talebpour about self-driving car simulator
  + We will need a monitor screen for the visualization

**Tuesday, September 19th Meeting Notes:**

* Monday, September 25th, Louis will meet with Grad officer for the transportation group
* Denissa Purba (Phd in Transportation)
* Consider discussing mentor-mentee project
* Data Science stuff that we might want to ask
  + CTA Datasets
  + ML to do the analyzing forecasting the trends
  + DL for some classification task
  + How the team will be structured and organization
  + I will ask my Professor Alireza Talebpour to get the self-driving car if possible.

**Tuesday, October 3rd Meeting Notes (LOUIS Reference):**

* Collect some transit related practice datasets
* Offer a ML workshop
* Send you some datasets to work on using Python
* Start from this dataset and start coding and visualizing
* Louis will find some practice dummy datasets so team members can practice using the ML stuff Louis has sent
* October 10th is fine for ML workshop 7pm
  + Plan for Tuesday
  + Using datasets sent by Louis, people can start practicing
  + Practice coding either Google Colab or Jupyter notebook
  + I will be there to help

**Tuesday, October 24th Meeting Notes:**

* I got the data from CUMTD
* We need to clean the data grouping the averages of passenger
* Next week, we will start cleaning and building ML models to predict and estimate the passenger counts for stations
* Additional questions we may have to consider
  + For the data, is it possible to have the bus routes as well with respect to the bus stations (Muriel is processing it)

**Tuesday, November 14th Meeting Notes:**

* What to put on the interactive website
* Goal is to combine AI and Transit Planning together
* We need to explain how Autonomy is important to Transportation and why AI models are used for analyzing and forecasting transportation data.
* Louis started a bit of analysis on the yellow line but will continue
* I need the plots from you guys for training, testing and predicting trends)
* Visual stuff to explain what AI is (Louis will try to brainstorm this)
* Feel free to add your suggestions here on what else could go on the website

**Tuesday, December 5th Meeting Notes:**

* Presentation link: <https://docs.google.com/presentation/d/171UTMMFi82cHjFccOjHWr_IUAm_sJBOc/edit#slide=id.p4>
* Diagrams to describe how the AI works
* No crazy mathematical formulas
* Emphasize how AI is important in Transit Planning
* Vehicle detection/classification (we will cover this next semester) but this is NOT covered during the EOH.

**Tuesday, February 13th Meeting Notes:**

* We need to work on the data visualization part
* Dynamic visualization is necessary
  + In order to aid the understanding of importance of AI(or optimization)

**Tuesday, February 20th Meeting Notes:**

* Jae will work on the game simulator to add on the visualizations (Mini Metro)
* Animation to improve the visualization part
* Mitchell and Jisu can try to work on the animation part (ask Jae for help if possible)
* Louis try to look up for plotly visualization stuff