# **Monthly Meeting #1**2**:** Full Group **Meeting**

| **Meeting Date:** | Oct 7, 2023 1:45 PM | |
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| Meeting Time: | 1:45 PM ET | |
| Meeting Location: | Virtual | |
| Meeting Type: | Full Group Meeting | |
| Student Team Members: *(check box if in attendance)* | * Rachel * Vanessa * Kashish * Pamela * Elena * Nyah | |
| Other Attendees:  *(e.g., Challenge Advisor, TA)* | With Maria and Keith | |

# MEETING AGENDA

1. Maria’s Google Colab template notebook for transfer learning

**Action Items**

Questions for Maria:

* Is one parameter more improveable than the other?
  + transfer learning improves the precision, but is there any way to improve the speed of a model?
* How does transfer learning make the model more efficient with the choice of dataset?

# MEETING NOTES

* Object detection AI to help preprocess the images quickly
* explore/play with TR2\_Object\_Detection\_nuImages.ipynb
  + explore/analyze how accurate the detector actually is. How should we use all the utilities nuImages gives us

| **Discussion Topic** | **Notes** |
| --- | --- |
| * Transferred learning   TLDr:  Get acquainted with pre built models for object detection using tensorflow | * + TensorFlow HUb     - Finding the most appropriate pre-built model - > different model selection within google colab     - Start with EfficientDet or Faster R CNN * Custom Object Detector   + Think about prepping the data and fulfilling the prerequisites needed to train the model   + Annotations holding TF Records and label maps   + Folders with images we need to training and test in two folders * <https://medium.com/swlh/creating-your-own-custom-object-detector-using-transfer-learning-f26918697889> |
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# ACTION ITEMS

| **Task/Assignment** | **Team Member** | **Deadline** |
| --- | --- | --- |
| Extract images from Maria’s google drive |  | Oct 7, 2023 |
| Complete Maria’s [template notebook](https://drive.google.com/file/d/1xY0u4fI09qzthEcKvKarNZAD9ud_AQXl/view?usp=drive_link) | Student team |  |
| Training 4 TF models on nuImages mini dataset  Run [TF\_Object\_Detection sample](https://drive.google.com/file/d/1xY0u4fI09qzthEcKvKarNZAD9ud_AQXl/view?usp=drive_link) with nuScene data (observe what happens when you apply object detection to new images) | Student team | Oct 8, 2023 |
| Select algorithm/architecture | Student team | Oct 11, 2023 |
| Set up Tufts HPC (?) | Vanessa (?) | Oct 10, 2023 |
| Convert the annotations to something custom object detection will need (XML file) | Student team | Oct 10, 2023 |
| Optional?: read about transfer learning for a custom object detection model: <https://medium.com/swlh/creating-your-own-custom-object-detector-using-transfer-learning-f26918697889> | Student team |  |
| Action items from last meeting:   * Run the nuImages tutorial example - can access from GitHub and open in Google Colab * Do TensorFlow tutorials on image classification and object detection * Create training set with images that only include pedestrians and cyclists * (If there is time before Maker day): MATLAB Onramp (Computer Vision and Deep Learning) <https://docs.google.com/document/d/1PBFZTiRq0m_T9M97nGj6skKP2X7fCKONHFAi_wVRf_Q/edit?usp=sharing> | Student team | Oct 6, 2023 |