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From: TOP GUN

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Summary

The sugar meter for this study arrived last week Saturday. The dataset for the 150 apples used in this study were collected on Monday. The total resulting data are 900 pictures and 150 output levels of apple sweetness. Over a term of about 3 weeks the online lecture was studied. Heejun Park, Seokhyeon Heo, and Jeongho Ha started making ML and DL models for the project.

What TOP GUN completed this week:

- Seokhyeon Heo had a presentation about online lectures #10 and #11 (ResNet, EfficientNet, Fine Tuning, Learning Rate Scheduler).
- Taeyun Kim and Heejun Park had an elevator pitch on the project.
- Jeffry worked on finding ML models.
- Hanbi Kim and Jeongho Ha made a photo studio for the apple dataset.
- Hanbi Kim, Jeongho Ha, Kyung, and Seokhyeon Heo took photos and measured the sugar level of 150 apples.
- Proceeded with a meeting with Minji Lee about the abstract of the project paper.
- Heejun Park, Seokhyeon Heo, and Taeyun Kim modified the abstract based on

Minji's feedback.

- Broke into 2 teams for developing models. Jeongho Ha and Taeyun Kim are on the ML team. Heejun Park, Seokhyeon Heo, and Hanbi Kim are on the Deep Learning team.
- Both teams are building each ML and DL model.
- Research was done on the statistics of our sugar level data.
- Taeyun Kim had a presentation about InFlearn lecture #12 (Dog breed identification model)
- Hanbi Kim, Taeyun Kim, and Seokhyeon Heo wrote the introduction of the project paper.
- Kyung gave us feedback on the abstract.
- Hanbi Kim had a presentation about InFlearn lecture #13 (Kaggle plant pathology competition).

Things to do by next week

- Book a meeting with Minji Lee for the paper.
- Write materials and methods part of the project paper.
- Finish building Linear Regression ML model for the topic up to weekdays.
- Start building Random Forest ML model for the topic.
- Start building a CNN DL model for the topic.
- Collect images and sugar levels of apples as datasets.

Problems or challenges:

- All of the team members lacked experience in the measurement of apple sugar sweetness. Getting the data on the sugar levels for 150 apples in a short amount of time was quite difficult for us. Jeongho Ha and Seokhyeon Heo took 6 pictures

for each apple. Kyung and Hanbi Kim measured the sugar levels for each apple, and Hanbi labeled the pictures and wrote down the output number of the measurement. There were a few missing pictures and uncorrected labeling. We deleted all of the incorrect data and started over.

- Heejun Park worked on making a DL model using VGG. He got zero accuracies on his model. He is trying to find out a solution for getting higher accuracy on his model.

References

Nhut-Thanh Tran, Quoc-Thang Phan, Chanh-Nghiem Nguyen, and Masayuki Fukuzawa. (2021). Machine Learning-Based Classification of Apple Sweetness with Multispectral Sensor. Presented at 21st SNPD Winter 2021, Ho Chi Minh City, Vietnam. [Online]. Available: https://ieeexplore.ieee.org/document/9403506