Disease Detection Among Crop Production
A DS 4002 Case Study by Ezra Attisso

As the sector of agriculture continues to grow and evolve at an increasing rate, this also inadvertently acts as the cause for another type of boom: disease. The means of production continue to see increasing use of physical technology in order to optimize output and profit. With this, the spread of pathogens leads to more concern in terms of the overall human health.

With 66 percent of the population relying directly on agriculture or indirectly, it is imperative to refine the methods which determine what food is eligible to go to households [X]. Now, the use of human labor for verification does and has existed for time now. However, the problem of subjectivity can come into play, among other factors. But with the introduction of computer-based technology, a solution can be found.

You are a data scientist tasked with creating a model that can efficiently identify a crop, and whether disease is present. The industry has been talking about continuing with a verification-by-human model to solve a problem like this, but you think a computer-based RESnet model would work better. In order to prove your model works, you should be able to have it run simultaneously on a random batch of images and be accurate with a confidence level higher than 55% percent.

Github: https://github.com/ezraattisso/DS4002-CS3

Trippa, Daniela, et al. "Next‑Generation Methods for Early Disease Detection in Crops." *Pest Management Science*, vol. 80, no. 2, 20 Sep. 2023, pp. 245–261, https://doi.org/10.1002/ps.7733.