title: Bio Engaging with research project context: BIO201 author: Huxley source: —

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## Record of understanding:

The writing style here is more similar to my notes, which I personally use as a record of my understan

### 1. **Paper Title:** > A COVID-19 pandemic AI-based system with deep learning forecasting and automatic statistical da

### 2. **What question or phenomenon was being investigated in this study and why?** - COVID is a large problem, a

### 3. **What background information did you need to understand in order to understand the question, main exper**

##### ARIMA: *Auto Regressive Integrated Moving Average* - Type of Auto Regressive (AR, not Augmented Reality) mode

> **Predicted $Y_t$ = Constant + Linear combination Lags of Y (upto p lags) + Linear Combination of Lagged forecast**

##### MLP: *Multilayer Perceptron Neural Networks* - Just a feed forward network, but with hidden layers. Pretty ambiguo

##### MAE (vs RMSE): - Mean Absolute Error, which I haven't used before, is like RMSE (root mean square error) but les

##### MAPE: *Mean Absolute Percentage Error*

- aka Mean Absolute Percentage Deviation - loss function, used for measuring forecast accuracy. - average of percentage

### 4. What was the main thing the researchers found out and how did they do so?…

1. what were the main (1-2) experiments? 1. Dateset gen and renewal: 1. using crawler on source 2. integrating the data
2. what data did they generate? 1. Generated a worldwide automatically updating dateset for COVID-19 with their automa
3. what does that data mean? 1. The dateset, innit of itself, means nothing. 2. the forecasting data means what we can e

### 5. What was the significance or larger impact of the main finding?

- the dateset itself is useful for the entire world doing data analysis - the forecasting data can help with rapid policy change

## Reflection Questions

1. **What paper did you choose and why did you choose it?** 1. > A COVID-19 pandemic AI-based system with deep le

1. *How did you go about trying to understand the paper that you chose? What was your reading/understanding process like and why did you employ that strategy?*

    (a) Generally speaking, my strategy was to get background on the topic (normally by reading the abstract) and then follow my curiosity throughout the paper. When their was something I didn't know about or understand, I would look for more info on that first in the paper then in outside resources.

    (b) I read the abstract of the paper, then learned about the terms I didn't understand from the *Introduction* and *Materials and Methods* sections. I also used the handy cmd-f functionality to search through the document. However, a lot of my time was spent looking at other articles online for deeper explanations. I then jumped into the data at the bottom, then read through the *Discussion* and such.

    (c) This seemed like the best way to go about understanding a paper with a topic that I was already somewhat familiar with yet had a lot of new terms.

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2. *What did you find challenging about trying to understand your paper? Although the task may have felt generally challenging, try to get specific here.*

    (a) Specifically to this paper, trying to understand ARIMA was by far the most complex part.

    (b) The actual format and layout of the paper felt pretty familiar, and wasn't hard to navigate.

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3. **What do you think you could try next time that might improve your process?**

    (a) I'm still debating how to order looking at data and discussion / conclusions. I spent a while looking at data before the discussion, then I went back to the data after I had finished reading. I don't want to bias my understanding of the data, but I also don't want to waste a lot of time looking at data without much background to understand it. Next time, I think I will try looking at the data after and seeing if my thoughts are clouded by the discussion.

1. *What type of previous experience do you have with reading papers from the scientific literature (either review articles or primary research)?*

   (a) I do a lot of projects in my free time, which often lead to me having to read papers for info. Just last night, actually, I spent a few hours reading scientific papers on different spike detection algorithms as well as Kalman filters.