

STAT157 HW 7

March 8, 2022

Predictions due Monday, March 14 at 11:59pm

Gradescope submission due 15 min after

Deliberate Practice: Forecasting AI

Expected completion time: 120 minutes

In Lectures 14 and 15, we analyzed considerations relevant for an in-depth forecast about the future of AI. In this deliberate practice, you will do your own forecast by synthesizing the information presented in lecture, and optionally doing a bit of your own research. It is completely fine to only use information provided in lecture, but if you include in your writeup a data source the staff isn't currently aware of, which updates the staff's own forecasts, you can get up to 3 points of extra credit.

The forecast addressed in class was:

In what year will AI systems be able to perform essentially all tasks that humans can do?

Generate your own forecast for this question, including a mean and an 80% confidence interval. Please use at least 4 techniques from previous lectures, from this list:

- Fermi estimation
- Zeroth and first order forecasting
- Base rates and reference classes
- Generating “other” options
- Combining forecasts
- Approximating with common probability distributions
- Prioritizing information and analyzing relative uncertainties

- Bayesian aggregation of evidence

In your writeup, discuss how you created your forecast. You may write a holistic summary of your thought process, with a small note each time that you used techniques from lecture, or you may write a separate section for each of the techniques you chose, detailing how you incorporated it into your forecast. Your writeup should be at least 500 words. If your write-up would be much longer than 500 words to address every consideration you analyzed, it is okay to summarize some parts instead of providing exhaustive reasoning.

On Gradescope, please also submit the time it took to complete this exercise.

Predictions

Expected completion time: 120 minutes

Register the following predictions. You can submit them by going to [this URL](#) and following the form's instructions. For these predictions, (and all predictions about the future throughout this class), we encourage you to use external sources – by googling things, reading news articles, talking to friends who follow politics or music stats, etc.

1. What will be the price of [April 2022 Dutch TTF Natural Gas Futures](#) on Thursday 17 March?
2. Will the Lapsus\$ hacking group release NVIDIA Verilog files on their Telegram channel between March 14, 11:59pm and March 28, 11:59pm?
3. What will be the total number of acres in California burned by wildfires in 2022 by April 15?
 - This question will resolve based on the data in [this database](#) of incidents.
4. Will there still be construction for the [Milvia bikeway](#) between Hearst and University on April 15?
 - We will say there is no more construction if (1) there are at most 5 of [these orange bollards](#) left between Hearst and University, and (2) there is no longer [this “Road Works Ahead” sign](#) on the angle of Berkeley Way and Milvia Street.
5. (Extra-credit, 2 points) Will Kyiv to fall to Russian forces by April 1, 2022?
 - The question will resolve like [this Metaculus question](#). It will not count for the leaderboard.

For each question, submit a mean and inclusive 80% confidence interval or your probabilities, as well as an explanation of your reasoning (1-2 paragraphs). **Please include a copy of your google form responses with your Gradescope submission.** On Gradescope, please also submit the time it took to complete this exercise.

Extra Credit

You can earn extra credit for doing one or both of the following tasks:

1. (2 points). Propose a prediction question for a future homework. Your question should have a fully specified resolution criteria, such that it would be clear to the course staff how to resolve it.
2. (2 points). Write down 5 “calibration-app” style questions (and answers), for a domain that is not trivia.

For the first part, you will get extra credit if we either use your question on a future homework, or like it enough to add it to our question bank for future classes.

For the second part, you will get extra credit if we think they are at least as interesting as the questions currently in the calibration app, and well-written enough to be used as a calibration question. (We may submit them to the app creator and suggest they include them!)