ChatGPT-experiment#3

This documentation presents a quasi interview with Mr. Chat GeePeeTee (robot-expert for all). The yellow marked impulses come from a human expert (Pratchett, G. Pete – great fan of Terry Pratchett, the sci-fi author). The black & white presented answers are from Mr. Chat GeePeeTee (robot-expert for all). The footnotes try to interpret the robot’s reactions/reflections by human experts (Mr. Pratchett, G. Pete).

The interview used following patterns, where the Two Experts fought already with an ethical and a mathematical challenge in Hungarian language:

* <https://miau.my-x.hu/miau/297/ChatGPT.docx> (fights about ethical questions)
* <https://miau.my-x.hu/miau/297/ChatGPT2.docx> (fights about mathematical questions)

The goal of these experiments are:

* to demonstrate how the human beings can be transformed into cyborgs if they use the machines in proper ways, where the machines are selected human thoughts from the past
* to derive, whether the machines are capable of creating innovative (never-existing) solutions
* to present a kind of machine behaviour patterns in critical situations where e.g., the human experts try to identify/detect lies/errors of the machines…
* …

What is the meaning of optimal weighting?

Optimal weighting refers to the process of assigning the most appropriate weights or values to different elements or components[[1]](#footnote-1) in a system[[2]](#footnote-2), so as to achieve the best possible outcome or result[[3]](#footnote-3). This concept can be applied in various[[4]](#footnote-4) fields, such as finance, engineering, and decision-making[[5]](#footnote-5).

In finance, optimal weighting is used to determine the most efficient[[6]](#footnote-6) portfolio of assets for investment, by assigning weights to different securities based on their expected return, risk, and other relevant factors[[7]](#footnote-7).

In engineering, optimal weighting can refer to finding the best distribution[[8]](#footnote-8) of mass in a structure, such as an aircraft, to achieve[[9]](#footnote-9) the desired stability and efficiency.

In decision-making, optimal weighting can involve assigning values to different criteria or factors[[10]](#footnote-10) in a decision-making process, in order to arrive at the best[[11]](#footnote-11) decision.

The goal of optimal weighting is to maximize some desired performance metric[[12]](#footnote-12), while taking into account constraints and trade-offs[[13]](#footnote-13). The specific definition and methodology of optimal weighting may vary depending on[[14]](#footnote-14) the specific context and the desired outcome.

Optimal weighting and estimation are they related to each other?

Yes, optimal weighting and estimation are related to each other15. Optimal weighting is often used in conjunction with estimation in many applications, particularly in the fields of statistics and signal processing16 or a set of parameters based on some observed data17. Optimal weighting can be used in this context to assign different weights to different observations18, depending on their reliability or quality, so as to produce the most accurate estimate possible19. For example, in time series analysis, different observations may have different variances20, and optimal weighting can be used to give more weight to the observations with lower variance and less weight to the observations with higher variance21, in order to produce a more accurate estimate of the underlying trend.

In general, optimal weighting can be seen as a tool to enhance the accuracy and robustness of estimation 22procedures by taking into account the different reliability and quality of the data used in the estimation process23.

explain more:

Sure! Let me elaborate a bit further.

Estimation is the process of using available data or information to make an educated guess or prediction about a quantity or a set of quantities that are not directly observable24. In many applications, the quality and reliability of the data used in the estimation process can vary25. For example, in a measurement system, some sensors may be more accurate than others, and in a survey, some respondents may provide more reliable answers than others.

In these cases, optimal weighting can be used to assign different weights to different observations, based on their quality or reliability, so as to produce the most accurate estimate possible26. The weights can be determined by minimizing the expected estimation error or by maximizing the accuracy of the estimate, subject to some constraints, such as the sum of the weights being equal to one, for example.

Optimal weighting can also be used to incorporate prior information or knowledge about the parameters being estimated. For example, in Bayesian estimation, prior probabilities can be assigned to different parameter values, and these prior probabilities can be combined with the observed data to produce the posterior probabilities, which can then be used to produce the most accurate estimate possible.

In general, optimal weighting can improve the accuracy and robustness of estimation procedures by taking into account the different quality and reliability of the data and by incorporating prior information, if available. Optimal weighting is therefore an important tool in many applications, including signal processing, machine learning, finance, and engineering, among others.

22*The robot seems provides a clear and concise explanation of the general purpose.*

*23A emphasizes the role of optimal weighting in adjusting for data quality and reliability in the estimation process.*

*24We can accept the concepts of the robots.*

*25The robot seems appear to be aware of the applications and evaluate them for the quality and reliability of the data.*

*26The robot seems to be capable of concatenating everything together like econometrics and survey research.*

Ranking values X(A1) X(A2) X(A3) X(A4) X(A5) X(A6) X(A7) X(A8) X(A9) X(A10) X(A11)

 X(A12) Y(A13) Average Rank estimation Rank

O1 2 3 1 9 2 9 6 6 3 1 7 4

 1000 4.42 3 1000 3

O2 1 2 2 6 9 1 4 9 2 5 7 4

 1000 4.33 2 1000 3

O3 2 4 3 2 9 5 1 3 2 3 8 1

 1000 3.58 1 1019 13

O4 1 4 4 5 4 3 9 2 9 1 9 9

 1000 5.00 6 1000 3

O5 2 8 3 9 6 7 7 2 6 6 7 5

 1000 5.67 9 1000 3

O6 5 2 3 9 9 8 2 9 3 4 4 8

 1000 5.50 8 989 1

O7 3 1 3 6 8 5 9 9 9 4 7 1

 1000 5.42 7 1000 3

O8 3 2 1 2 3 8 8 7 5 9 4 4

 1000 4.67 5 1000 3

O9 1 5 4 3 7 3 3 1 8 2 8 9

 1000 4.50 4 1000 3

O10 9 4 2 1 9 4 6 7 6 9 2 9

 1000 5.67 9 1000 3

O11 3 8 2 4 5 7 8 4 5 9 8 9

 1000 6.00 13 992 2

O12 4 9 4 3 4 9 7 5 8 2 5 9

 1000 5.75 11 1000 3

O13 1 9 8 2 8 7 7 9 5 9 1 4

 1000 5.83 12 1000 3

What do you think? Is there a kind of optimal weighting? compare to this table

Yes, the weights and their impacts can be interpreted in different ways.

What do you think? Is there a kind of optimal weighting?

With other words:

Could we derive for each Student the same evaluation value based on the input data? Or even:

Why do we not see the sameness based on the average ranks?

Ranking values

X(A1) X(A2) X(A3) X(A4) X(A5) X(A6) X(A7) X(A8) X(A9) X(A10) X(A11) X(A12) Y(A13) Average Rank estimation Rank

O1 2 3 1 9 2 9 6 6 3 1 7 4

 1000 4.42 3 1000 1

O2 1 2 2 6 9 1 4 9 2 5 7 4

 1000 4.33 2 1000 1

O3 2 4 3 2 9 5 1 3 2 3 8 9

 1000 4.25 1 1000 1

O4 1 4 4 5 4 3 9 2 9 1 9 9

 1000 5.00 7 1000 1

O5 2 8 3 9 6 7 7 2 6 6 7 5

 1000 5.67 12 1000 1

O6 5 2 3 9 9 8 2 9 3 4 4 1

 1000 4.92 6 1000 1

O7 3 1 3 6 8 5 9 9 9 4 7 1

 1000 5.42 10 1000 1

O8 3 2 1 2 3 8 8 7 5 9 4 4

 1000 4.67 5 1000 1

O9 1 5 4 3 7 3 3 1 8 2 8 9

 1000 4.50 4 1000 1

O10 9 4 2 1 9 4 6 3 6 9 2 9

 1000 5.33 8 1000 1

O11 3 8 2 4 5 7 8 4 5 9 8 1

 1000 5.33 8 1000 1

O12 4 9 4 3 4 9 7 3 8 2 5 9

 1000 5.58 11 1000 1

O13 1 9 8 2 8 7 7 9 5 9 1 4

 1000 5.83 13

The average rank is a way to summarize the performance of a student based on multiple factors. It is not the only way to evaluate the performance of a student and different weighting schemes can be used to reflect the importance of each factor. However, if the same weighting scheme is used for all students, the average ranks should be the same for each student. The difference in average ranks in your table might be due to differences in the weighting scheme used for each student. Additionally, the estimation rank and the average rank might not be the same because the estimation rank is based on the Y value, which is a separate value from the X values used to calculate the average rank.

1. The robot seems to sense to problem, that the human beings are using synonyms (like elements, components). [↑](#footnote-ref-1)
2. The robot seems to have a kind of system theoretical basic competence. It will be important e.g., for OAM-based projects like similarity analyses… [↑](#footnote-ref-2)
3. The robot seems to have an understanding about input-output-logics… [↑](#footnote-ref-3)
4. The robot seems to have a feeling for adaptation (for context-free thinking). [↑](#footnote-ref-4)
5. The robot seems not to have the competence to interpret real sets of phenomena: the example (finance, engineering, and decision-making) are not 3 elements of the same word-set, because decision-making as such can be interpreted both in finance and in engineering. [↑](#footnote-ref-5)
6. In such a case, it could be asked the robot, how the efficiency is defined? (🡨this action could be interpreted as a parallel chat-track) [↑](#footnote-ref-6)
7. The proactive listing of attributes for the objects “investment alternatives” is a new sign of OAM-based thinking…

 [↑](#footnote-ref-7)
8. It would be interesting to know, whether the same formula/model can be identified behind the most efficient portfolio and the best (“most good”) distribution of mass in a structure? It means: how flexible is the optimum-phenomenon in the robot’s „brain”? [↑](#footnote-ref-8)
9. The robot seems to have a meta-level (c.f. targeted attributes like stability) for optimum… [↑](#footnote-ref-9)
10. The robot presents again the necessity to work with synonyms like: criteria, factors… [↑](#footnote-ref-10)
11. The robot seems to know, that BEING-THE-BEST is a relevant phrase (goal, objective function)… [↑](#footnote-ref-11)
12. Performance metric is a new expression, where we had already synonyms like factor, criteria (c.f. attributes of objects). It would therefore be interesting to go a parallel way: What kind of differences see the robot between the potential synonyms? Why does the robot use here one, there more words (synonyms in a parallel way) in the own text-building-processes? [↑](#footnote-ref-12)
13. Interesting situation: constraints can be seen as the professional word on the field of optimization and trade-offs seems to be rather as a word for interpretation/explaining (the same message). [↑](#footnote-ref-13)
14. The robot (see also experiment#1 and experiment#2) always declares the importance of relativities…

15*The robot seems to connect things together.*

*16 The robot seems effectively communicates the main idea of the relationships.*

*17It is clear that it conveys information in a simplistic way. This is a problem and an advantage at the same time.*

*18You have the need that you want at the expense of the context of the topic.*

*19The robot seems to analyze and estimate according to the information that was previously entered.*

*20Understand why this consideration is important or what the implications may be for time series analysis.*

*21It explains how optimal weighting can be used to address the issue of differing variances in time series data.* [↑](#footnote-ref-14)