The Physics of Data. Part V

The Physics of Data - Part V | Alfonso R. Reyes

Loose questions on adding a Physics layer to data science and machine learning

1. If we were to add the analysis, formulation, set up, and solving of differential equations to Data Science, would that make DS more scientific?

2. What makes Data Science a science? Or is it a misnomer like "political science"?

3. Why does data science (and machine learning) work well only when you have good data? How do you know -or qualify- what good data is?

4. How many kinds of bad data do you think there is? If the sources of bad data could be modeled, and then the effect added or subtracted, would that contribute to make prediction models better?

5. How much data is enough for a ML algorithm to produce reliable predictions? (A) more than 50 observations, less than 100? (B) More than 1000 observations? (C) Above 1 million observations? (D) It is irrelevant, depends of the case, (E) there is no limit because the algorithm needs to continue learning forever

6. Is there any other alternatives to perform predictions where dynamic systems are not continuously required to learn?

7. Is there any bachelors degree out there that teaches Differential Equations as part of data science or Machine Learning careers? What about AI?

8. What are the main or major roadblocks that prevent experts, specialists, or engineers working with data to be able to build, explain, and computationally solve differential equations?

9. Do you think that machine learning and artificial intelligence could produce any breakthroughs without a major immersion in physics?

10. What does the sentence "if you have the right physical model you are able to predict the future", mean?

11. Why would the inclusion of physics in data science, machine learning, and AI models and algorithms make them better?

12. What makes a science a "science"?

13. How often do you see data scientists, machine learning engineers, and AI experts including differential equations in their algorithms?

hashtags:: SPE Data Science Artificial Intelligence SciML Petroleum Engineering Differential Equations Physics Of Data

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