Review of: "Approach to Data Science with Multiscale Information Theory"

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After reading the abstract it seems the title of this article is not accurate enough besides the generic first paragraph of this abstract.

The real abstract starts at the second paragraph and says in essence it employs SM and MED to better grasp Shrodinger's equations.

Though, SM does not needs (perhaps) much explanation, this is not the case for MED and would need some hints on how or where within a dynamical system the musicale refers to in the Shrodinger's equations as well as in information theory (using entropy). Similarly, it would be ok to say "we pave the way for a deeper understanding of quantum mechanical systems …" if we had something a bit more defined on what the approach brings.

A title more like "Applying a multiscale information theory framwork in SM" …. ?

Data science is rather recent concept, so the first sentence quoting Jaynes 1957 is a bit odd for the argument.

The whole introduction misses to introduce or give some hints on why multiscale is important and how it would be combined with ED?

Multiscale is discussed in [19] for example but this doesn't appear in the introduction, neither what your paper brings that is different from [19]?

it could be mentioned that equation 7 correspond to (- $D_{KL}(P|Q)$ as minus the Kullback-Leibler divergence from Q to P (as conditional probabilities or transitional probabilities given (x,s)), and so making the S(P,Q). So, your problem is yes a data science problem where ofthe one wants to minise D_KL.

This is part of a section termed "APPROACH TO DATA SCIENCE WITH MED METHOD" but in fact after introducing 7 and looking for P you are mostly takking about the second law of thermodynamics … Is this more SM or Data Science?

What is the difference between equation (7) and (8)?

Section A within secrion 4 (does this corresponds to the numbering of sections in subsections in Qeios?) appears to be "pure" statistical mechanics where the multiscale aspect has somehow vanished or seems to be more like an additional dimension in the positional dimension. It is not clearly explained what are the interaction between position and scale.

Altogether, besides the fact that I am not fully qualified to acknowledge the proposed newly views on Shrodinger's equations, as a data scientist, I cannot see the advance in the methodology linked to the introduction of scales and the consideration of multiple scales in inforlmation theory.

I certainly see the potential benefits of introducing scales in any data science problem, and in SM but the article doesn't sufficiently express it in a concrete manner besides making understandable what the changes introduced in information theory.