Review of: "Measuring Complexity using Information"

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Potential competing interests: No potential competing interests to declare.

The approach presents an intriguing perspective on complexity science with potential cross-disciplinary applications. Here are some considerations that might enhance the study:

1. Case studies and comparative analysis: To enhance the paper's clarity and applicability, I strongly recommend including specific case studies demonstrating the calculation of complexity for systems with varying degrees of complexity. A comparative analysis of these results would provide readers with a clearer understanding of your method's practical implications and limitations.

2. Addressing concise representations of complexity: The approach may be limited when dealing with systems where complex information is concisely encoded. For instance, human DNA encodes incredibly complex organs and functions in a relatively simple structure. The use of information entropy alone may not capture this "compressed complexity" adequately. Consider discussing this limitation and proposing potential solutions or extensions to the method.

3. Multi-dimensional complexity: System complexity is inherently multi-faceted. I suggest expanding your framework to include various aspects of complexity, such as: Functional complexity, Structural complexity, Feedback loop complexity, Interaction complexity, Temporal complexity, Diversity, Emergent properties. Given the multi-dimensional nature of complexity, it may be more valuable to explore and quantify these different aspects rather than attempting to reduce complexity to a single measure.

4. Theoretical implications: Discuss the implications of the approach for our understanding of complexity. How does it challenge or complement existing theories in complexity science?

5. Limitations and future research: Clearly articulate the limitations of the current approach and suggest directions for future research that could address these limitations.