Machine Learning of Many Body Localization

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A paper usually includes an abstract, a concise summary of the work covered at length in the main body of the paper. Please also write a short abstract of your project.

I. INTRODUCTION

Introduce concepts: Exact Diagonalization, areal Density Matrix, Neural Network
Is scaling important?
Review Literature on task

II. MATERIALS AND METHODS

Explain Flow with figure

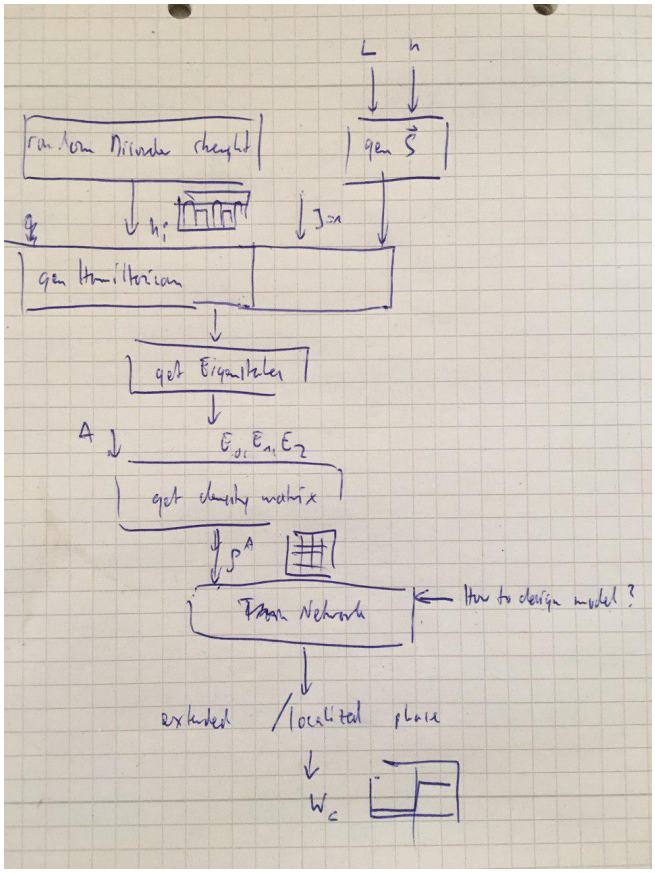

FIG. 1. Example of a figure [7].

Fig. 1

Explain metrics and errors and why they are used. Which ml models are used and why?

III. RESULTS

Plots:

The training set was sufficiently large enough

We only need M Eigenstates

This is how corresponding density matrices look like

This will be our parameter space for n, L

Those are our W_c depending on n, L.

IV. CONCLUSION

W_c depends on n, L (yes/no).

W_c prediction coincides with the expectation (yes/no)

W_c is dependent on these and that effects => scaling analysis? (yes/no)

Citations are numerical[1], some more citations [2–6].

[1] A. Einstein, Yu. Podolsky, and N. Rosen (EPR), Phys. Rev. **47**, 777 (1935).
[2] R. P. Feynman, Phys. Rev. **94**, 262 (1954).
[3] N. D. Birell and P. C. W. Davies, *Quantum Fields in Curved Space* (Cambridge University Press, 1982).
[4] J. G. P. Berman and J. F. M. Izrailev, Stability of nonlinear modes, Physica D **88**, 445 (1983).
[5] E. Witten, (2001), hep-th/0106109.

[6] E. B. Davies and L. Parns, Trapped modes in acoustic waveguides, Q. J. Mech. Appl. Math. **51**, 477 (1988).
[7] R. Orus, A practical introduction to tensor networks: Matrix product states and projected entangled pair states, Annals of Physics **349**, 117 (2013), 1306.2164.

Appendix A: Code listing

Please copy your code in the appendix.

```
"""

Description

"""

import numpy as np

code
```