- Our understanding of Quantum Physics is based upon our prior understanding of classical mechanics which causes issues like the measurement problem when trying to reconcile the two together.
- To search for different models of physical mechanics it is theorised we can create one by using a neural network to learn concepts straight from experimental data in an empirical unbiased way.
- The network learns to turn the data into a representational system and then uses that representation to answer questions.
- This network has had success at learning physical parameters like the frequency of a pendulum, finding conservation laws, recognizing the number of degrees of freedom in a quantum state, and discovering the heliocentric model of the solar system from the positions of celestial bodies as seen from earth.
- Most neural networks working with physics problems evaluate on efficiency and quality without thought to what the network actually learned.
- Models impose structure and *a priori* knowledge by specifying what data is given to the network and what data is left out and this is biased by our own ideas of what data will be relevant.
- The network can be seen as an encoder mapping from observations to a representation and a decoder that takes the representation and questions to form answers.
- The representation the network learns is not imposed upon it although the correct answers it works towards are provided in a supervised way.
- The network needs a sufficient number of latent neurons to make accurate predictions.

https://arxiv.org/pdf/1807.10300v1.pdf