# Article information:

A neural network potential-energy surface for the water dimer based on environment-dependent atomic energies and charges: The Journal of Chemical Physics: Vol 136, No 6  
<https://aip.scitation.org/doi/10.1063/1.3682557>

# Article summary:

1. Water has been studied in great detail due to its high biological and chemical relevance, but a profound understanding of liquid water still remains challenging.

2. Many water potentials have been developed, most of which are based on simple analytical expressions fitted to experimental data of the bulk liquid.

3. Artificial neural networks (NNs) have been increasingly employed to construct highly accurate potential-energy surfaces (PESs) for a variety of molecules with up to twelve degrees of freedom, as well as molecule-surface interactions.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article is generally reliable and trustworthy, providing an overview of the current state of research into water potentials and artificial neural networks (NNs). The article is well-researched and provides evidence for its claims in the form of citations from reputable sources. The article also presents both sides equally, discussing both empirical water potentials and ab initio calculations, as well as their respective advantages and disadvantages.

The article does not appear to be biased or one-sided in any way; it presents a balanced view on the different approaches to studying water potentials. It also does not contain any promotional content or partiality towards any particular approach or method. Furthermore, the article does not make any unsupported claims; all claims are backed up by evidence from reputable sources.

The only possible issue with the article is that it does not explore counterarguments or present alternative points of view on the topic at hand. However, this is understandable given that the article is intended as an overview rather than a detailed analysis of the various approaches to studying water potentials.

# Topics for further research:

* Water potentials ab initio calculations
* Comparison of empirical and ab initio water potentials
* Advantages and disadvantages of artificial neural networks
* Applications of artificial neural networks in water potentials
* Limitations of empirical water potentials
* Recent advances in water potentials research

# Report location:

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