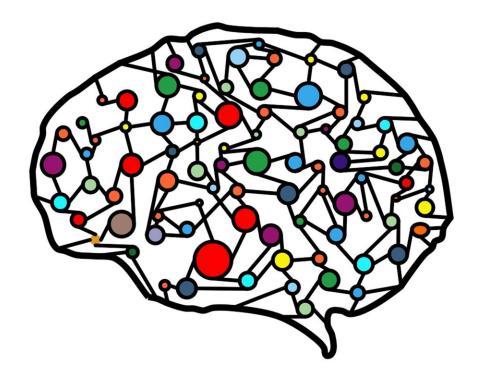# Scientists could discover physical laws faster using new machine learning technique

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Credit: Pixabay/CC0 Public Domain

It can take decades for scientists to identify physical laws, statements that explain anything from how gravity affects objects to why energy can't be created or destroyed. Purdue University researchers have found a way to use machine learning for reducing that time to just a few days. Their study is one of the first demonstrations of using machine learning to discover physical laws from data.

Machine learning models typically struggle with learning new physics and explaining predictions. The approach that Purdue researchers developed enabled machine learning to interpret Newton's [second law of motion](#) and Lindemann's law for predicting the melting temperature of materials. The approach even optimized the Lindemann melting law to be simpler and more accurate.

Based on their findings from this study, the team developed a tool that other researchers can use for achieving simpler and more interpretable machine learning models. The tool is available online via [nanoHUB](#).

The research is published in *Scientific Reports*.

More information: Saaketh Desai et al, Parsimonious neural networks learn interpretable physical laws, *Scientific Reports* (2021). [DOI: 10.1038/s41598-021-92278-w](#)

nanoHUB link: [nanohub.org/resources/pnndemo](#)

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