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Getting CICY high. (English) Zbl 1420.14002
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Summary: Supervised machine learning can be used to predict properties of string geometries with previously unknown features. Using the complete intersection Calabi-Yau (CICY) threefold dataset as a theoretical laboratory for this investigation, we use low $h^{1,1}$ geometries for training and validate on geometries with large $h^{1,1}$. Neural networks and support vector machines successfully predict trends in the number of Kähler parameters of CICY threefolds. The numerical accuracy of machine learning improves upon seeding the training set with a small number of samples at higher $h^{1,1}$.

MSC:

- 14-04 Software, source code, etc. for problems pertaining to algebraic geometry Cited in 3 Documents
14J32 Calabi-Yau manifolds (algebraic-geometric aspects)
68T05 Learning and adaptive systems in artificial intelligence

Keywords:

machine learning; neural network; support vector machine; Calabi-Yau; string compactifications

Software:

Calabi-Yau database; CICY Quotients

Full Text: [DOI](#)

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