# Article information:

Buildings | Free Full-Text | Machine Learning-Based Method for Detached Energy-Saving Residential Form Generation  
<https://www.mdpi.com/2075-5309/12/10/1504/htm>

# Article summary:

1. The rapid growth of China’s economy has led to an increase in residential buildings, which consume a large amount of primary energy and contribute to global warming.

2. Multi-objective optimization methods have been used to retrofit and generate energy-efficient buildings, but most of the time is consumed in the performance simulation process.

3. This paper proposes a machine learning-based method for detached energy-saving residential form generation that uses Rhino-Grasshopper as the operation platform and adds innovative modules of data sampling, performance simulation drive, and accuracy evaluation.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

The article provides a comprehensive overview of the current state of research on multi-objective optimization methods for retrofitting and generating energy-efficient buildings. The authors propose a machine learning-based method for detached energy-saving residential form generation that uses Rhino-Grasshopper as the operation platform and adds innovative modules of data sampling, performance simulation drive, and accuracy evaluation. The article is well written and provides detailed information about the proposed method.

However, there are some potential biases in the article that should be noted. First, there is no discussion of possible risks associated with using machine learning for this purpose or any exploration of counterarguments to its use. Second, there is no mention of other methods or approaches that could be used to achieve similar results without relying on machine learning technology. Third, there is no evidence provided to support the claims made about the effectiveness or efficiency of this proposed method compared to existing methods or approaches. Finally, there is a lack of discussion about how this proposed method could be applied in practice by architects or designers in order to achieve optimal results.

In conclusion, while this article provides an interesting overview of current research on multi-objective optimization methods for retrofitting and generating energy efficient buildings, it does not provide sufficient evidence or discussion regarding potential biases or risks associated with its proposed approach nor does it explore alternative methods or approaches that could be used instead.

# Topics for further research:

* Machine learning risks
* Alternative methods for energy-efficient building retrofitting
* Architectural applications of multi-objective optimization
* Efficiency comparison of machine learning-based methods
* Accuracy evaluation of energy-saving residential forms
* Practical implementation of multi-objective optimization techniques

# Report location:

<https://www.fullpicture.app/item/8a842b9fa469d6f2bb5352e156b52f15>