# Article information:

Full article: Automatic building rooftop extraction using a digital surface model derived from aerial stereo images
<https://www.tandfonline.com/doi/full/10.1080/14498596.2020.1720836>

# Article summary:

1. Automatic extraction of building information from remotely sensed images is increasingly needed for various applications such as urban planning and management, building reconstruction, solar energy estimation, and disaster management.

2. Building rooftop information is one of the most crucial datasets as it provides geometrical, topological, and semantic descriptions for estimating solar potential, modelling rain runoff, and distinguishing an extreme damage state following an earthquake.

3. DSMs that provide detailed height information are widely used to extract building roofs while producing reliable results. Stereo images are a more economical and convenient data source compared to LiDAR data for obtaining DSM data for a large urban area.

# 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 discusses the automatic extraction of building rooftop information from remotely sensed images, which is increasingly needed for various applications such as urban planning and management, building reconstruction, solar energy estimation, disaster management, etc. The identification of building rooftops provides geometrical, topological, and semantic descriptions for estimating solar potential, modelling rain runoff, and distinguishing an extreme damage state following an earthquake.

The article provides a comprehensive overview of the existing approaches for building roof extraction from different data sources such as satellite images, digital surface models (DSMs), light detection and ranging (LiDAR) point clouds, and aerial images. The methods can be divided into two main categories: building roof contour extraction and building roof extraction. The article also highlights the challenges associated with automatic extraction of building rooftops in large and dense built-up urban areas due to complex building structures as well as the problem of occlusions and shadow effects.

However, the article has some potential biases and missing points of consideration. Firstly, it focuses mainly on the advantages of using DSMs derived from aerial stereo images for building roof extraction while downplaying the advantages of LiDAR data. Secondly, it does not provide a balanced view on the use of ancillary data during the building extraction process. While it mentions some examples where additional ancillary data were adopted during the process such as high-resolution satellite imagery or orthoimages, it does not discuss their limitations or potential risks associated with their use.

Moreover, the article does not explore counterarguments or alternative approaches that may challenge its claims. For instance, it does not discuss any limitations or challenges associated with using DSMs derived from aerial stereo images such as low accuracy in areas with steep slopes or dense vegetation cover. Additionally, it does not mention any potential risks associated with automatic extraction methods such as errors in identifying irregular shapes or false positives/negatives.

In conclusion, while the article provides a comprehensive overview of existing approaches for automatic building rooftop extraction, it has some potential biases and missing points of consideration. Therefore, readers should approach the information presented with a critical eye and seek additional sources to gain a more balanced view on the topic.

# Topics for further research:

* Limitations of using LiDAR data for building roof extraction
* Risks associated with using ancillary data in building extraction process
* Challenges of building rooftop extraction in areas with steep slopes or dense vegetation cover
* Alternative approaches to automatic building rooftop extraction
* Potential errors in identifying irregular shapes during automatic extraction
* False positives/negatives in automatic building rooftop extraction methods

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