

## **ABSTRACT**

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*SATELLITE IMAGE SEMANTIC SEGMENTATION USING U-NET ARCHITECTURE IN UNDERSTANDING THE SATELLITE PERSPECTIVE IN THE PYTHON-JUPYTER NOTEBOOK LANGUAGE*

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*(xiv + 136 + Attachment)*

*In today's digital era, satellite imagery has an important role in mapping, environmental monitoring, and analysis of the earth's surface. However, manual analysis by humans is time consuming and difficult to perform for large areas. Therefore, the development of an automatic method for semantic segmentation of satellite images using deep learning is very important. Deep learning, inspired by the workings of the human mind, has been successfully applied in various studies using the U-Net architecture. This study also aims to apply U-Net in satellite image segmentation using the Python programming language, and also Jupyter Notebook as an IDE from the Python programming language. The methodology used is the System Development Life Cycle (SDLC), data collecting, and the design stage is carried out in several stages such as data preparation, deep learning with satellite imagery data, and advanced deep learning with satellite imagery data. The application has succeeded in identifying objects and features contained in the image, can distinguish well between the identified objects, and is effective in detecting the edges of satellite imagery. The correspondent test got a score of 87% which shows the application is running well and has succeeded in identifying objects and features contained in the image which shows that the application has been successful and suitable for public use.*

*Bibliography (2015-2023)*