

## Is AutoML a practical way of tackling DSDI Task?

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### Abstract

We NIIICT team tried the DSDI task without touching the "black magic" thing of deep learning as much as possible using the AutoML technique. We deployed AutoML Vision service of Google Cloud Platform.

When it comes to natural disasters, it is challenging to prepare sufficient data sets in advance for learning images. We usually need to add new images to existing data sets each time a new disaster occurs to adapt to various situations. Also, on the anomaly detection approach, there is a peculiar problem that the non-disaster time data set has vast variations. On the other hand, there is a fact that it is difficult for central and local governments to invest large amounts of costs in disaster countermeasures.

To respond to such natural disasters that occur at any time, we believe that it is essential that a proof-of-concept system be created, verified, and tested with minimal time and effort in the classifier learning process.

Deep learning techniques often cannot be applied because, at this time, they require highly specialized knowledge and experience, such as network structural design and hyperparameter tuning. To tackle the DSDI task, we decided to use AutoML, a candidate technology to release deep learning from "black magic." Specifically, we chose AutoML Vision, which is provided as a cloud-native service. The AutoML Vision service is dedicated to image classification and allows users to automatically assign cloud computing resources for learning by merely providing a dataset. Although it is a commercial service, it has low deployment barriers, such as no requirement for dedicated data scientists and on-premises hardware.

We tried to find out how feasible AutoML Vision can be when it is applied to DSDI tasks. We also introduce the minimum preprocessing, including label voting and data augmentation, observations for using AutoML Vision. The results were reasonably good, and there is an additional 7% improvement in the run score after the task deadline.

Besides, we collaborated with VAS and NII\_UIT team to perform fusions of each other's prediction results and prepare some runs to improve the overall score.