DestinE Platform

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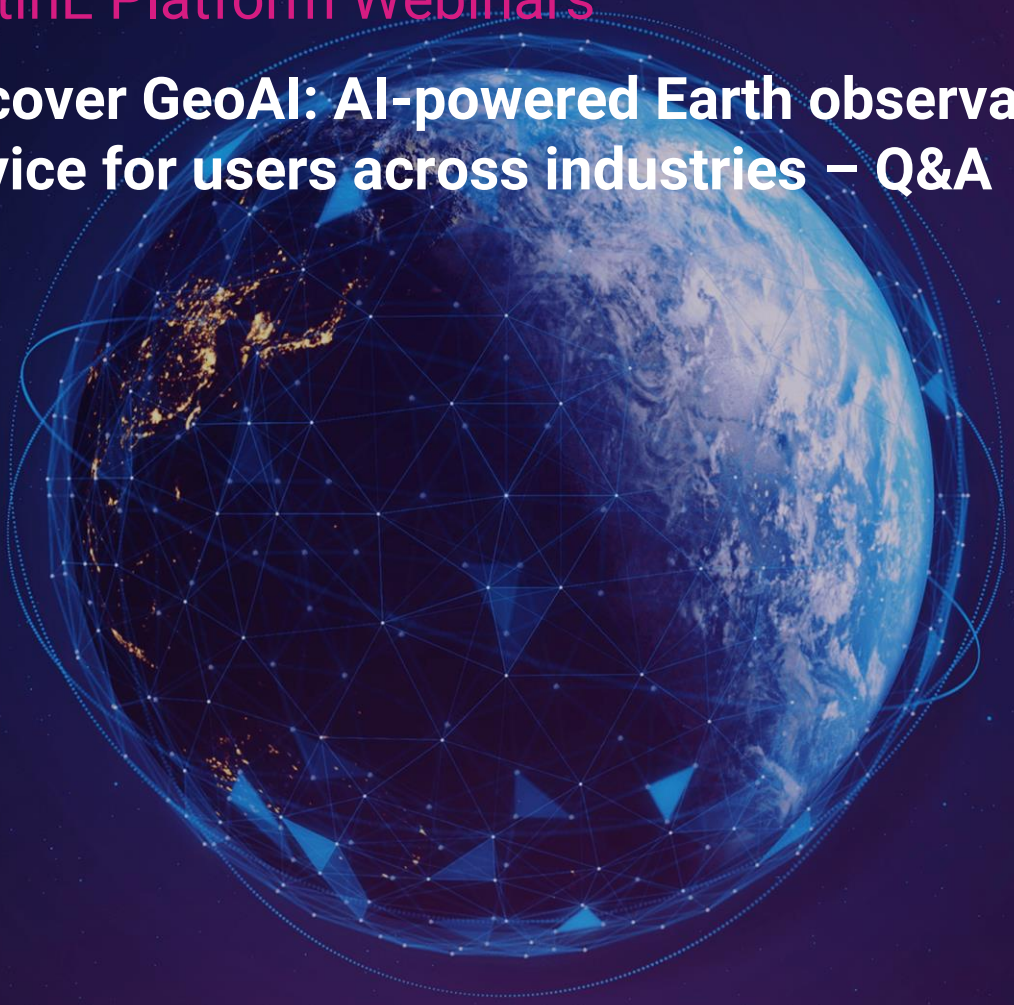
DestinE Platform Webinars

Discover GeoAI: AI-powered Earth observation service for users across industries – Q&A



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1. Q&A

Q: HOW ARE CREDITS ALLOCATED AND SPENT? HOW EXPENSIVE IS TRAINING/INFERENCE?

A: Each GeoAI user is allocated 25Cr and 3 Gb of storage as a member of the Destination Earth Platform. These credits are used to train models and to perform inference. The cost of each training task is calculated based on the total number of Megapixels present in the user designated training regions. The cost of inference is determined by the total number Megapixels present in the raster on which the user is performing inference.

Related Questions:

Q: What factors determine the amount of credit used for training a model? Also, does running inference consume credits?

A: The number of credits necessary for both inference and training depends on the total number of Megapixels passed to the model. For training this corresponds to the size of the Training Regions, for inference, this corresponds to the size of the raster.

Q: Does "credit" mean there are limitations on using GeoAI?

A: Yes on GeoAI you are afforded 25 credits upon registration. If more credits are needed, please get in contact with the DestinE Platform support.

Q: How much would the shown demos have cost a regular platform user, in Euros?

A: Both Demos should be achievable within the 25 credit allowance that users receive for the GeoAI platform.

Q: Is this service available to basic users, or does it require upgraded access?

A: The GeoAI service is available to all registered users

Q: WHAT MODELS ARE USED FOR IMAGE SEGMENTATION/OBJECT DETECTION? CAN USER UPLOAD THEIR OWN MODELS?

A: All models available on GeoAI are in-house models built, optimized, and integrated into the platform. We track the latest developments in EO segmentation and object detection tasks and integrate improvements accordingly. It is not possible to upload custom models to the platform.

Related Questions:

Q: What model have you used for detection or semantic segmentation? Is it possible to change or define a new model?

A: These models are designed and trained "in-house." It is not currently possible to define your own models.

Q: What are the models like Yolo behind this platform? Users cannot understand what exact ML is used

A: All models available on GeoAI are in-house models built, optimized, and integrated into the platform. We track the latest developments in EO segmentation and object detection tasks and integrate improvements accordingly.

Q: Can users upload and use their own ML models?

A: No, that is not currently possible. Users are constrained to our in-house models optimized and integrated into the GeoAI pipeline.

Q: How can we use a pre-trained model developed for object detection on the GeoAI platform? Additionally, how can we send a request through the API?

A: It is not possible to upload a locally trained/designed model to the GeoAI platform. To send a request via the API, you simply have to comply with are schema's following the API documentation.

Q: Can users train a model in the platform or can they only use the predictor models?

A: The platform aims to enable users to train custom models on user data utilizing the in-house architectures provided for object detection and segmentation.

Q: HOW PERFORMANT ARE MODELS TRAINED ON GEOAI AND HOW IS THIS PERFORMANCE VALIDATED?

A: Models trained on GeoAI can achieve a high degree of performance, as indicated by the model metrics available on the platform, provided they are trained on a sufficient amount of data with accurate annotations specifying the features the user would like to extract from the images. Model metrics are derived from the ground truth annotations provided by the user and model predictions provided by the model. Descriptions of the specific model metrics utilized to assess/validate model performance are available on GeoAI.

Related Questions:

Q: I see you only use RGB images but probably adding NIR and SWIR bands would improve the classification of burned areas. In addition, it seems all burnt areas are classified as compact patches, missing unburned areas inside. Would the detector be able to identify such unburned areas inside?

A: Yes, utilisation of multispectral bands can potentially improve performance. The fact that some areas between the burnt areas are not classified as not burnt is likely an artifact of the training data not making the distinction either. It should be possible to train a model to correctly segment the region as you suggested, it just requires the appropriate curation of the training data and sufficient training.

Q: I am curious on the calibration of eg. the palm tree counting. Was the result checked against the actual (hand counted) number of trees?

A: No, for the exact use case presented here the quality was not assessed via a hand count but via its agreement with the "ground truth" annotations made by Enrique during the demo. More accurate metrics and better models can of course be achieved with more annotations, which would allow the user to be more confident in model performance.

Q: How good is GeoAI at counting people, or houses?

A: It's quite good. Make sure the imagery has sufficient resolution so that you can view them.

Q: HOW CAN USERS ACCESS THE GEOAI API?

A: Simply submit http requests complying to our schemas. Please visit the GeoAI API documentation for more information.

Related Questions:

Q: I would like to know how we can use a pre-trained model developed for object detection on the GeoAI platform. Additionally, how can we send a request through the API?

A: It is not possible to upload a locally trained/designed model to the GeoAI platform. To send a request via the API, you simply have to comply with our schemas following the GeoAI API documentation.

Q: WHAT TOOLS ARE THERE TO INTEGRATE GEOAI INTO CUSTOM PIPELINES?

A: At the moment it is possible to integrate the GeoAI platform into custom pipelines via two utilities. Those are the GeoAI API to interact with your account and the various resources it provides (files, models, inferences) and the GeoJSON export functionality to export available vector layers to a widely importable vector file format.

Related Questions:

Q: What about hydro-meteo data? Has anyone tried detecting rising water level? Is it possible to add point data from Hydro station to allow for a more of an automatic learning? Like pipeline - detect river -> check that station is on the river -> compare water level

A: Interesting question, at the moment it is possible to integrate the GeoAI platform into custom pipelines via two utilities. Those are the GeoAI API and the GeoJSON export functionality. At the moment it seems that exporting the model detections would be the best way forward for the pipeline you described. In terms of learning though, you do not have the ability to modify the loss function for model training.

Q: Is the prediction of the model saved as a standalone dataset ready to be reused downstream the model or downloaded?

A: Yes, the prediction of the model can be downloaded as a GeoJSON file.

Q: WHAT DATA IS AVAILABLE THROUGH THE GEOAI PLATFORM?

A: Sentinel-2 multispectral products are available via the Data Market. In the Data Market users can indicate areas and periods of interest in order to fetch available products. Once fetched these data products can be attached to user projects in the GeoAI platform. For users with upgraded access rasterized climate data is also available.

Related Questions:

Q: How many data layers do you have and do you use socio-economic ones to e.g. measure vulnerability levels?

A: The only data layer here is the Sentinel-2 multispectral, so all detections are based on visual data.

Q: Which is the source of the data from Data Market? Is it only coming from Sentinels, or is it from other missions?

A: As of right now, Sentinel-2 serves as the source data and is available for everyone. Rasterized Climate Data is available for upgraded access users.

MISC:

Q: Is it the only option to get bounding boxes for each tree? Is there any option to retrieve the adjusted perimeter to get other interesting parameters such as canopy area?

A: Right now we have bounding boxes, but are working on returning the perimeter as well. That will be available soon.

Q: Is it possible to use multi-temporal Image for Training AI model and Segmentation?

A: Multiple images can be used to train any model. You can choose to train an AI model on multiple images of the same location across time. If these images are all imported into the same workspace creating a 'Timeline' there is functionality to assist in change detection. We will be expanding this functionality in the near future.

2. Useful Links

- GeoAI service on DestinE Platform
- GeoAI Documentation
- GeoAI API documentation
- GeoAI service provider: FlyPix AI
- DestinE Platform support

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