DataRobot Visual AI

Overview

We make better decisions when we are more informed, and it helps to have perspectives from diverse types of data. For example, when booking a hotel or vacation home we don’t just look at basic information like price, availability, and the number of beds. We also want to look at richer content such as pictures of the rooms, reviews from past customers, and maps of the surrounding location. We take all these data points into account to make the best possible decision.

Machine learning models can make better decisions from richer sources of content too. A hospital readmissions model built on tabular data with features such as diagnosis, age, and gender can be enhanced with more diverse content such as doctors notes and MRI images. AI platforms need to make it easy for users to use all of their diverse data within the same environment, blending traditional tabular data with text, images and more, all at the same time. This combines machine learning and computer vision concepts to unlock new use cases, provide new perspectives to existing models, and enable AI innovation like never before.

DataRobot Automated Machine Learning with Visual AI

Visual AI extends DataRobot’s Automated Machine Learning product to allow both novice and expert users to quickly and easily build and deploy highly accurate and explainable machine learning models using image-based data.

IMAGE MODELS FOR EVERYONE

In the familiar DataRobot user interface, you simply upload a zip file containing images, then pick a target variable and click the Start button. DataRobot then automates the preparation, selection, and training of a wide variety of convolutional neural networks to find and recommend the most accurate model, with the fastest performance for your production environment. DataRobot also automates the deployment of its chosen model, providing a variety of options, and allows you to monitor and manage models over time and evolve them with absolutely no service disruption.

Visual AI unlocks classification and regression use cases with images in the DataRobot Automated Machine Learning product, but also takes things one step further. The technology allows you to blend images alongside as many other feature types in your dataset as you like. You can mix images with numeric, categorical, date, and raw text features to provide much broader data perspectives to your AI models. This allows you to innovate in completely new ways, never before thought possible. With DataRobot’s Visual AI you can get started with just a few hundred images. Models can be trained in minutes or hours, not days or weeks, and Visual AI does not require specialized hardware or GPUs.
Capabilities and Benefits

UNMATCHED EASE OF USE

Using the DataRobot Automated Machine Learning product, you can work with images just like any other data type. Behind the scenes, DataRobot automates the preparation, selection, and training of a wide variety of cutting-edge deep learning models to recommend the one that’s most accurate or the fastest for deployment.

Upload and Share. Add images to different folders to classify them or use a .csv file to define the mappings. Zip everything up, then upload to DataRobot’s AI Catalog. From there you can create a new project or share your image dataset with individuals and teams across your enterprise.

Profile and Preview. DataRobot runs automated exploratory data analysis (EDA) on your image dataset. This allows you to preview sample records, see basic feature statistics and assess overall data quality to identify issues like misclassified images, missing values, or duplicate images.

Autopilot for Image Models. Just pick the target and click Start. DataRobot automatically prepares, selects, and trains and blends a wide variety of traditional machine learning models with cutting-edge deep learning neural networks on your image data. Based on automated head-to-head model competitions, the most accurate and production-ready model is recommended for deployment.

Benefits to You

- Accelerate productivity and increase the expertise of your existing data science team
- Democratize the development of deep learning models for your business and data analysts
- Open the floodgates and increase the scale and pace of innovation with deep learning across the enterprise
**IMAGES, BUT NOT JUST IMAGES.**

Visual AI instantly makes image-based use cases available to Automated Machine Learning users. It also allows you to mix numeric, categorical, dates, and text feature types, alongside images in the very same model. This provides new perspectives to your AI models from blending diverse types of data.

**Classification and Regression with Images.** Visual AI helps both novice and expert users to train and deploy highly accurate custom models that classify images based on labels they supply. This enables use cases such as the automation of quality control in manufacturing by deploying models to flag defective parts or automated diagnosis of lung disease from X-ray images.

**Diverse Multimodal Datasets.** DataRobot Automated Machine Learning with Visual AI allows you to use images alongside any other feature types in your model such as numeric, categorical, dates, and text. This allows you to build new types of innovative models never built before. For example, you could improve your automobile insurance claims model by adding photos of the vehicles from the appraisers.

**Unique Blended Models.** Through a process of model stacking, DataRobot combines the best of the models that it selected and trained. These unique blended models further improve overall accuracy.

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**Benefits to You**

- Unlocks new image-focused use cases
- Improve the accuracy of existing models through fresh data perspectives
- Explore new ideas and innovate in ways no one has done before
EXPLAINABLE DECISIONS FOR FULL TRANSPARENCY

To inspire confidence and build trust in your AI, it is essential that your models are explainable and understood at the most granular levels of detail. The DataRobot platform offers the only automated machine learning product for images that offers full transparency and visibility into every step and every decision made by every single model.

**Activation Maps Show You Where.** Heatmap style activation maps show you exactly where the model looked within the image for each and every decision.

**Image Embeddings.** DataRobot highlights how images are similar to show unexpected patterns in the data.

**Familiar Blueprints and Visual Insights.** DataRobot blueprints highlight every step in every model and show exactly how every feature type, including images, are processed and what neural networks and featurizers were used. Familiar Automated Machine Learning visual insights, which include a neural network visualizer, feature impact, ROC curve, and confusion matrix, help you understand your models at every level.

**Benefits to You**

- Gives you the confidence to put models in production
- Demystifies your AI for risk and compliance purposes
- Fosters trust and promotes control of your AI
IMAGE MODELS READY FOR PRODUCTION

If your image model isn’t in production, it isn’t providing any value. DataRobot Automated Machine Learning with Visual AI is part of the DataRobot Enterprise AI Platform, which democratizes data science and automates the end-to-end process to prepare, build, deploy, and maintain AI at scale.

No GPUs Necessary. Visual AI models can be trained on commodity hardware using just a few hundred images in a fraction of the time to alternative approaches.

Easy to Deploy, Monitor, and Manage. Operationalize image models with just a few clicks. Deploy to an API endpoint, publish to Hadoop, download scoring code, or use our UI to get batch predictions for the ultimate in flexibility. Monitor the service health and accuracy of your models and update them with no service interruption.

End-to-End AI Platform. A complete, integrated and governed AI platform to prepare, build, deploy, monitor and maintain your models. Available in your cloud of choice, on-premise, or as a fully-managed AI service.

Get Started Today

Integrate models built using DataRobot Automated Machine Learning with Visual AI into your applications right now. Visual AI is easy to use, so you don’t need deep learning expertise, and generates models that are easy to understand so you can explain every prediction. When you’re ready, simply deploy your models to your production environment of choice in just a few clicks. Then monitor and manage them over their lifecycle keeping them as accurate as possible without interrupting service. Visual AI unlocks new use cases with images that you never before thought possible. Take your enterprise AI strategy to the next level today.

Benefits to You

- Significantly reduced costs by avoiding expensive GPUs
- Easily get your models into production and realize ROI
- Access a comprehensive set of tools for the full data science lifecycle
- Flexible deployment choices to avoid platform vendor lock-in

Contact Us

DataRobot
225 Franklin Street, 13th Floor
Boston, MA 02110, USA

www.datarobot.com
info@datarobot.com

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