

PROGRESSING AI TO FULLY INTEGRATED AUTOMATION FROM STRATEGY TO REAL WORLD

KMITL
พระจอมเกล้าลาดกระบัง



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AI AND FULLY INTEGRATED AUTOMATION



Hype Cycle for Artificial Intelligence, 2021



Plateau will be reached:

○ less than 2 years ● 2 to 5 years ● 5 to 10 years ▲ more than 10 years ⊗ obsolete before plateau

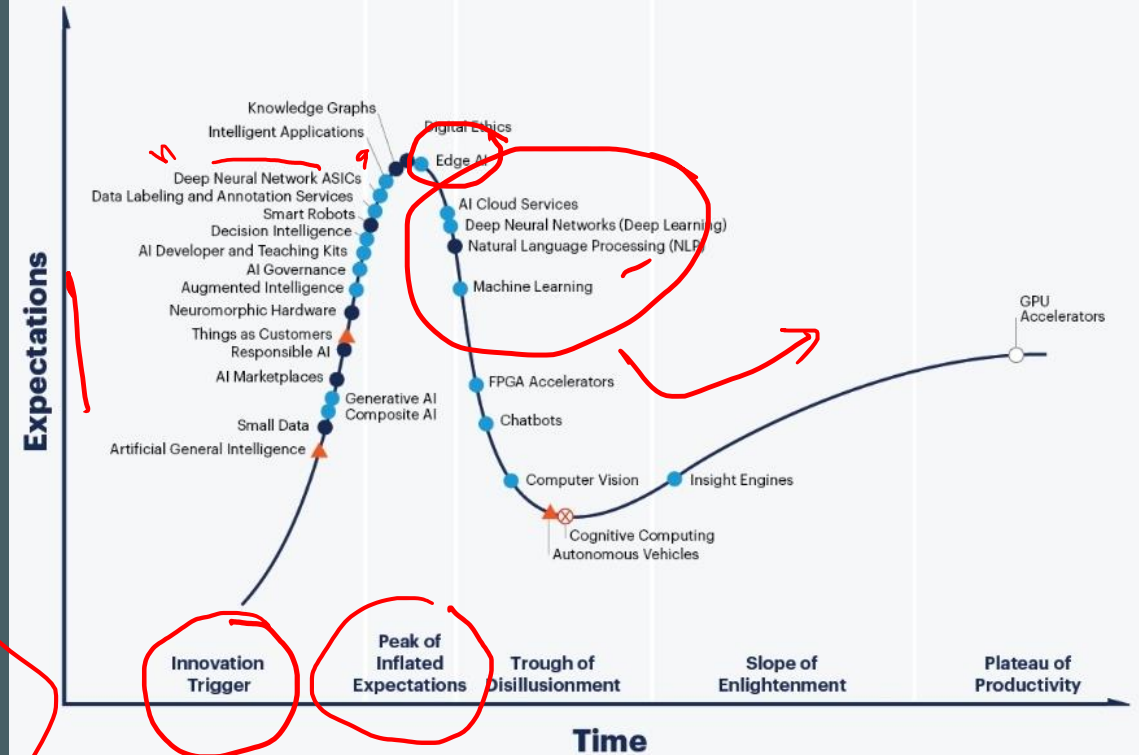
As of July 2021

gartner.com

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Gartner

Hype Cycle for Artificial Intelligence, 2020



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gartner.com/SmarterWithGartner

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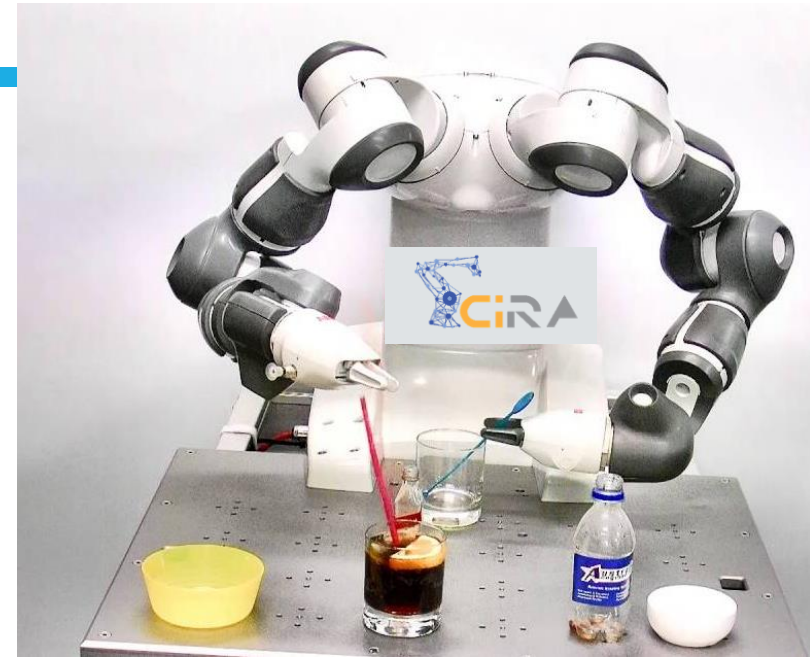
AI: BRINGING SMARTER AUTOMATION TO THE FACTORY FLOOR 2017

● ● ●
Andrew Ng Announces Landing.ai—
Bringing AI to Manufacturing



Industrial AI Enabler



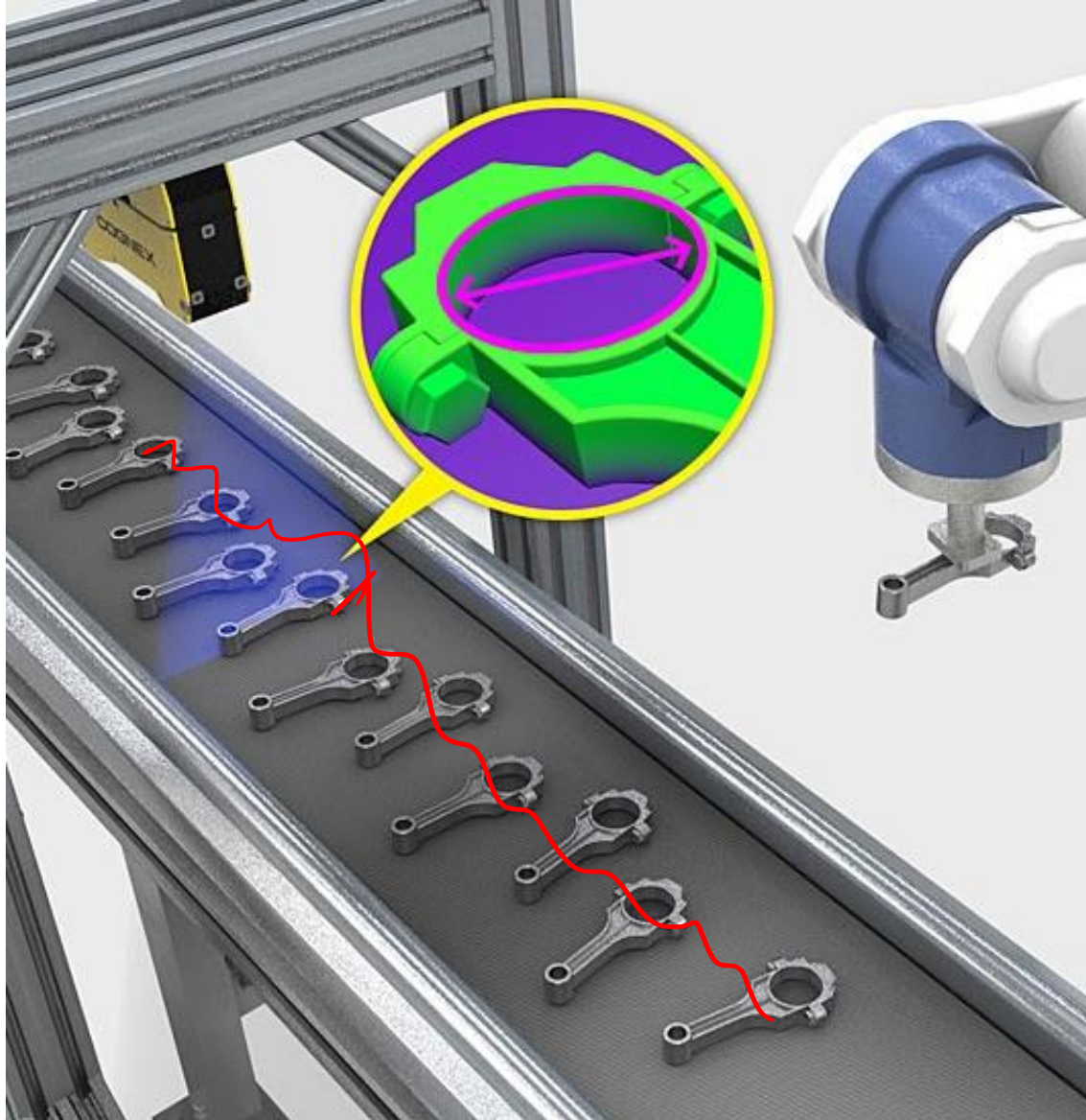


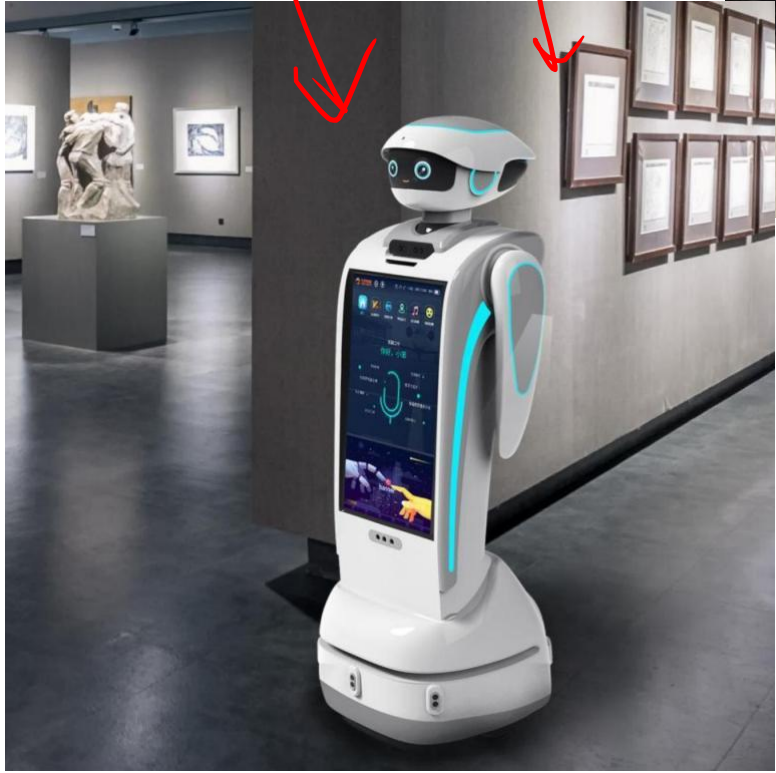
Agro and food products = Random shape + positions



Robots + A.I. → Industrial application







AI MODEL DEVELOPMENT STRATEGY



Deep Learning Frameworks

Caffe

Microsoft
CNTK

DEEPLEARNING4J

dmlc
mxnet



TensorFlow

theano

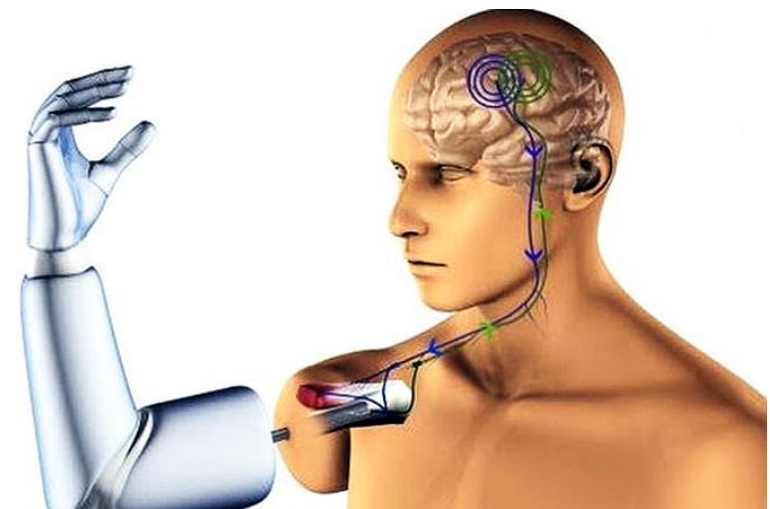
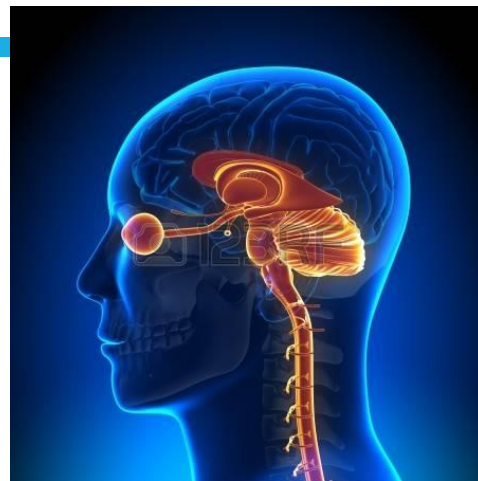
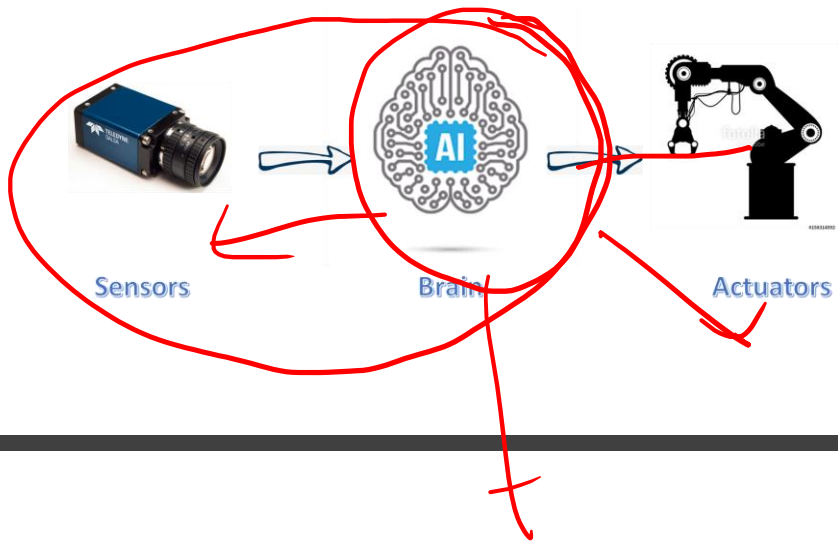
 torch

The PyTorch logo icon, featuring a stylized cyan molecular structure with three nodes and connecting lines.

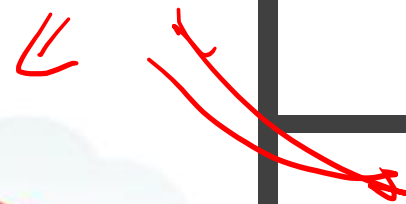
- Amazon offers “pay as you go” approach which means a user will pay only for the individual services s/he uses without any long term licensing.
- Microsoft Azure is less expensive than AWS and charges on a minute basis.
- GCP too charges on a minute basis and there are no up-front costs or termination fees.

Service	GCP	Azure	AWS
Image Recognition	Cloud Vision API	Compute Vision API	Amazon Rekognition
Video Recognition	Cloud Video Intelligence API	Video Indexer	Amazon Rekognition Video
Speech Recognition	Cloud Speech API	Speech Recognition API	Amazon Transcribe*
Text Analysis	Cloud Natural Language API	Text Analytics API	Amazon Comprehend
Language Translation	Cloud Translation API	Translator Text API	Amazon Translate*





Cloud



On-prem.



Deep Learning Frameworks

Caffe

Microsoft CNTK

DEEPLARNING4J

dmlc mxnet

TensorFlow

torch





LOW-CODE

NO-CODE

AI platforms





ADVANTAGES OF LOW-CODE/NO- CODE PLATFORMS

- ✓ **Accessibility:** Low-code/no-code platforms enable non-tech people or businesses to build AI systems from scratch, thus, making AI more accessible to a wider variety of companies.
- ✓ **Usability:** These tools often have an intuitive drag-and-drop interface where the complexity is reduced to its minimum, so, as a rule, it's quite easy to navigate through low-code/no-code AI platforms.
- ✓ **Speed:** Because low-code/no-code AI platforms often have pre-built AI models, project templates, and ready-made datasets, it takes much less time to label and iterate the data, significantly accelerating the model development.
- ✓ **Scalability:** AI performs tasks for a lot (if not a hundred) of users, saving time and resources of the company. Besides, the servers are automatically scaled up or down, depending on the load. It's really easy to follow the workload and the progress itself.



DISADVANTAGES OF LOW- CODE/NO-CODE PLATFORMS

- **Security:** Some platforms may fail to design access protocols and that's an issue for companies where security is at the utmost priority. It's safe to research the terms and conditions to clearly understand how and where your data is going to be processed.
- **Lack of customization:** Though easy and fast, low-code/no-code platforms are mostly limited in functionality, because they're designed to cover a specific problem and it's hard to come up with out-of-the-box, more complex solutions. Business needs change like the wind, so once you've outgrown a specific solution or functionality, where do you go next?
- **Requires consultation or training:** Ideally, the ML engineer, human resources specialist, and marketing intern should be equally able to use the low-code/no-code platforms, but that's not always the case. Because the end-user of an AI platform is an ML engineer anyways, it will take a lot of training and consultations for the rest of the team to find their way around AI processes.
- **Lack of trust:** What we've seen so far is that low-code/no-code AI platforms gain popularity, but are they as practical as the traditional ML approaches? According to Google Trends, the interest in no code ML is increasing but people interested in traditional ML are far ahead. This is because ML and computer vision have been around there for a while, these resources and libraries heavily outnumber low-code AI platforms.




TOP 7 LOW-CODE AND NO-CODE AI PLATFORMS

CREATE ML

a Book

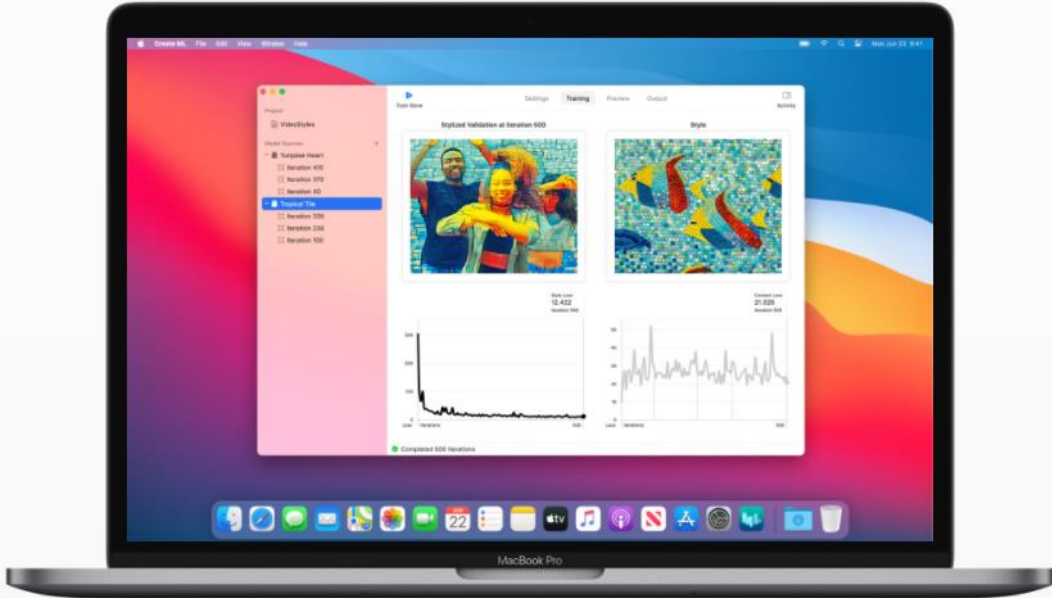
Developer Discover Design Develop Distribute Support Account

Machine Learning Overview Core ML Create ML APIs Models Resources



Create ML

Experience an entirely new way of training machine learning models on your Mac. Create ML takes the complexity out of model training while producing powerful Core ML models.



TOP 7 LOW-CODE AND NO-CODE AI PLATFORMS

AutoML

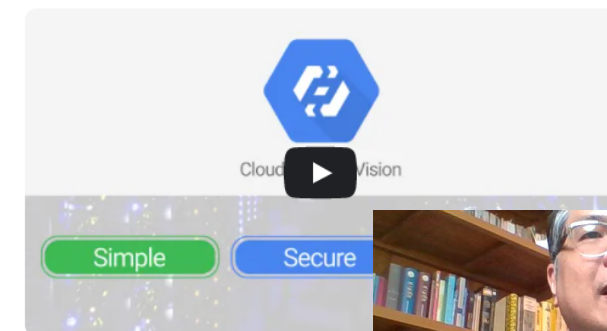
Train high-quality custom machine learning models with minimal effort and machine learning expertise.

[Try it free](#)[View documentation](#)

GOOGLE AUTOML

Train custom machine learning models

AutoML enables developers with limited machine learning expertise to train high-quality models specific to their business needs. Build your own custom machine learning model in minutes.



An introduction to AutoML



TOP 7 LOW-CODE AND NO-CODE AI PLATFORMS

■ Levity

LEVITY

Why Levity?

How it works

Use cases

Teams ▾

Get started



Define your workflow

Connect a data source, choose your AI Block, and define the actions to take.



Upload training data

Feed your custom model with some initial data via drag & drop.



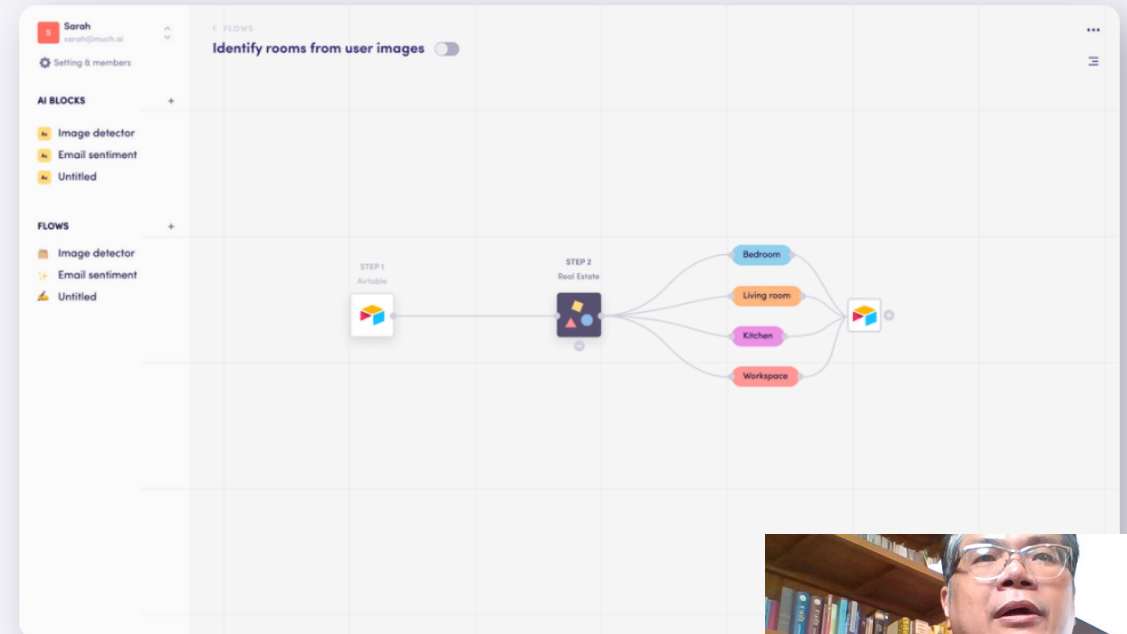
Train your custom AI

The machine automatically learns from your data with a simple click of a button.



Let the model improve itself

Your AI will ask for input when unsure and automatically learn from it.



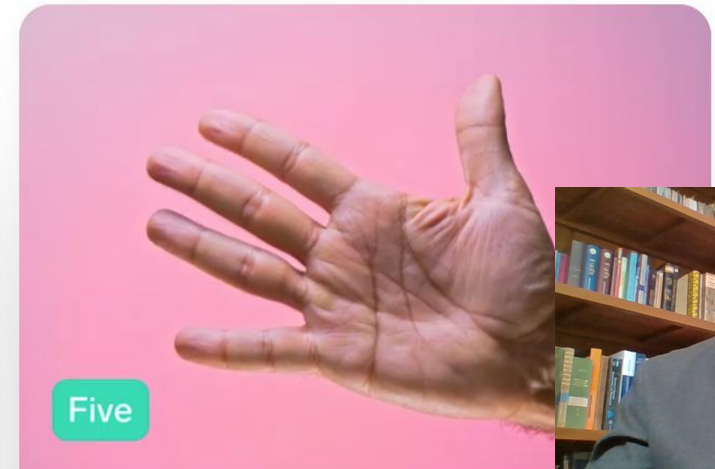
TOP 7 LOW-CODE AND NO-CODE AI PLATFORMS

[Overview](#)[Examples](#)[Tour](#)[Blog](#)[Help](#)[Download](#)

■ Lobe

Lobe Examples

One tool, endless possibilities. Discover all the machine learning models you can train with Lobe.



TOP 7 LOW-CODE AND NO-CODE AI PLATFORMS

obviously.ai

Product Pricing Case Studies Blog Login [Get Started](#)

■ Obviously AI

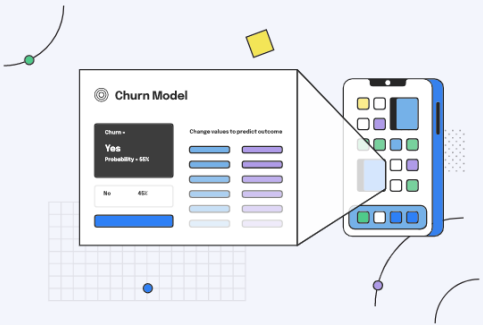
FORTUNE Forbes TechCrunch towards data science ZDNet

Explore what's new

Share your Superpower

Share your models with your team or make them public. Allow anyone to start making predictions.

[Get Started](#)

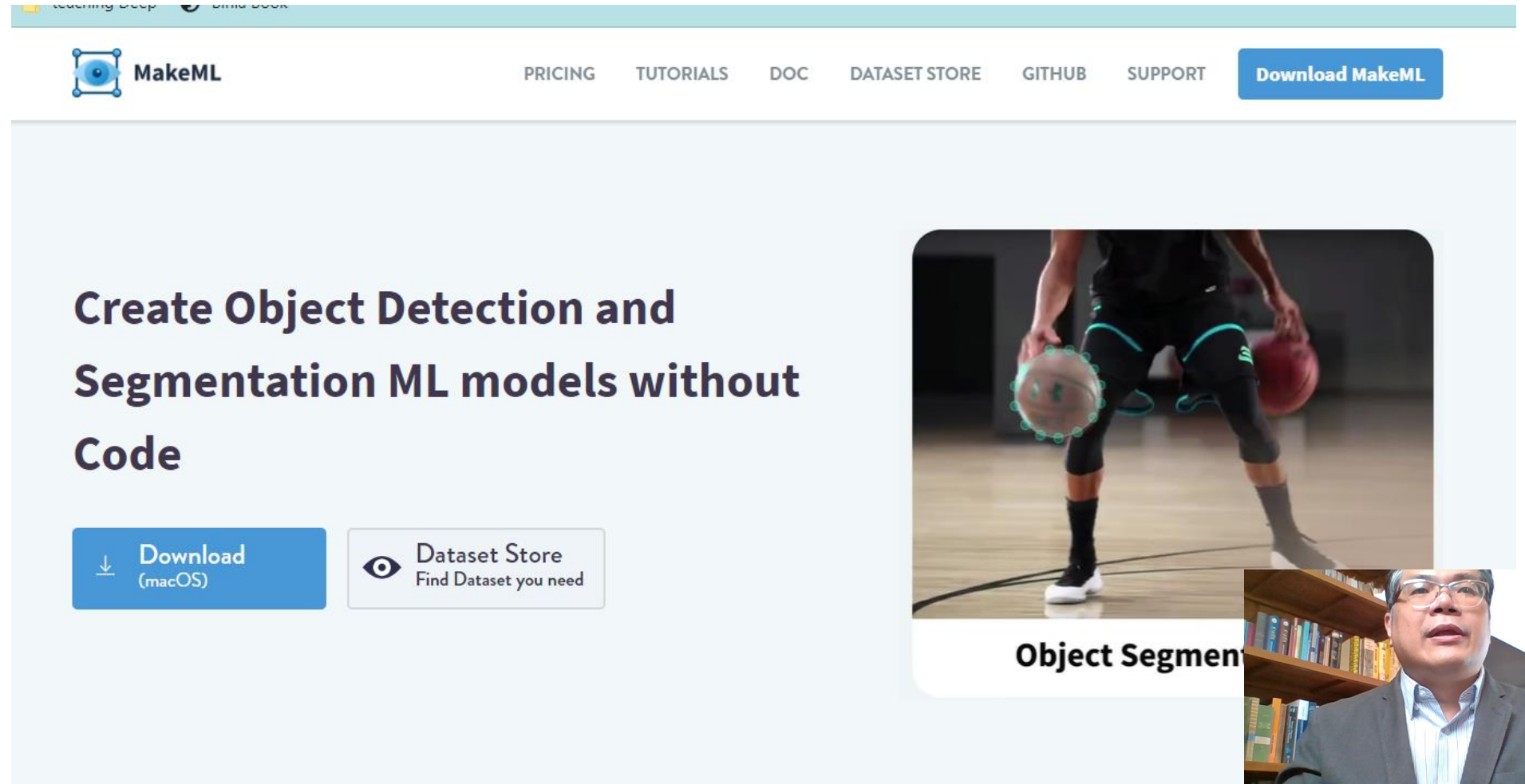


Product Hunt
#4 Product of the Day



TOP 7 LOW-CODE AND NO-CODE AI PLATFORMS

- MakeML



The screenshot shows the MakeML website homepage. At the top, there is a navigation bar with the MakeML logo on the left and links for PRICING, TUTORIALS, DOC, DATASET STORE, GITHUB, and SUPPORT on the right. A blue button labeled "Download MakeML" is positioned to the right of the navigation links. Below the navigation bar, the main content area features a large heading: "Create Object Detection and Segmentation ML models without Code". Underneath this heading, there are two buttons: a blue button with a download icon and the text "Download (macOS)", and a light gray button with an eye icon and the text "Dataset Store Find Dataset you need". To the right of the text, there is a video player showing a person dribbling a basketball, with green bounding boxes and segmentation masks overlaid on the image. Below the video player, the text "Object Segmen" is visible. In the bottom right corner of the image, there is a small inset video of a man with glasses speaking.

