

Public Preview

# AWS re:Invent

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Public Preview

AIM234

# Introducing Amazon SageMaker Studio Lab

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# Our vision

Make machine learning and data science accessible to all customers (learners, developers, data scientists)

# Lack of data science and machine learning talent slows down innovation

**250K**

Quanthub-estimated data science skills gap in 2020

**122K**

Open data science jobs on LinkedIn in November 2021

**13%**

VentureBeat percentage of DSML projects that make it into production

# How do most people learn about data science?



MOOCs and  
universities



Blog posts



GitHub



On-the-job training  
and hackathons



Jupyter IDEs

# What do our customers want?



## Academics

I want the right skills for a great career

Basic theory and learn Python/R



## Developers

I want to expand my technical skills with data science

Learn Python/R corporate data



Environment to practice



## Data scientists

I want experiment ML and move them into production

Data science communities

# What aspiring data scientists need

- |                                  |                                     |
|----------------------------------|-------------------------------------|
| → Jupyter notebook environment   | Based on JupyterLab                 |
| → Easy to get started            | Free, no cloud infrastructure setup |
| → Satisfactory compute           | CPU (T3.XL) and GPU (G4D.XL)        |
| → Time to code                   | Save ML project, pick up where left |
| → Version control management     | Integrated with Git                 |
| → Supportive community           | Integrated with GitHub              |
| → Full support of shell commands | Terminal access                     |

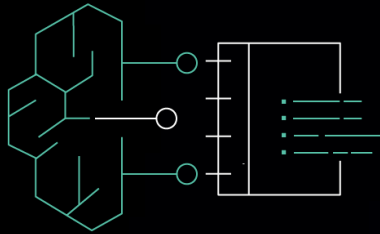


# What is Amazon SageMaker Studio Lab

A JUPYTER NOTEBOOK SERVICE TO HELP CUSTOMERS MASTER THEIR SKILLS

## Amazon SageMaker Studio Lab

A no-charge, no-configuration service that enable data scientists to learn and experiment with machine learning



Create an account with an email address – free

No setup or configuration required

15 GBs to save your work projects.

As many compute sessions as you need –  
CPU (12 hrs)/GPU (4 hrs)

Access any notebook on GitHub

Migrate to SageMaker Studio when ready

# Provides a beginners view to the stack



**Amazon SageMaker Studio Lab**  
A no charge, no setup ML development environment

**NEW**

## Amazon SageMaker

### PREPARE →

**SageMaker Ground Truth**  
Label training data for machine learning

**SageMaker Data Wrangler**  
Aggregate and prepare data for machine learning

**SageMaker Processing**  
Built-in Python, BYO R/Spark

**SageMaker Feature Store**  
Store, update, retrieve, and share features

**SageMaker Clarify**  
Detect bias and understand model predictions

### BUILD →

**SageMaker Studio Notebooks**  
Jupyter notebooks with elastic compute and sharing

**Built-in and bring-your-own algorithms**  
Dozens of optimized algorithms or bring your own

**Local mode**  
Test and prototype on your local machine

**SageMaker Autopilot**  
Automatically create machine learning models with full visibility

**SageMaker JumpStart**  
Pre-built solutions for common use cases

### TRAIN & TUNE →

**Managed training**  
Distributed infrastructure management

**SageMaker Experiments**  
Capture, organize, and compare every step

**Automatic model tuning**  
Hyperparameter optimization

**Distributed training libraries**  
Training for large datasets and models

**SageMaker Debugger**  
Debug and profile training runs

**Managed Spot training**  
Reduce training cost by 90%

### DEPLOY & MANAGE →

**Managed deployment**  
Fully managed, ultra low latency, high throughput

**Kubernetes and Kubeflow Integration**  
Simplify Kubernetes-based machine learning

**Multi-model endpoints**  
Reduce cost by hosting multiple models per instance

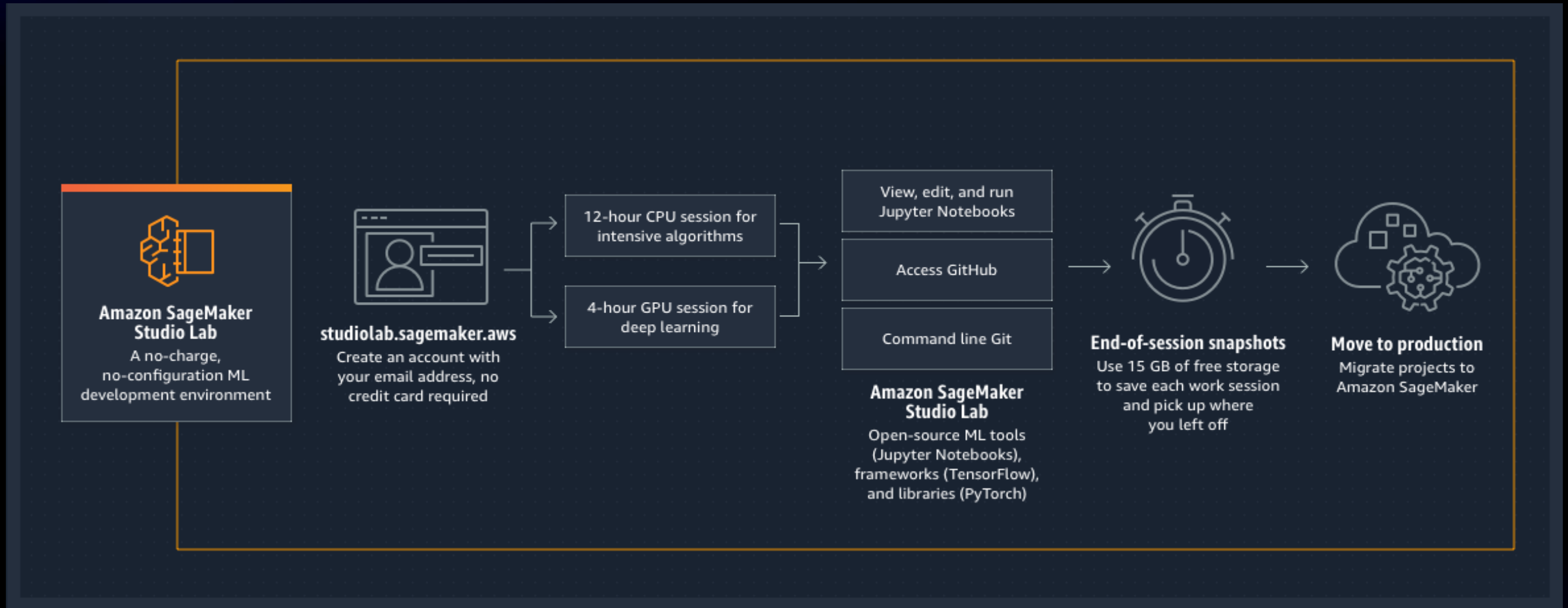
**SageMaker Model Monitor**  
Maintain accuracy of deployed models

**SageMaker Edge Manager**  
Manage and monitor models on edge devices

**SageMaker Pipelines**  
Workflow orchestration and automation

**SageMaker Studio**  
Integrated development environment (IDE) for ML

# How does it work?



# https://studiolab.sagemaker.aws/

Request and register for an account; no credit card or AWS account required

The image shows the SageMaker Studio Lab website. On the left, the main header reads "SageMaker Studio Lab" with a logo. Below it, the text "Learn and experiment with machine learning" is displayed. A sub-header states: "Quickly create data analytics, scientific computing, and machine learning projects with notebooks in your browser." There are two buttons: "Request free account" and "Watch video". The AWS logo is at the bottom left. On the right, a "Sign up" button is highlighted with a red and blue border. A blue arrow points from this button to the "Create account" form on the right. The form has the title "Create account" and the instruction "Create a free account to edit and run projects." It contains four input fields: "Enter your email\*" (with the value "a.noble@amazon.com"), "Create a password\*", "Confirm the password\*", and "Enter a username\*". A purple "Create account" button is at the bottom of the form. Below the button, there is a paragraph of terms and conditions: "By creating an account and using Amazon SageMaker Studio Lab, you agree to the AWS [Customer Agreement](#) ('Agreement'), [Service Terms](#), [Privacy Notice](#), and [Acceptable Use Policy](#). Your Studio Lab account is considered an AWS account for purposes of the Agreement. If you already have an Agreement with AWS, you agree that the terms of that agreement govern your use of this product."

SageMaker Studio Lab

Sign up

## Learn and experiment with machine learning

Quickly create data analytics, scientific computing, and machine learning projects with notebooks in your browser.

[Request free account](#) [Watch video](#)

Powered by aws

### Create account

Create a free account to edit and run projects.

Enter your email\*

a.noble@amazon.com

Create a password\*

Confirm the password\*

Enter a username\*

[Create account](#)

By creating an account and using Amazon SageMaker Studio Lab, you agree to the AWS [Customer Agreement](#) ("Agreement"), [Service Terms](#), [Privacy Notice](#), and [Acceptable Use Policy](#). Your Studio Lab account is considered an AWS account for purposes of the Agreement. If you already have an Agreement with AWS, you agree that the terms of that agreement govern your use of this product.

# Project page

## Status of your project

- Time remaining
- Select runtime type
- Start or stop instance

## Start a user session

- CPU—12 hours
- GPU—4 hours

## Open project (in a new browser tab)

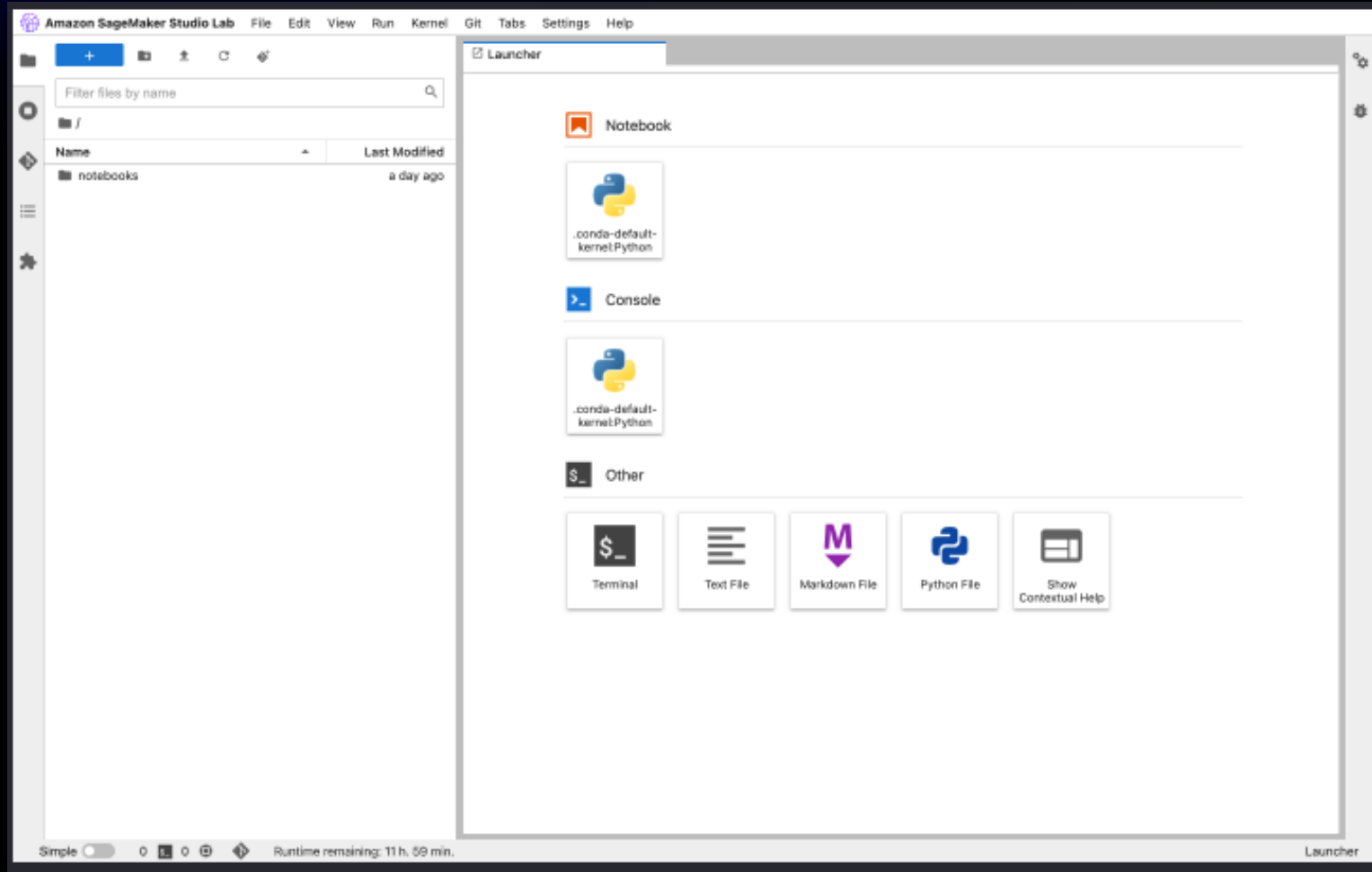
## Assets to get you started

- Dive into Deep Learning
- AWS Machine Learning University
- Hugging Face
- Popular blogs
- Community links



The screenshot shows the Amazon SageMaker Studio Lab project page. At the top, the user is logged in as 'anoble'. The main section, 'Your project', displays the project status as 'Running' with a time remaining of '10h 28m'. It also shows the 'Select compute type' as 'CPU' (selected) and 'GPU'. There are buttons for 'Stop runtime' and 'Open IDE'. Below this, a section titled 'Learn and experiment' features a large image of a mountain landscape. On the left, there's a card for 'Dive into Deep Learning' with a description and links to 'D2L book home' and 'Get the notebooks'. On the right, there's a card for 'AWS Machine Learning University' with a description and links to 'MLU home' and 'Get the notebooks'. At the bottom, there's a 'Resources and community' section with two cards: 'Hugging Face' with a description and a link to 'huggingface.co', and 'Machine Learning Blog' with a description and a link to 'AWS Machine Learning Blog'.

# Notebook development environment



Familiar JupyterLab experience

Terminal access

Git/GitHub

Your ML environment on AWS

Compute dedicated to you

12 hours CPU/4 hours GPU

Install the libraries you want

Dedicated 15 GB for your project

Unlimited user sessions

Pick up where you left off

# Beta customer quotes

“At Hugging Face, our mission is to democratize state-of-the-art machine learning (ML). With Amazon SageMaker Studio Lab, AWS is doing just that by enabling anyone to learn and experiment with ML through a web browser, without the need for a high-powered PC or a credit card to get started. This makes ML more accessible and easier to share with the community. We are excited to be part of this launch and contribute Hugging Face transformers examples and resources to make ML even more accessible!”



# What universities are saying

"Amazon SageMaker Studio Lab will help my students learn the building blocks of machine learning by **removing the cloud configuration steps required to get started**. Now, in my natural language processing classes, students have more time to enhance their skills."

*Sanjiv Das, Professor of Finance and Data Science at Santa Clara University*



"One of the hardest parts about programming with machine learning is configuring the environment to build. Students usually have to choose the compute instances, security policies, and provide a credit card. My students needed Amazon SageMaker Studio Lab to abstract away all of the complexity of setup and provide a free powerful sandbox to experiment. This lets them **write code immediately without needing to spend time configuring the ML environment**."

*Dan Roth, Distinguished Professor of Computer and Information Science at the University of Pennsylvania*



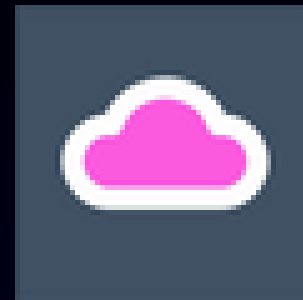
# AWS Heroes

[Kesha Williams](#) is an AWS Machine Learning Hero and a Principal AWS Training Architect with A Cloud Guru



[Cyrus Wong](#), Data Scientist at Hong Kong IVE,  
AWS Machine Learning Hero

[Mike Chambers](#), AI/ML Teacher at  
<https://mikegchambers.teachable.com/>



# Recap and highlights

- Accessing SageMaker Studio Lab: <https://studiolab.sagemaker.aws/>
  - You do have to request access/approvals are sent via email
  - Re:Invent attendees get priority access
- One account = one user session at a time, as many times as you want
- One user session is 12 max hours for CPU and max 4 hours for GPU
  - You can leave training jobs running
- JupyterLab environment is open
  - Pip install your own libraries with % not !
  - At least 15 GB to save your project

# Announcing the global AWS Disaster Response Hackathon



Improve disaster response with machine learning



December 1, 2021 through February 7, 2022



Total of \$54,000 USD in prizes – join today!



[AWSDisasterResponse.devpost.com](https://AWSDisasterResponse.devpost.com)

# Thank you!

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<https://studiolab.sagemaker.aws/>

