

# Google Cloud Researcher Training Resources by Fields of Research

## About this document

Use the training resources in this document to **accelerate** your research with Google Cloud.

Although we've categorized resources by fields of research, given the nuance and overlap of many research topics, you might want to scan every field to find training that's useful to you.

### Training formats

Here's a bit of information about the different types of training provided in this document.

<b>Qwiklabs</b>	Hands-on learning experiences that let you improve your skills in a temporary Google Cloud service. Researchers can <a href="#">get free training credits</a> .
<b>Qwiklabs Quests</b>	Learning paths that contain a number of hands-on labs. You can earn a badge when you complete a quest.
<b>Codelabs</b>	Trainings that guide you through the process of building a small application or adding a new feature to an existing application.
<b>Tutorials</b>	Step-by-step instructions to accomplish certain objectives and tasks.
<b>GitHub</b>	A few of these training resources are hosted on the GitHub platform.

### Fields of research

1	<a href="#">Environmental sciences</a>
2	<a href="#">Mathematical sciences</a>
3	<a href="#">Computer science</a>
4	<a href="#">Life sciences</a>
5	<a href="#">Social sciences</a>
6	<a href="#">Physical sciences</a>



## Environmental sciences

Image processing		
1	Intro to machine learning: Image processing	<a href="#">Qwiklab</a> <a href="#">Quest</a>
2	Classify images of clouds in the cloud with AutoML Vision	<a href="#">Qwiklab</a>
3	Train and deploy on-device image classification model with AutoML Vision in ML Kit	<a href="#">Codelab</a>
4	Classify cute animal images aka Awwvision: Cloud Vision API from a Kubernetes Cluster	<a href="#">Qwiklab</a>
5	Intermediate ML: TensorFlow for animal image classification and object detection	<a href="#">Qwiklab</a> <a href="#">Quest</a>

Flower image classification using Keras on TPU (Tensor Processing Units)		
1	Using TPU-speed data pipelines: tf.data.Dataset and TFRecords	<a href="#">Codelab</a>
2	Build convolutional neural networks from scratch with Keras and TensorFlow2, on TPUs	<a href="#">Codelab</a>
3	Your first Keras model, with transfer learning	<a href="#">Codelab</a>
4	Modern convnets, squeezeNet, Xception, with Keras and TPUs	<a href="#">Codelab</a>



## Mathematical sciences

Financial services		
1	Analyzing portfolio risk using HTCondor and Compute Engine	<a href="#">Tutorial</a>
2	Monte Carlo methods using Dataproc and Apache Spark	<a href="#">Tutorial</a>
3	Machine Learning with Financial Time Series Data	<a href="#">Tutorial</a>
4	Analyzing Financial Time Series Using BigQuery and Cloud Datalab	<a href="#">Tutorial</a>

Data science		
1	Data Science on Google Cloud	<a href="#">Qwiklab</a> <a href="#">Quest</a>
2	Run a big data text processing pipeline in Cloud Dataflow	<a href="#">Codelab</a>
3	AI Platform: Qwik Start – Census data prediction	<a href="#">Qwiklab</a>
4	Predict Housing Prices with Tensorflow and AI Platform	<a href="#">Qwiklab</a>

### Jupyter, R, and RStudio

1	Using clusters for large-scale technical computing in the cloud	<a href="#">Tutorial</a>
2	Running RStudio Server on a Cloud Dataproc cluster	<a href="#">Tutorial</a>
3	Using the Slurm Resource Manager to host Jupyter notebooks	<a href="#">Tutorial</a>



# Computer science

## Media and rendering

1	<b>Creating a render farm in GCP using OpenCue</b> This tutorial uses GPU. Contact your Google Cloud account team if you want to increase your GPU quota.	<a href="#">Tutorial</a>
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## Workload managers

1	Slurm	Deploy an auto-scaling HPC cluster with Slurm	<a href="#">Codelab</a>
		Using the Slurm Resource Manager to host Jupyter notebooks	<a href="#">Tutorial</a>
2	PBS deployment manager scripts		<a href="#">GitHub</a>
3	HTCondor deployment manager scripts		<a href="#">GitHub</a>

## Containers and Kubernetes

1	Building Singularity containers using Cloud Build	<a href="#">Tutorial</a>
2	Orchestrating the Cloud with Kubernetes	<a href="#">Qwiklab</a>

## Mapreduce – Hadoop/Spark

1	Intro to Cloud Dataproc: Hadoop and Spark on GCP	<a href="#">Qwiklab</a>
2	Provisioning and Using a Managed Hadoop/Spark Cluster with Cloud Dataproc (Command Line)	<a href="#">Codelab</a>

## Remote Desktop and visualization

1	Setting up Chrome Remote Desktop on Compute Engine	<a href="#">Tutorial</a>
2	Creating a virtual GPU-accelerated Linux workstation This tutorial uses GPU. Contact your Google Cloud account team if you want to raise your GPU quota.	<a href="#">Tutorial</a>

## Lustre

1	Deploy a Lustre Parallel File System on GCP	<a href="#">Codelab</a>
2	DDN Cloud Edition for Lustre	<a href="#">Marketplace</a>



## Life sciences

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### Genomics

1	Cloud Life Sciences (Genomics): Qwik Start	<a href="#">Qwiklab</a>
2	Cloud Life Sciences: Variant Transforms Tool	<a href="#">Qwiklab</a>
3	Running a GATK Best Practices pipeline This tutorial uses GPU. Contact your Google Cloud account team if you want to increase your GPU quota.	<a href="#">Tutorial</a>
4	Running a DeepVariant pipeline	<a href="#">Tutorial</a>
5	Running a dsub pipeline	<a href="#">Tutorial</a>
6	Running a Nextflow pipeline	<a href="#">Tutorial</a>

### Healthcare

1	Ingesting FHIR data with the Healthcare API	<a href="#">Qwiklab</a>
2	Machine learning predictions with FHIR and Healthcare API	<a href="#">Qwiklab</a>
3	Ingesting DICOM data with the Healthcare API	<a href="#">Qwiklab</a>
4	De-identifying DICOM data with the Healthcare API	<a href="#">Qwiklab</a>



## Social sciences

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### Cloud AI Platform

1	AI Platform: Qwik Start – Census data prediction	<a href="#">Qwiklab</a>
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### Machine learning APIs

1	Machine learning APIs to extract, analyze, and classify text	<a href="#">Qwiklab</a> <a href="#">Quest</a>
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## Physical sciences

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### Image analysis and classification

1	Detect labels, faces, and landmarks in images with the Cloud Vision API	<a href="#">Qwiklab</a>
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