ECE599/692 - Deep Learning

Chengcheng Li

Date: 08/23/2018
Content

- Course Information
- Google Cloud Platform
Course Website

ECE599/692 - Deep Learning

Instructor

- Dr. Hairong Qi
- Office Hour: MW 1:00pm-3:00pm, MK304
- Lectures: TR 2:10pm-3:25pm, MK405
- Email: hqi@utk.edu

Course Material

- Course Website: http://web.eecs.utk.edu/~qi/deeplearning
- Prerequisite: ECE471/571 (Pattern Recognition) or COSC425/528 (Machine Learning), basic linear algebra, probability, and statistics

Teaching Assistant

- Chengcheng Li
- Email: cli42@vols.utk.edu
- Office Hour: TR 3:30-5:30pm, MK539
Google Cloud Platform (GCP)

- Deep learning/neural network usually takes lots of computation resource
  - Storage
  - Memory
  - GPU
- GCP consists of a set of physical assets, such as computers and hard disk drives, and virtual resources, such as virtual machines (VMs).
- Use GPC for course projects
Google Cloud Platform (GCP)

• Education grants have been applied for this course. $50 credits are available for each student. To get the credits, you need:
  • Email Chengcheng with Subject "599 - Google Cloud Account Request" or "692 - Google Cloud Account Request"
  • Redeem your code

• Pricing
  • Calculate based on resource
  • Remove unnecessary occupations to avoiding incurring charges

• What if I use up all credits?
Redeem Students Code

**Step 1:** receive email from Dr. Qi, me or maybe GCP, which looks like the following figure

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**From:** Google Cloud Platform Education Grants <cloudegurants@google.com>
**Subject:** Your Google Cloud Platform Education Grant for Students - University of Tennessee - Knoxville
**Date:** July 12, 2018 at 2:03:56 PM EDT
**To:** "hqi@utk.edu" <hqi@utk.edu>
**Cc:** "cloudegurants@google.com" <cloudegurants@google.com>

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Dear
Prof.
Hairong Qi,
Redeem Students Code

**Step 2:** find and click the *Student Coupon Retrieval Link*

Here is the URL you will need to access in order to request a Google Cloud Platform coupon. You will be asked to provide your school email address and name. An email will be sent to you to confirm these details before a coupon is sent to you.

- You will be asked for a name and email address, which needs to match the domain. A confirmation email will be sent to you with a coupon code.
- You can request a coupon from the URL and redeem it until: **12/22/2018**
- Coupon valid through: **8/22/2019**
- You
Redeem Students Code

**Step 3:** fill out the form. UTK email is required.
Redeem Students Code

Step 4: verify your email
Redeem Students Code

**Step 5:** receive email from GCP, find the Coupon Code and click [here] to redeem

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Google Cloud Platform Education Grants <cloudedugrants@google.com>

to me

Dear Chengcheng,

Here is your Google Cloud Platform Coupon Code: **04YC-JVD7-C60J-DAEY**

Click [here] to redeem.

**Course/Project Information**
Instructor Name: Hairong Qi
Email Address: **hqi@utk.edu**
School: University of Tennessee - Knoxville
Course/project: ECE599/692 - Deep Learning
Activation Date: **8/22/2018**
Redeem By: **12/22/2018**
Coupon Valid Through: **8/22/2019**
Redeem Students Code

**Step 5:** paste your code and fill out the form. It’s done.

![Google Cloud Platform](image)

**Education grants**

Please enter the coupon code provided to you via the Google Cloud Platform Education Grants program to receive credit for Google Cloud Platform. Get what you need to build and run your apps, websites and services.

**Coupon code**

04YC-JVD7-C60J-DAEY

<table>
<thead>
<tr>
<th>Credit amount</th>
<th>Expiration date</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>$50.00</td>
<td>Aug 21, 2019</td>
<td>ECE599/692 - Deep Learning</td>
</tr>
</tbody>
</table>

**Country of residence**

United States

Please email me updates regarding feature announcements, performance suggestions, feedback surveys and special offers.

- [ ] Yes  [ ] No

I agree that my use of any services and related APIs is subject to my compliance with the applicable Terms of Service.

- [ ] Yes  [ ] No

Google Cloud Platform education grants credits terms and conditions

By clicking "Accept and continue" below, you, on behalf of yourself and the organization you represent ("You") agree to these terms and conditions:
Checking Credits
Concepts

- Projects
- Instances
  - Virtual machine
- Buckets
  - Data/objects storage
Ways to Interact With GCP

• Google Cloud Platform Console

• Command-line interface
  • gcloud
  • cloud shell
Google Cloud Platform Documentation

With Google Cloud Platform (GCP), you can build, test, and deploy applications on Google's highly-scalable and reliable infrastructure for your web, mobile, and backend solutions.

For a high-level, technical look at how GCP works, read the GCP platform overview.
GCP Help

- Cloud Platform support
- Billing during the free trial
- Sending Email from an Instance | Compute Engine Documentation...
Projects

• Any GCP resources that you allocate and use must belong to a project.

• Each GCP project has:
  • A project name, which you provide.
  • A project ID, which you can provide or GCP can provide for you.
  • A project number, which GCP provides.

• Existing projects vs new self-created projects
Check Projects

**Project info**

**Project name**
My First Project

**Project ID**
solid-linker-214102

**Project number**
358824924098

→ Go to project settings
Create Projects
Remove Projects

Manage resources

Google Cloud Platform

utk.edu
Filter by name, ID, project number, or label

<table>
<thead>
<tr>
<th>Project name</th>
<th>Project ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>My First Project</td>
<td>solid-linker-214102</td>
</tr>
<tr>
<td>ProjectDemo</td>
<td>projectdemo-214204</td>
</tr>
</tbody>
</table>

Shut down project "ProjectDemo"

When you shut down a project, this immediately happens:
- All billing and traffic serving stops
- You lose access to your entire project
- Project owners will be notified and can stop the shutdown within 30 days

The entire project will be scheduled to be deleted after 30 days.

To shut down project "ProjectDemo", type your project ID: projectdemo-214204

Project ID

CANCEL  SHUT DOWN
Instances

- An *instance* is a virtual machine (VM)
- Create an instance by using the Google Cloud Platform Console or the *gcloud* command-line tool
- Each instance belongs to a project, and a project can have one or more instances.
- Remove unnecessary instances to avoid incurring charge
Create New Instances
# Remove Instances

<table>
<thead>
<tr>
<th>Name</th>
<th>Zone</th>
<th>Recommendation</th>
<th>Internal IP</th>
<th>External IP</th>
<th>Connect</th>
</tr>
</thead>
<tbody>
<tr>
<td>instance-1</td>
<td>us-east1-b</td>
<td></td>
<td>10.142.0.2 (nic0)</td>
<td>104.196.32.197</td>
<td>SSH</td>
</tr>
</tbody>
</table>
Bucket

- Buckets contain objects/datasets.
- A bucket is always owned by the project team owners group.
- Creating Storage Buckets
  - console
  - GSUTIL
- Access Cloud Storage bucket
Cloud Storage

Buckets

Create Bucket

Cloud Storage lets you store unstructured objects in containers called buckets. You can serve static data directly from Cloud Storage, or you can use it to store data for other Google Cloud Platform services.

Create bucket or Take the quickstart
Upload Data

Bucket details

projectdemoce599

Objects Overview Permissions

Upload files Upload folder Create folder Delete

Filter by prefix...

Buckets / projectdemoce599

There are no live objects in this bucket. If you have object versioning enabled, this bucket may contain archived versions of objects, which can list archived object versions using gsutil or the APIs.
Access Public Bucket

To access public data:

1. Get the name of the public bucket.
2. Using a web browser, access the bucket with the following URI (you will be asked to sign in if necessary):

   https://console.cloud.google.com/storage/[BUCKET_NAME]/

• gsutil is a Python application that lets you access Cloud Storage from the command line.
• Every bucket has its unique name.
gcloud

- Gcloud is a tool that provides the primary command-line interface to Google Cloud Platform.
- You can use this tool to perform many common platform tasks either from the command-line or in scripts and other automations.
- Click the Active Cloud Shell button in the toolbar to access it.
gcloud

- It is a terminal where you can create files, install package, run your code and etc.
Walkthrough

• Set up your project
  • Select or create a GCP project
• Set up your environment
  • Install packages and dependences
• Prepare data
  • Create a bucket or access an public bucket
• Prepare your code
  • Write or download the code
• Run the code with gcloud

https://cloud.google.com/ml-engine/docs/tensorflow/getting-started-training-prediction
THANK YOU