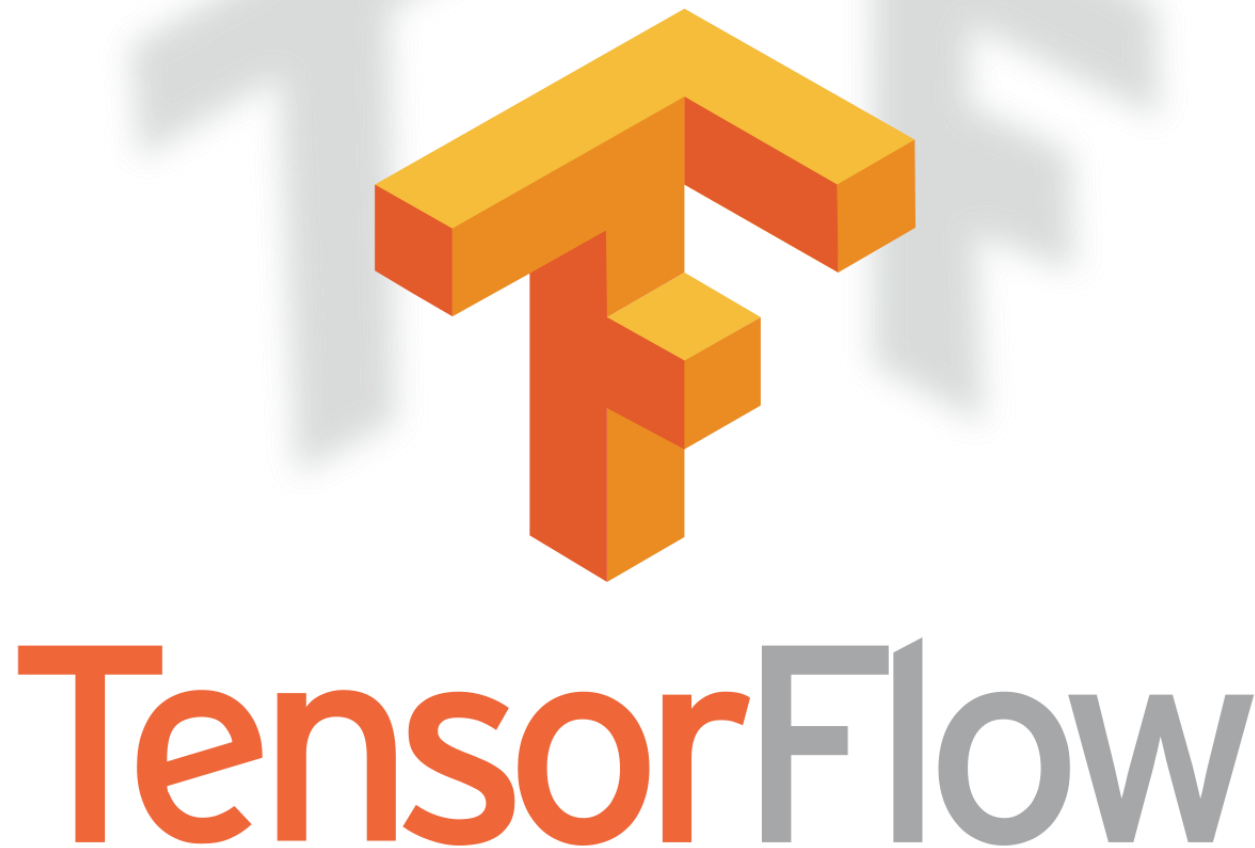


NOTE TO VIEWER

PLEASE VIEW THE SLIDES IN SLIDESHOW MODE TO BENEFIT FROM
THE ANIMATIONS ADDED TO THE CONTENT



A Field Guide To TensorFlow Contribution

Srishti Yadav

The Vancouver Open Source Software Event
Microsoft, Vancouver
November 28, 2019

ABOUT ME



- ❖ **Graduate** Researcher at Simon Fraser University
- ❖ Develops **computer vision algorithm** for low power processing units
- ❖ Comes from a background in **Electronics** Engineering, later switched to **Computer Science**
- ❖ **Organizer** of **Women in Machine Learning workshop** (NeurIPS'19).
- ❖ **Organizer** of **Women in Computer Vision workshop** (CVPR'20)
- ❖ **Organizer** of developer community **meetups** in Vancouver.



Belief: Open Source used in research (read 'academia') should be reproducible.



@_srishtiyadav



srishti-yadav

MY STORY: HOW I ENTERED OPEN SOURCE?

Message in #general



Srishti

Mar 13th at 10:20 AM



of downtown Vancouver. We
g for a discussion which
e projects, the tools to get

We are hosting an Internati
are looking for a tech speal
'might' include but not limite
started, selection of local p

The event link: <https://www>

I was hoping if you can prc

How do you reply to potential women speakers when they say that 'Thank you for considering but I'll have to pass because I can see the value and importance but not personally motivated enough to talk in a Women in X series'. Though the replies are pretty nicely written , how should we respond back?

Here X was Open Source



@_srishtiyadav



srishti-yadav

MY STORY: HOW I ENTERED OPEN SOURCE?

And one day..

Boris Mann

@bmann



“ I really wish, either there were more women in open source in Vancouver or they should promote themselves more.”

Mihai Maruseac <no...>

to tensorflow/tensorflow

@mihaimaruseac ap

You are receiving this
Reply to this email dir

Reply

Reply all

Honestly, Tara (from Mozilla) connected me with Irene, who works on open source development at Mozilla itself.

I still, really wish, either there were more women in open-source in Vancouver or they should promote themselves more. I'm joining the bandwagon within and hopefully before coming 6 months.

Mar 1, 2019, 7:34 PM ✓



I want to see you speak!

Mar 1, 2019, 7:36 PM

I'll personally invite you. I promise!

I'll make my niche. I always wanted to, honestly. But thought I still have time. Now, searching for Women in open source I realized, guess that is how people (like me) keep delaying to start in open source.



@_srishtiyadav



srishti-yadav

BUT WHY TENSORFLOW ?

Because I work with it and hence comfortable with the language.
Reason for choice can be simple!

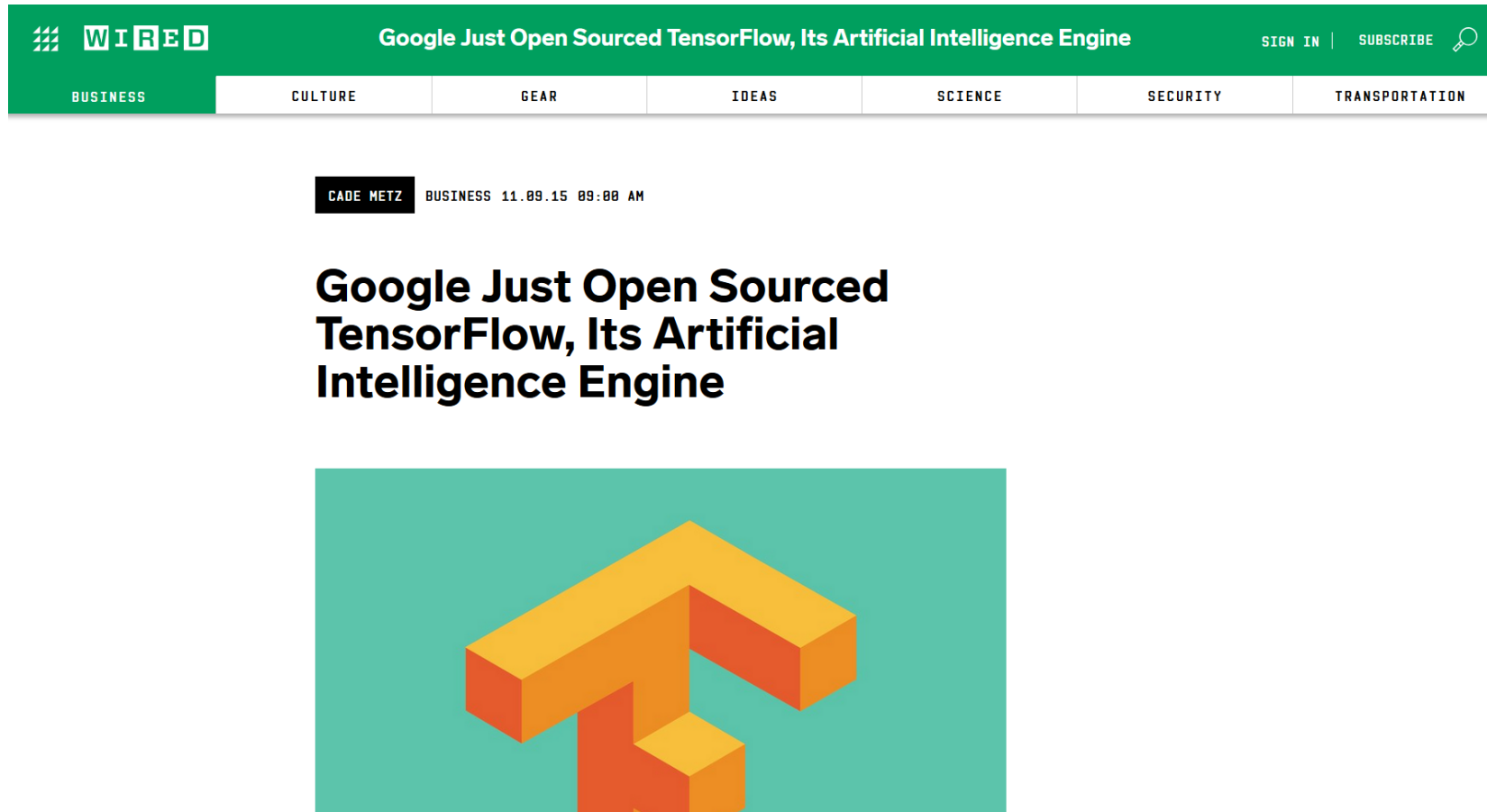
matplotlib



pandas
 $y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$



TENSORFLOW: IT ALL STARTED IN LATE 2015



@_srishtiyadav

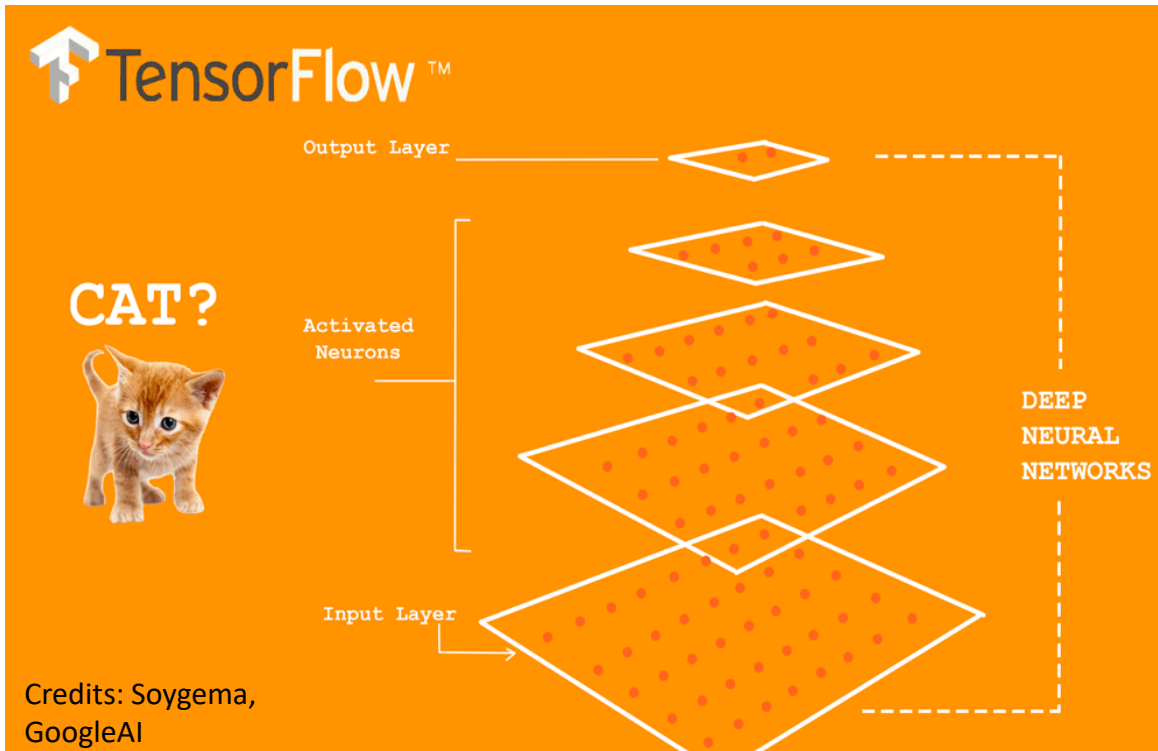


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WHAT IS TENSORFLOW AND HOW IT WORKS?

<https://www.tensorflow.org/>

TF is an open-source library for numerical computation and large scale machine learning



provides a convenient **front-end** API for building applications



executes those applications in high-performance



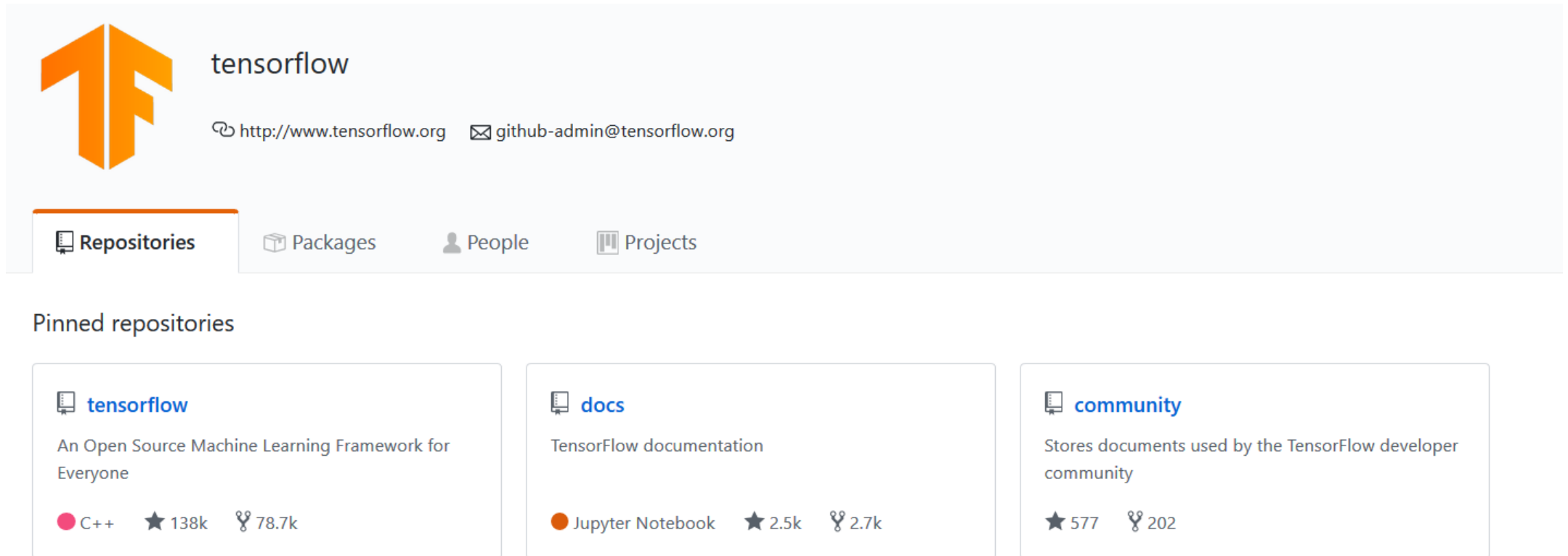
@_srishtiyadav



srishti-yadav

WHERE TO START ?

The easiest part: <https://github.com/tensorflow>



The screenshot shows the TensorFlow GitHub repository page. At the top is the TensorFlow logo (an orange stylized 'TF') and the name 'tensorflow'. Below the logo are links to the website 'http://www.tensorflow.org' and the email 'github-admin@tensorflow.org'. A navigation bar contains four tabs: 'Repositories' (selected), 'Packages', 'People', and 'Projects'. Under the 'Pinned repositories' section, there are three repository cards. The first card is for the 'tensorflow' repository, described as 'An Open Source Machine Learning Framework for Everyone', with 138k stars and 78.7k forks. The second card is for the 'docs' repository, described as 'TensorFlow documentation', with a Jupyter Notebook icon, 2.5k stars, and 2.7k forks. The third card is for the 'community' repository, described as 'Stores documents used by the TensorFlow developer community', with 577 stars and 202 forks.

tensorflow

<http://www.tensorflow.org> github-admin@tensorflow.org

Repositories Packages People Projects

Pinned repositories

- tensorflow**
An Open Source Machine Learning Framework for Everyone
C++ ★ 138k 🍴 78.7k
- docs**
TensorFlow documentation
Jupyter Notebook ★ 2.5k 🍴 2.7k
- community**
Stores documents used by the TensorFlow developer community
★ 577 🍴 202



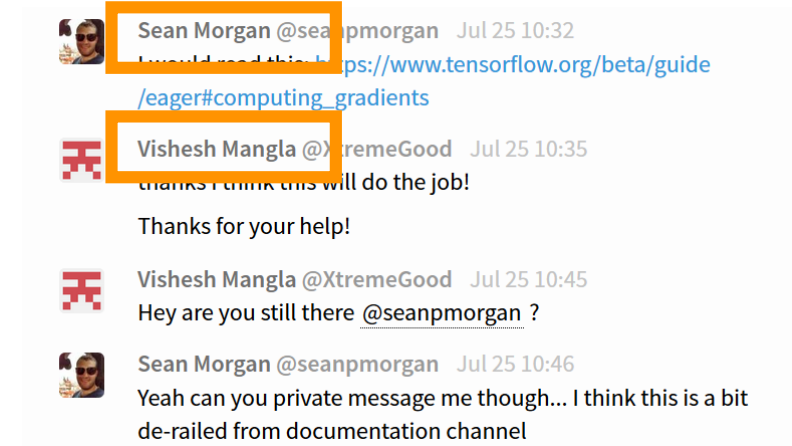
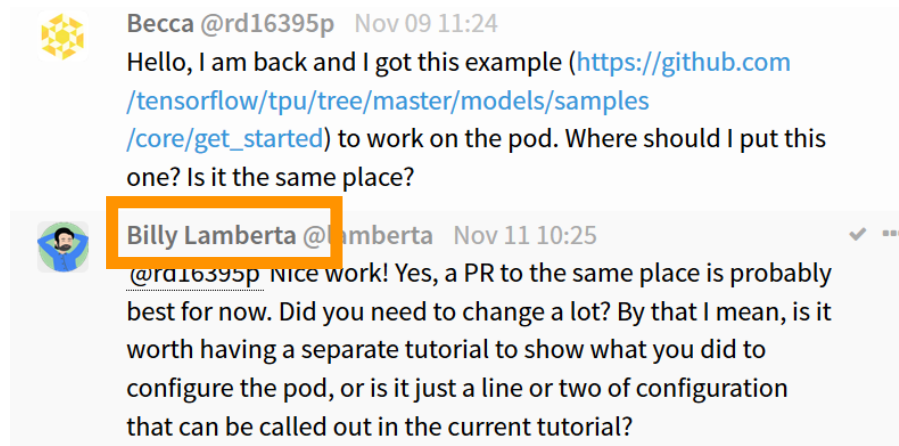
@_srishtiyadav



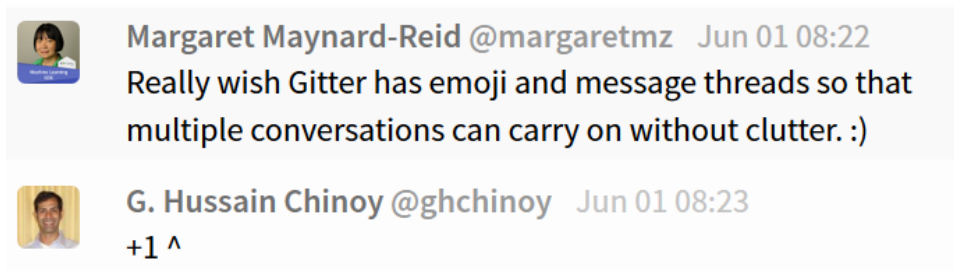
srishti-yadav

Gitter Chat Room

- Rooms: <https://gitter.im/tensorflow/> ; **Docs** is a good place to start
- Good place to ask **smaller questions** and **interesting conversations**:



- Perfect place to **develop relations** with other **contributors** and the **maintainers**



LET'S CHECKOUT SOME OF THE CONTRIBUTIONS

Fixed tensorflow / docs

Watch 152 Star 2.5k Fork 2.7k

Merge Code Pull requests 57 Actions Security Insights

JA: /ja/tutorials/keras #390

Merged tensorflow-copyb... merged 18 commits into tensorflow:master from masa-ita:site_ja_tutorials_keras on Apr 3

Conversation 83 Commits 18 Checks 0 Files changed 6

+10 -6

masa-ita commented on Mar 15

Contributor +

I've just finished translation of notebooks and a markdown document in site/en/tutorials/keras and places them in site/ja/tutorials/keras. Could you review and pull them. Thank you.

Masatoshi Itagaki
Niigata, Japan

Reviewers

- ohtaman
- lamberta
- sfujiwara
- MarkDaooust

Assignees

No one assigned

Labels

- cla: yes
- ja
- ready to pull
- translation

masa-ita added 6 commits on Mar 14

- site/ja/tutorials/keras translated
- fix typos etc.
- fixed a few texts

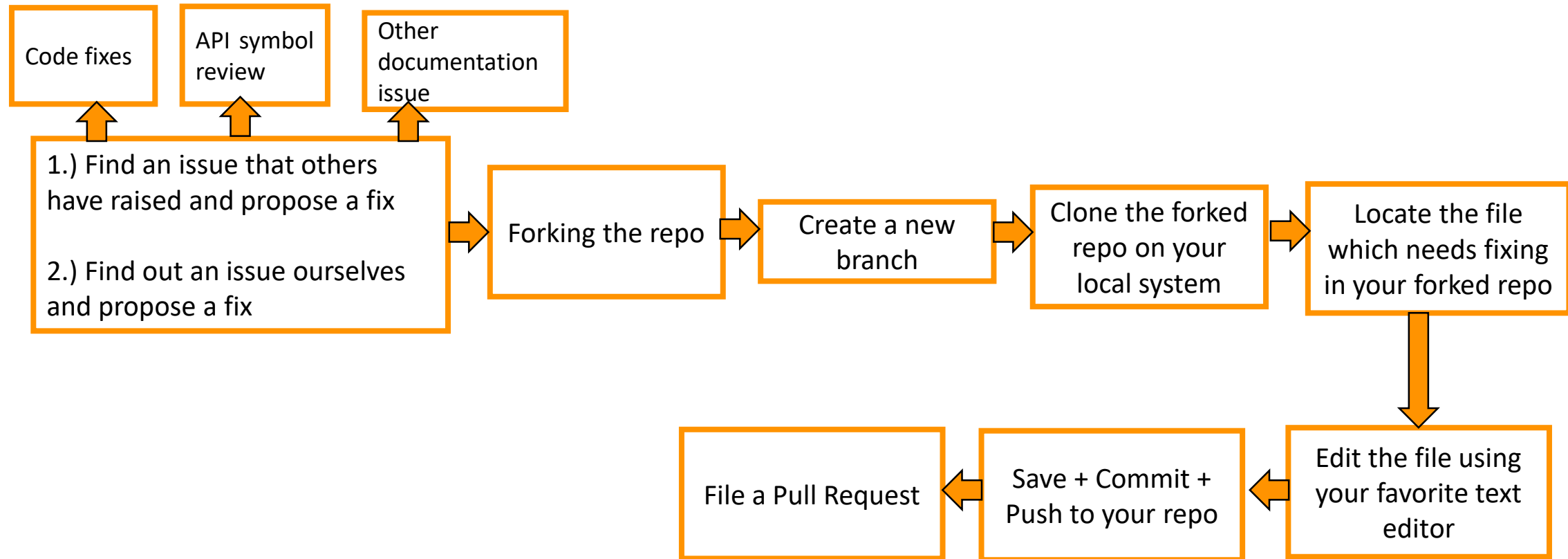


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A TYPICAL WORKFLOW FOR YOUR FIRST PR



1.) Find an issue that others have raised and propose a fix

2.) Find out an issue ourselves and propose a fix

Forking the repo in your repository

Create a new branch

possible bug (wrong sign) in PTDS algorithm for binomial

copperwiring / tensorflow
forked from tensorflow/tensorflow

Watch 0 Unstar 1 Fork 78.7k

78.7k

Code Pull requests 0 Actions Projects 0 Security Insights Settings

An Open Source Machine Learning Framework for Everyone <https://tensorflow.org> Edit

Manage topics

72,093 commits 39 branches 0 packages 97 releases 2,280 contributors Apache-2.0

Branch: master New pull request Create new file Upload files Find file Clone or download

Switch branches/tags

s1.2

Branches Tags

Create branch: s1.2 from 'master'

Latest commit 734f058 8 days ago

15 days ago

8 days ago

12 days ago



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srishti-yadav

1.) Find an issue that others have raised and propose a fix

2.) Find out an issue ourselves and propose a fix

Forking the repo in your repository

Create a new branch

Clone the repo on your local system

Locating the file which needs fixing in your forked repo

Editing the file using your favorite text editor

Save + Commit + Push to your repo

Open terminal.
git clone <url which you just copied>
git commit -a -m <reasonable commit message>
git push



@_srishtiyadav



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1.) Find an issue that others have raised and propose a fix

2.) Find out an issue ourselves and propose a fix

Forking the repo in your repository

Create a new branch

Clone the repo on your local system

Locating the file which needs fixing in your forked repo

Editing the file using your favorite text editor

Save + Commit + Push to your repo

File a Pull Request

tensorflow / tensorflow

Used by

56.1k

Watch

8.6k

Star

138k

Fork

78.7k

✓ Able to merge. These branches can be automatically merged.



Create pull request

Discuss and review the changes in this comparison with others.



coppe

Fixed a

Fixed a equation of the TF implementation of BTRS paper. Equation is available on page 7 of the paper

Fixes issue #34398. Equation verified from original paper <https://epu...> 734f058

tensorflow-bot added the size:XS label 8 days ago

googlebot added the cla: yes label 8 days ago



mihaimaruseac commented 8 days ago

Contributor + 🗨️ ...

Can you also add a test case please?

mihaimaruseac



Assignees

rthadur



Labels

cla: yes

ready to pull

size:XS

Projects

PR Queue

Merged



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BONUS : YOU CAN ALSO EDIT IN COLAB

The screenshot shows a Google Colaboratory notebook titled 'estimator.ipynb'. The interface includes a top menu bar with 'File', 'Edit', 'View', 'Insert', 'Runtime', 'Tools', and 'Help'. A 'Share' button is visible in the top right. Below the menu bar, there are tabs for '+ Code', '+ Text', and 'Copy to Drive'. A 'Table of contents' panel is open on the left, listing sections like 'Copyright 2019 The TensorFlow Authors', 'Estimators', 'Advantages', 'Estimators Capabilities', 'Pre-made Estimators', 'Custom Estimators', and 'Create an Estimator from scratch'. A 'Copy to GitHub' dialog box is centered on the screen, prompting the user to upload the notebook to a GitHub repository. The dialog fields are: Repository (copperwiring/docs), Branch (master), File path (site/en/guide/estimator.ipynb), and Commit message (Created using Colaboratory). There is an unchecked checkbox for 'Include a link to Colaboratory'. 'CANCEL' and 'OK' buttons are at the bottom right of the dialog. The background notebook content includes text about using pre-made or custom Estimators and a link to 'Estimator tutorials'.

estimator.ipynb

File Edit View Insert Runtime Tools Help Last edited on October 10 by qlzh727

+ Code + Text Copy to Drive

Connect Editing

Table of contents Code snippets Files

Copyright 2019 The TensorFlow Authors

Estimators

Advantages

Estimators Capabilities

Pre-made Estimators

Custom Estimators

Create an Estimator from scratch

Section

export for serving

You may either use the pre-made Estimators we provide or write your own custom Estimators. All Estimators—whether pre-made or custom—are classes based on the `tf.estimator.Estimator` class.

For a quick example try [Estimator tutorials](#). For an overview of the API design, see the [white paper](#).

CANCEL OK

YOUR FIRST CONTRIBUTION NEED NOT BE A PULL REQUEST

- You can raise an issue . Someone may benefit from your issue.
- Support others answers by upvoting them. Gives more visibility to better answers.
- Post links to relevant forums/discussions which may help an existing issue.



TENSORFLOW 2.0



@_srishtiyadav



srishti-yadav

WHAT'S NEW IN TENSORFLOW 2.0

- 1.) Keras is integrated as a part of core TF API.
It is recommended high level API

We no more need to write:

```
$ pip install keras  
import keras as keras
```

We can simply write:

```
$ pip install --upgrade tensorflow  
import tensorflow as tf  
from tensorflow import keras
```



WHAT'S NEW IN TENSORFLOW 2.0

2.) We no longer need Session()

```
1 import tensorflow as tf
2
3 # define the inputs
4 x = tf.placeholder(tf.float32)
5 y = tf.placeholder(tf.float32)
6
7 # define the graph
8 g_mean = tf.sqrt(x * y)
9
10 # run the graph
11 with tf.Session() as sess:
12     res = sess.run(g_mean, feed_dict={x: 2, y: 8})
13     print(res)
```

```
1 import tensorflow as tf
2
3 # define the inputs
4 x = 2.0
5 y = 8.0
6
7 # define the graph
8 g_mean = tf.sqrt(x * y)
9 tf.print(g_mean)
10
```



WHAT'S NEW IN TENSORFLOW 2.0

3.) Ecosystem

- TF is more than just TF Core i.e. there are a lot of parts to the ecosystem now
- Compatibility throughout TensorFlow ecosystem:
 - For instance, previously we had multiple ways to save models
 - Now it is standardized to something called `saved_models`.

TRAINING

Read & Preprocess Data
`tf.data`, `feature_column`

DEPLOYMENT

TensorFlow Serving



TensorFlow Probability is a library for probabilistic reasoning and statistical analysis.

TensorFlow Probability (TFP) is a Python library built on TensorFlow that makes it easy to combine probabilistic models and deep learning on modern hardware (TPU, GPU). It's for data scientists, statisticians, ML researchers, and practitioners who want to encode domain knowledge to understand data and make predictions. TFP includes:



```
import tensorflow as tf
import tensorflow_probability as tfp

# Pretend to load synthetic data set.
features = tfp.distributions.Normal(loc=0., scale=1.).sample(n=1000)
```



WHAT'S NEW IN TENSORFLOW 2.0

4.) Duplication & Faster Debugging

- Eager executions are now default

```
[3] a = tf.constant( [ [1,0], [0,1] ],  
                    dtype=float )  
    print (a).  
  
[> tf.Tensor(  
    [[1. 0.]  
     [0. 1.]], shape=(2, 2), dtype=float32)
```

- In 2.0 **contrib** is gone so other projects are more independent but still part of the ecosystem



OPEN SOURCE IS ALL ABOUT COMMUNITY

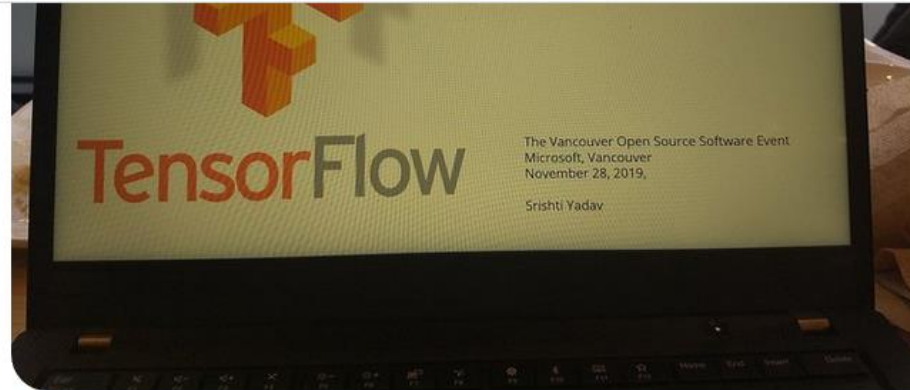
- It improves a solution that community as a whole can benefit from (and believe in)
- Open source code means you get full visibility of the code base.
- Open source software's code is often more secure because it's thoroughly reviewed and vetted by the community



THIS WAS MY STORY

Boris Mann

@bmann



Not sure if you remember me but I promised you that I'll giving a talk on open-source by year end.

I AM GOING TO. Finally!

01/03/19, 7:36 PM ✓

This is what I had said.

Sun 3:58 PM ✓

Of course I remember. Congrats, that's amazing!



@_srishtiyadav



srishti-yadav

YOUR FIRST CONTRIBUTION ?

Beginner

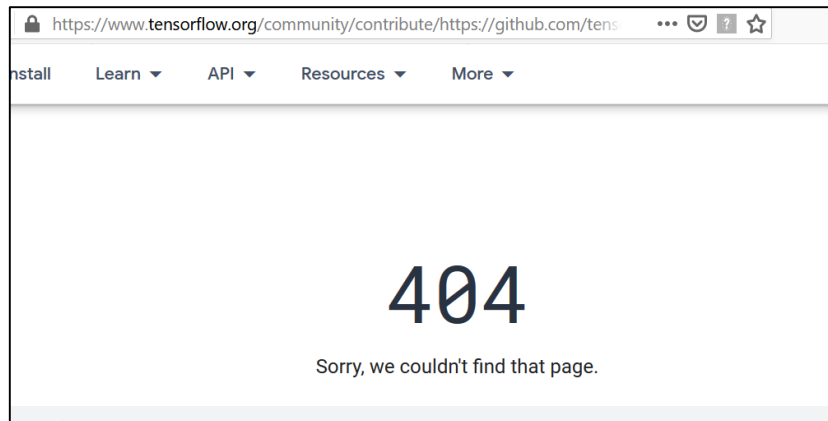
Interactive notebooks

While it's possible to edit the notebook JSON file with GitHub's [web-based file editor](#), it's not recommended since malformed JSON can corrupt the file. Make sure to test the notebook before submitting a pull request.

[Google Colaboratory](#) is a hosted notebook environment that makes it easy to edit—and run—notebook documentation. Notebooks in GitHub are loaded in Google Colab by passing the path to the Colab URL. For example, the notebook located in GitHub here: <https://github.com/tensorflow/docs/blob/master/site/en/tutorials/keras/classification.ipynb>

can be loaded into Google Colab at this URL: <https://colab.research.google.com/github/tensorflow/docs/blob/master/site/en/tutorials/keras/classification.ipynb>

There is an [Open in Colab](#) Chrome extension that performs this URL substitution when browsing a notebook on GitHub. This is useful when opening a notebook in your repo fork, because the top buttons always link to the TensorFlow Docs `master` branch.



Advanced

TensorBoard - how to show all histograms? #34616

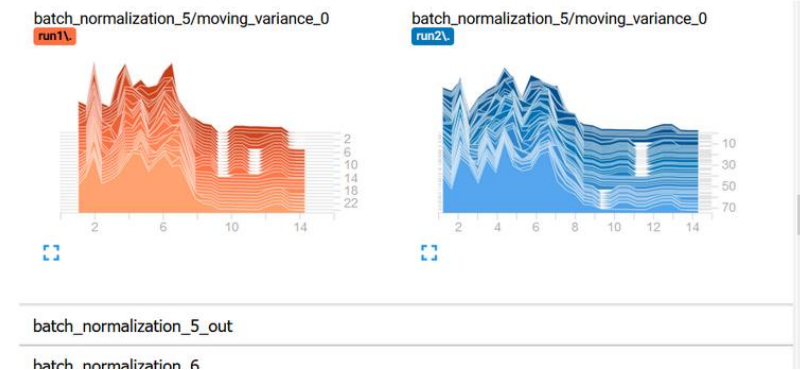
[Open](#) OverLordGoldDragon opened this issue 2 days ago · 0 comments



OverLordGoldDragon commented 2 days ago

Contributor + 😊 ...

My ResNet logs 200+ histograms, which I must click individually to view - example below. This is quite inconvenient to repeat each time - is there a quicker option (e.g. a button, a command-line argument)?



@_srishtiyadav



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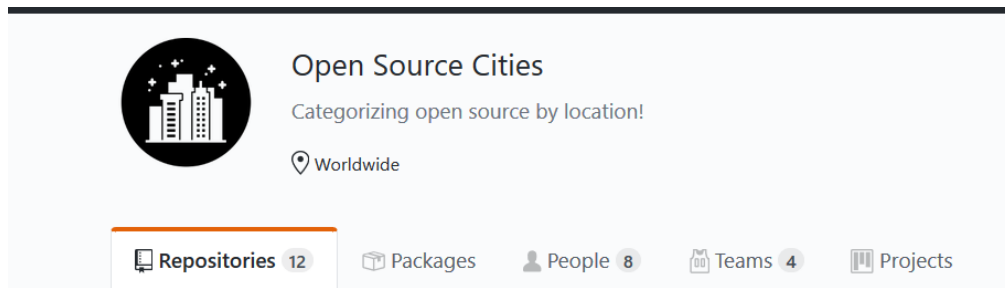
WE NEED YOUR HELP!

Disclaimer: It's not a personal project. It's a community initiative from Vancouver

- Do you contribute to Open Source?
- Do you have an Open Source project which you're proud of?
- Are you an organization involved in open source?

We welcome Pull Request (I recently started maintaining it) to:

<https://github.com/opensourcecities>



vancouver

Open Source People, Projects, and Companies in Vancouver

lists

awesome

oss

open

canada

source

floss

🔗 4

★ 14

⚠ 2

🔗 2

Updated 5 days ago



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srishti-yadav

THANK YOU

- **LinkedIn**: <https://www.linkedin.com/in/srishti-yadav/>
- **Twitter**: https://twitter.com/_srishtiyadav
- **Email**: srishtiy@sfu.ca
- **Link for opensource cities**: <https://github.com/opensourcecities>

