

Scraping Top Repositories for Topics on Github

Introduction

What is web Scraping?

- Web scraping is an automatic method to obtain large amounts of data from websites. Most of this data is unstructured data in an HTML format which is then converted into structured data in a spreadsheet or a database so that it can be used in various applications.

What is Github?

- What is GitHub and why it is used? GitHub is a code hosting platform for version control and collaboration. It lets you and others work together on projects from anywhere.

Language used: Python

Tools used:

- Jupyter Notebook: It is a tool that lets you run code inside a document and display the outputs

Libraries Used:

- requests: The requests library is the de facto standard for making HTTP requests in Python.
- BeautifulSoup: BeautifulSoup is a Python library for pulling data out of HTML and XML files.
- Pandas: Pandas is a Python library used for working with data sets. It has functions for analyzing, cleaning, exploring, and manipulating data.

Problem Statement

- We have to scrape top repositories of top trending topics from github(<https://github.com/topics>)

Here are the steps we will follow:

- We're going to scrape <https://github.com/topics>
- We'll get a list of topics. For each topic, we'll get topic title, topic page URL and topic description
- For each topic, we'll get the top 25 repositories in the topic from the topic page
- For each repository, we'll grab the repo name, username, stars and repo URL
- For each topic we'll create a CSV file in the following format:

Repo Name,Username,Stars,Repo URL three.js,mrdoob,69700,<https://github.com/mrdoob/three.js>
libgdx,libgdx,18300,<https://github.com/libgdx/libgdx>

Pandas:

- Pandas is a Python library and is used to analyze data.
- Pandas is an open source library in Python. It provides ready to use high-performance data structures and data analysis tools. Pandas module runs on top of NumPy and it is popularly used for data science

and data analytics.

- As we are using Pandas Library in this project ,we should first see how to install and import pandas

```
In [40]: !pip install pandas
```

```
Requirement already satisfied: pandas in c:\users\jatin\anaconda3\lib\site-packages (1.4.2)
Requirement already satisfied: python-dateutil>=2.8.1 in c:\users\jatin\anaconda3\lib\site-packages (from pandas) (2.8.2)
Requirement already satisfied: numpy>=1.18.5 in c:\users\jatin\anaconda3\lib\site-packages (from pandas) (1.21.5)
Requirement already satisfied: pytz>=2020.1 in c:\users\jatin\anaconda3\lib\site-packages (from pandas) (2021.3)
Requirement already satisfied: six>=1.5 in c:\users\jatin\anaconda3\lib\site-packages (from python-dateutil>=2.8.1->pandas) (1.16.0)
```

```
In [43]: import pandas as pd
```

some other imports are

```
In [44]: import os
help(os.makedirs)
```

Help on function makedirs in module os:

```
makedirs(name, mode=511, exist_ok=False)
makedirs(name [, mode=0o777][, exist_ok=False])
```

Super-mkdir; create a leaf directory and all intermediate ones. Works like mkdir, except that any intermediate path segment (not just the rightmost) will be created if it does not exist. If the target directory already exists, raise an OSError if exist_ok is False. Otherwise no exception is raised. This is recursive.

Scrape the list of topics from Github

Explanation..

- Use requests to download the page
- Convert it into doc using BS4
- Parse and extract information
- Convert to a Pandas dataframe

Function to download the page and converting it into Doc using BS4

```
In [45]: import requests
from bs4 import BeautifulSoup
def get_topics_page():
    topics_urls='https://github.com/topics'
    response =requests.get(topics_urls)
    if response.status_code !=200:
        raise Exception('failed to load page{}'.format(topics_urls))
    doc= BeautifulSoup(response.text,'html.parser')
    return doc
```

Explanation..

```
In [46]: doc=get_topics_page()
```

```
In [47]: type(doc)
```

```
Out[47]: bs4.BeautifulSoup
```

```
In [48]: doc.find('a')
```

```
Out[48]: <a class="px-2 py-4 color-bg-accent-emphasis color-fg-on-emphasis show-on-focus js-skip-to-content" href="#start-of-content">Skip to content</a>
```

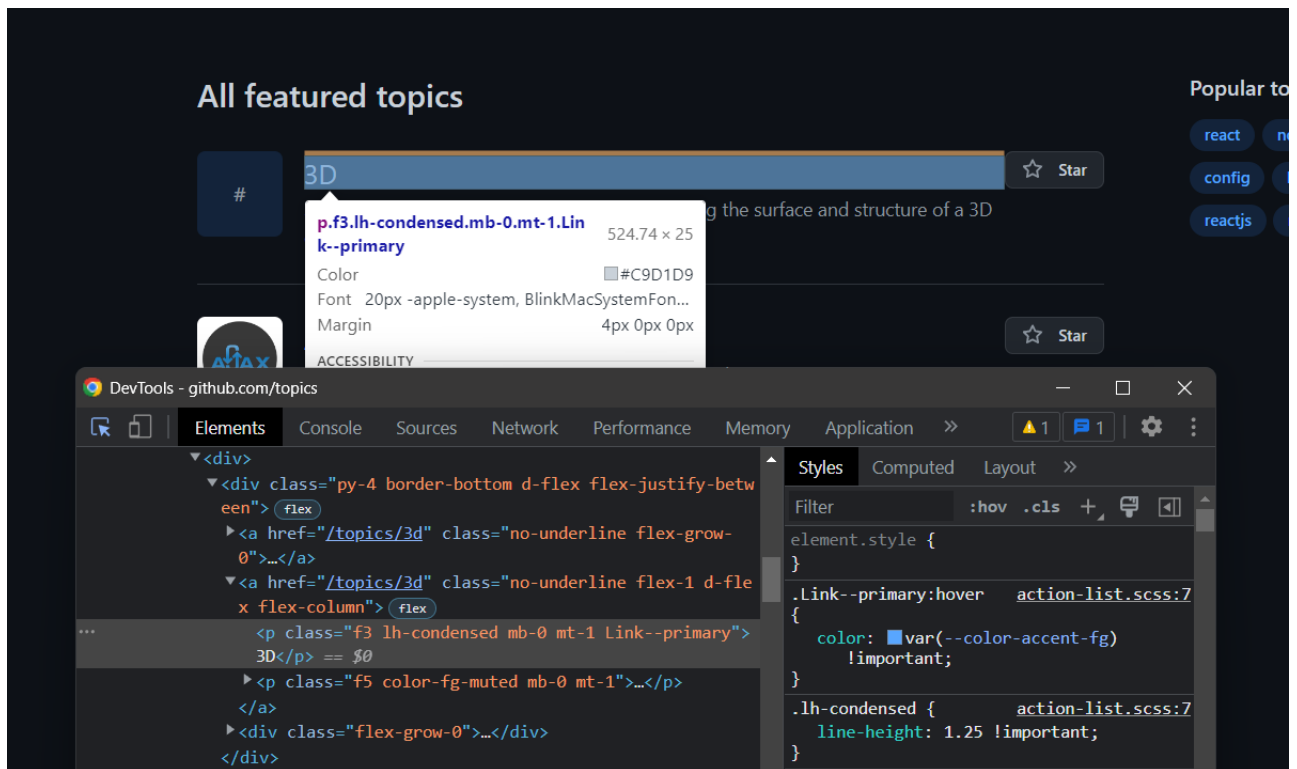
Functions to parse information from the page

`get_topics_titles()` function is used to get list of titles

```
In [49]: def get_topics_titles(doc):
        selection_class='f3 lh-condensed mb-0 mt-1 Link--primary'
        topics_titles_p_tags=doc.find_all('p',{'class':selection_class})
        topics_titles = []
        for tag in topics_titles_p_tags:
            topics_titles.append(tag.text)
        return topics_titles
```

Explanation...

- To get topic titles ,we can pick `p` tags with the class `f3 lh-condensed mb-0 mt-1 Link--primary`



```
In [50]: titles= get_topics_titles(doc)
```

```
In [51]: titles
```

```
['3D',
```

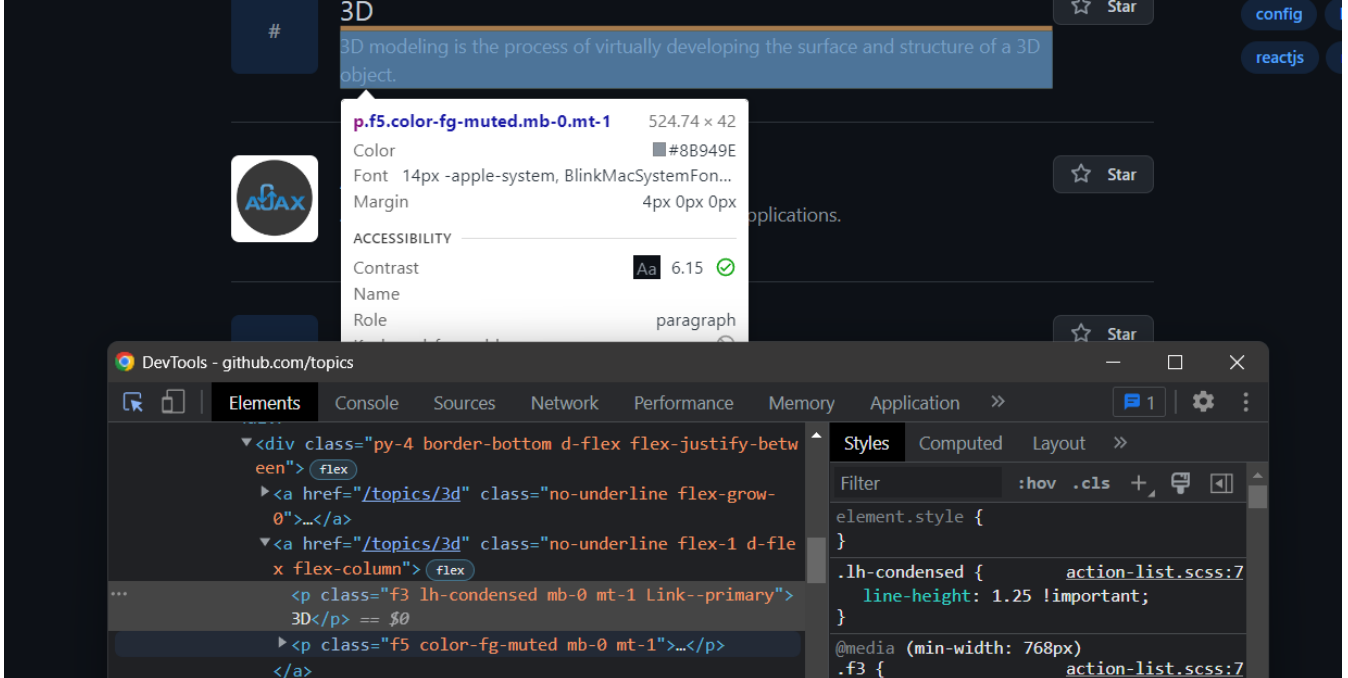
```
Out[51]: 'Ajax',
          'Algorithm',
          'Amp',
          'Android',
          'Angular',
          'Ansible',
          'API',
          'Arduino',
          'ASP.NET',
          'Atom',
          'Awesome Lists',
          'Amazon Web Services',
          'Azure',
          'Babel',
          'Bash',
          'Bitcoin',
          'Bootstrap',
          'Bot',
          'C',
          'Chrome',
          'Chrome extension',
          'Command line interface',
          'Clojure',
          'Code quality',
          'Code review',
          'Compiler',
          'Continuous integration',
          'COVID-19',
          'C++']
```

get_topics_descs() function is used to get descriptions of all the topics

```
In [52]: def get_topics_descs(doc):
          desc_selection_class='f5 color-fg-muted mb-0 mt-1'
          topics_descriptions_p_tags=doc.find_all('p',{'class':desc_selection_class})
          topics_descriptions=[]
          for description in topics_descriptions_p_tags:
              topics_descriptions.append(description.text.strip())
          return topics_descriptions
```

Explanation...

- To get topic titles ,we can pick `p` tags with the class `f5 color-fg-muted mb-0 mt-1`



```
In [53]: descriptions=get_topics_descs(doc)
```

```
In [54]: descriptions
```

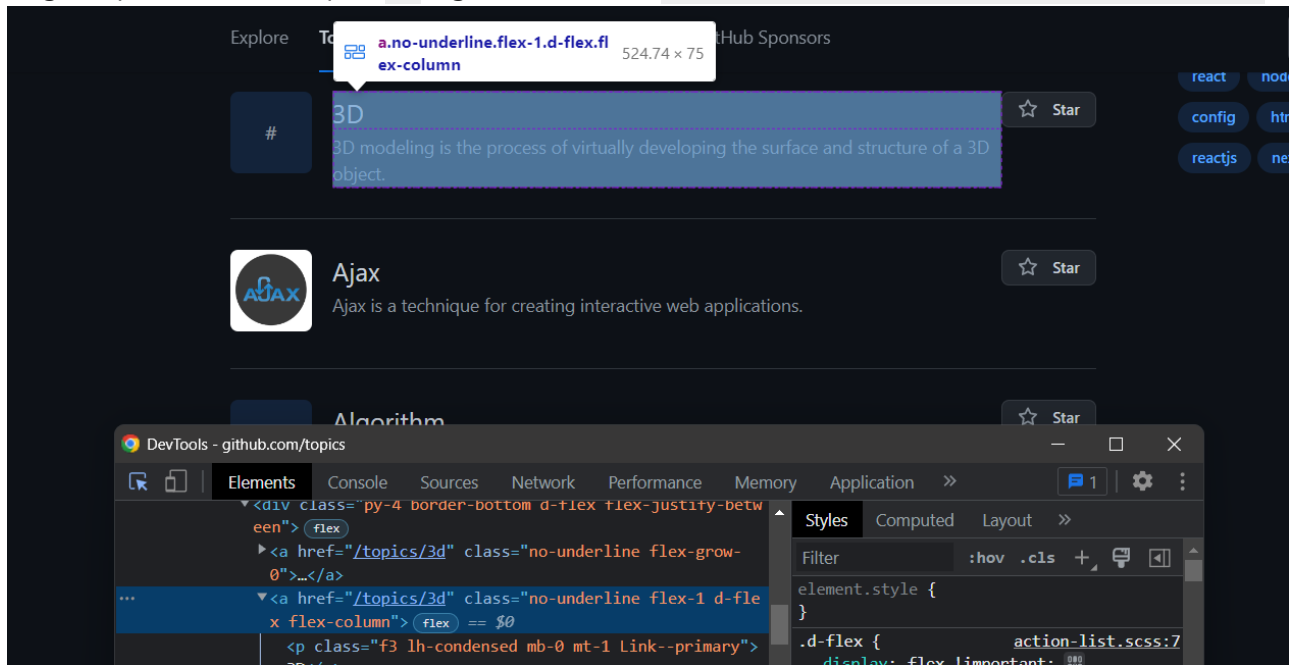
```
Out[54]: ['3D modeling is the process of virtually developing the surface and structure of a 3D object.',
'Ajaxy is a technique for creating interactive web applications.',
'Algorithms are self-contained sequences that carry out a variety of tasks.',
'Amqp is a non-blocking concurrency library for PHP.',
'Android is an operating system built by Google designed for mobile devices.',
'Angular is an open source web application platform.',
'Ansible is a simple and powerful automation engine.',
'An API (Application Programming Interface) is a collection of protocols and subroutines for building software.',
'Arduino is an open source hardware and software company and maker community.',
'ASP.NET is a web framework for building modern web apps and services.',
'Atom is a open source text editor built with web technologies.',
'An awesome list is a list of awesome things curated by the community.',
'Amazon Web Services provides on-demand cloud computing platforms on a subscription basis.',
'Azure is a cloud computing service created by Microsoft.',
'Babel is a compiler for writing next generation JavaScript, today.',
'Bash is a shell and command language interpreter for the GNU operating system.',
'Bitcoin is a cryptocurrency developed by Satoshi Nakamoto.',
'Bootstrap is an HTML, CSS, and JavaScript framework.',
'A bot is an application that runs automated tasks over the Internet.',
'C is a general purpose programming language that first appeared in 1972.',
'Chrome is a web browser from the tech company Google.',
'Chrome extensions enable users to customize the Chrome browsing experience.',
'A CLI, or command-line interface, is a console that helps users issue commands to a program.',
'Clojure is a dynamic, general-purpose programming language.',
'Automate your code review with style, quality, security, and test-coverage checks when you need them.',
'Ensure your code meets quality standards and ship with confidence.',
'Compilers are software that translate higher-level programming languages to lower-level languages (e.g. machine code).',
'Automatically build and test your code as you push it upstream, preventing bugs from being deployed to production.',
'The coronavirus disease 2019 (COVID-19) is an infectious disease caused by SARS-CoV-2.',
'C++ is a general purpose and object-oriented programming language.']
```

get_topics_urls() to get urls of all the topics

```
In [55]: def get_topics_urls(doc):
    topics_link_tags=doc.find_all('a',{'class':'no-underline flex-1 d-flex flex-column'})
    topics_urls=[]
    base_url='https://github.com'
    for url in topics_link_tags:
        {
            topics_urls.append(base_url + url['href'])
        }
    return topics_urls
```

Explanation....

- To get topic titles ,we can pick `a` tags with the class `no-underline flex-1 d-flex flex-column`



```
In [56]: urls=get_topics_urls(doc)
```

```
In [57]: urls
```

```
Out[57]: ['https://github.com/topics/3d',
'https://github.com/topics/ajax',
'https://github.com/topics/algorithm',
'https://github.com/topics/amphp',
'https://github.com/topics/android',
'https://github.com/topics/angular',
'https://github.com/topics/ansible',
'https://github.com/topics/api',
'https://github.com/topics/arduino',
'https://github.com/topics/aspnet',
'https://github.com/topics/atom',
'https://github.com/topics/awesome',
'https://github.com/topics/aws',
'https://github.com/topics/azure',
'https://github.com/topics/babel',
'https://github.com/topics/bash',
'https://github.com/topics/bitcoin',
'https://github.com/topics/bootstrap',
'https://github.com/topics/bot',
'https://github.com/topics/c',
'https://github.com/topics/chrome',
'https://github.com/topics/chrome-extension',
```

```
'https://github.com/topics/cli',
'https://github.com/topics/clojure',
'https://github.com/topics/code-quality',
'https://github.com/topics/code-review',
'https://github.com/topics/compiler',
'https://github.com/topics/continuous-integration',
'https://github.com/topics/covid-19',
'https://github.com/topics/cpp']
```

Let's combine all the functions in a single function

```
In [58]: def scrape_topics():
    topics_url='https://github.com/topics'
    response =requests.get(topics_url)
    if response.status_code !=200:
        raise Exception('failed to load page{}'.format(topics_url))
    doc= BeautifulSoup(response.text, 'html.parser')
    topics_dict= {
        'title':get_topics_titles(doc),
        'Descriptions':get_topics_descs(doc),
        'url':get_topics_urls(doc),
    }
    return pd.DataFrame(topics_dict)
```

```
In [59]: scrape_topics()
```

```
Out[59]:
```

	title	Descriptions	url
0	3D	3D modeling is the process of virtually develo...	https://github.com/topics/3d
1	Ajax	Ajax is a technique for creating interactive w...	https://github.com/topics/ajax
2	Algorithm	Algorithms are self-contained sequences that C...	https://github.com/topics/algorithm
3	Amp	Amp is a non-blocking concurrency library for ...	https://github.com/topics/amphp
4	Android	Android is an operating system built by Google...	https://github.com/topics/android
5	Angular	Angular is an open source web application plat...	https://github.com/topics/angular
6	Ansible	Ansible is a simple and powerful automation en...	https://github.com/topics/ansible
7	API	An API (Application Programming Interface) is ...	https://github.com/topics/api
8	Arduino	Arduino is an open source hardware and softwar...	https://github.com/topics/arduino
9	ASP.NET	ASP.NET is a web framework for building modern...	https://github.com/topics/aspnet
10	Atom	Atom is a open source text editor built with w...	https://github.com/topics/atom
11	Awesome Lists	An awesome list is a list of awesome things cu...	https://github.com/topics/awesome
12	Amazon Web Services	Amazon Web Services provides on-demand cloud c...	https://github.com/topics/aws
13	Azure	Azure is a cloud computing service created by ...	https://github.com/topics/azure
14	Babel	Babel is a compiler for writing next generatio...	https://github.com/topics/babel
15	Bash	Bash is a shell and command language interpret...	https://github.com/topics/bash
16	Bitcoin	Bitcoin is a cryptocurrency developed by Satos...	https://github.com/topics/bitcoin

17	Bootstrap	Bootstrap is an HTML, CSS, and JavaScript fram...	https://github.com/topics/bootstrap
18	Bot	A bot is an application that runs automated ta...	https://github.com/topics/bot
19	C	C is a general purpose programming language th...	https://github.com/topics/c
20	Chrome	Chrome is a web browser from the tech company ...	https://github.com/topics/chrome
21	Chrome extension	Chrome extensions enable users to customize th...	https://github.com/topics/chrome-extension
22	Command line interface	A CLI, or command-line interface, is a console...	https://github.com/topics/cli
23	Clojure	Clojure is a dynamic, general-purpose programm...	https://github.com/topics/clojure
24	Code quality	Automate your code review with style, quality,...	https://github.com/topics/code-quality
25	Code review	Ensure your code meets quality standards and s...	https://github.com/topics/code-review
26	Compiler	Compilers are software that translate higher-l...	https://github.com/topics/compiler
27	Continuous integration	Automatically build and test your code as you ...	https://github.com/topics/continuous-integration
28	COVID-19	The coronavirus disease 2019 (COVID-19) is an ...	https://github.com/topics/covid-19
29	C++	C++ is a general purpose and object-oriented p...	https://github.com/topics/cpp

In []:

In []:

In []:

In []:

In [60]: `import jovian`

In [61]: `jovian.commit()`

```
[jovian] Updating notebook "jatinkhanulia/scraping-github-topics-repositories" on https://jovian.ai/
[jovian] Committed successfully! https://jovian.ai/jatinkhanulia/scraping-github-topics-repositories
Out[61]: 'https://jovian.ai/jatinkhanulia/scraping-github-topics-repositories'
```

Get the top 25 repositories from a topic page

`get_topic_page(topic_urls)` gives the particular topic page

In [63]: `def get_topic_page(topic_urls):`
Download the page


```

response=requests.get(topic_urls)
# Check succesful response
if response.status_code!=200:
    raise Exception('Failed to load page {}'.format(topic_urls))
#parse using BeautifulSoup
topics_doc= BeautifulSoup(response.text,'html.parser')
return topics_doc

```

In [64]: doc=get_topic_page('https://github.com/topics/3d')

In [65]: doc

Out[65]:

```

<!DOCTYPE html>

<html data-ally-animated-images="system" data-color-mode="auto" data-dark-theme="dark" data-light-theme="light" lang="en">
<head>
<meta charset="utf-8"/>
<link href="https://github.githubassets.com" rel="dns-prefetch"/>
<link href="https://avatars.githubusercontent.com" rel="dns-prefetch"/>
<link href="https://github-cloud.s3.amazonaws.com" rel="dns-prefetch"/>
<link href="https://user-images.githubusercontent.com/" rel="dns-prefetch"/>
<link crossorigin="" href="https://github.githubassets.com" rel="preconnect"/>
<link href="https://avatars.githubusercontent.com" rel="preconnect"/>
<link crossorigin="anonymous" href="https://github.githubassets.com/assets/light-5178aee0ee76.css" integrity="sha512-UXiu4O52iBFkqt6Kx5t+pqHYP2/LWWIw9+l5ia74TWw+xpZpH44BFfAQp7yzCe0XFGZa72Xiqym16tox1KkUjw==" media="all" rel="stylesheet"><link crossorigin="anonymous" href="https://github.githubassets.com/assets/dark-217d4f9c8e70.css" integrity="sha512-IX1PnI5wWBz8Kgb1JI0f2QFa/WuRQQHJHe0vkKinQzxsRlNb4b8NgODX5htSZVAAkA106Vch+RR1DTI8j96s1A==" media="all" rel="stylesheet"><link crossorigin="anonymous" data-color-theme="dark_dimmed" data-href="https://github.githubassets.com/assets/dark_dimmed-0adfa28f0e68.css" integrity="sha512-Ct+ijw5ofrvpiRNwv+EhmU4CBCIgm7ApMfRCT8IQK4luRFZf8tLg0CC0VLyTPVLgMbQ9+74znLAZwilRSzjpiA==" media="all" rel="stylesheet"><link crossorigin="anonymous" data-color-theme="dark_high_contrast" data-href="https://github.githubassets.com/assets/dark_high_contrast-1c8575b36644.css" integrity="sha512-HIV1s2ZEVz1WLyBRua8znQozNKAQ0LM5AHRX9sMlitm5TNY3QMjZKsRD5FPCF90luzIXNO9JxRK4bBjxGhcctA==" media="all" rel="stylesheet"><link crossorigin="anonymous" data-color-theme="dark_colorblind" data-href="https://github.githubassets.com/assets/dark_colorblind-5113d2be20b0.css" integrity="sha512-URPSviCw4m4n71IKn4qyu7MEDpGbCiTfsMTNrUjPwcg38KtEKDt12vzj1Nzoy3YDFiQ8D0TCCYKCtrZpqX097g==" media="all" rel="stylesheet"><link crossorigin="anonymous" data-color-theme="light_colorblind" data-href="https://github.githubassets.com/assets/light_colorblind-c96add742484.css" integrity="sha512-yWrrdCSE7sqLZ4iqcSOoAsVnCbxs4IgN+oDKgxarp3O6V9dQ8XKYe+ffedHQA55VkBltY0iNI3QqACG8p1k8IA==" media="all" rel="stylesheet"><link crossorigin="anonymous" data-color-theme="light_high_contrast" data-href="https://github.githubassets.com/assets/light_high_contrast-290f92f5e867.css" integrity="sha512-KQ+S9ehnvP9vzfiaBA1FbrSWS1RuJBo/ez+bKUm+XKGEMR22w7Oyc712UyVcpYIqpTCTvaaJ3MfeU0x4xPeI+A==" media="all" rel="stylesheet"/><link crossorigin="anonymous" data-color-theme="light_tritanopia" data-href="https://github.githubassets.com/assets/light_tritanopia-cdd88f146bf7.css" integrity="sha512-zdiPFGv3QFuv1X24wK9Sa7DM3W/It82kehdMBrepjoJJyJyBISVFUJLvMMkvr4uu8j11Rn35dXZiVrN1FNWzGA==" media="all" rel="stylesheet"/>
<link crossorigin="anonymous" data-color-theme="dark_tritanopia" data-href="https://github.githubassets.com/assets/dark_tritanopia-2171ea0f078b.css" integrity="sha512-IXHqDweLGMT47BT14v+0woPqFAAtkFBeVqg9U/AlIukeUyVREIssCu32RfWmXNdMjwmdVBCs+q9SMQMYuYf5dQ==" media="all" rel="stylesheet"/>
<link crossorigin="anonymous" href="https://github.githubassets.com/assets/primer-1c02b272deb7.css" integrity="sha512-HAKyct63ixiRBJOFvv6TS1STV+XArD2zaQcMn9U7bKK4/rwxyzHLOWW15eei3144n4kNWAJneZlHOGJuPpxVHg==" media="all" rel="stylesheet"/>
<link crossorigin="anonymous" href="https://github.githubassets.com/assets/global-0f10b134febe.css" integrity="sha512-DxCxNP6+z7c2RM18XypFUDTew0Gwovfs9WuYyfU11tq0+y+T6/6qoA47GA E95aObf5mHdNawbIzuMePWlGMDQA==" media="all" rel="stylesheet"/>
<link crossorigin="anonymous" href="https://github.githubassets.com/assets/github-08dae02a378e.css" integrity="sha512-CNrgKjeOzSx9Fj3aNgD4tOHo5UrUACXNqT+lg87VuSEWcBTGKpkX29I81kw9NYV6/pKVFvuuVLgFmOLMIRbElg==" media="all" rel="stylesheet"/>
<link crossorigin="anonymous" href="https://github.githubassets.com/assets/site-e22f478d19d0.css" integrity="sha512-4i9HjRnQwLZyZZXpDj+5so/yG+bq4xDs9ugAiZbSbFP0Cgxsj/t13LDx1ixLaXkTHSj/h7Qttyy63o4B+DsZ2Ow==" media="all" rel="stylesheet"/>

```

<link crossorigin="anonymous" href="https://github.githubassets.com/assets/explore-91bd47378abc.css" integrity="sha512-kb1HN4q8/AYgCEDRBjJoppyNOF00ZKNJCPB7KNEEV1R6e40LAZ4K3B0+0Z7Nns+WyRmXQLhf2Ub12ZQ+wUQn+w==" media="all" rel="stylesheet"/>

<script crossorigin="anonymous" defer="defer" integrity="sha512-l8LOS25LcRkswC/Nftsa/cOI moIKN5E0zsabn6x+B54e1kWLyuN2p6YDpuXdule6+P9LGazaoe+xXj4TSD53g==" src="https://github.githubassets.com/assets/wp-runtime-97c2ce4b6e4b.js" type="application/javascript"></script>

<script crossorigin="anonymous" defer="defer" integrity="sha512-ivm676uepRnlvQvL/mShZVrbNfsUUZRp0a2RCZNYrFJYfLYhdDU2P+UC8axgVT17oqvlBVQLngSsGoiBN2MJpw==" src="https://github.githubassets.com/assets/vendors-node_modules_manuelpuyol_turbo_dist_turbo_es2017-esm_js-8af9baefab9e.js" type="application/javascript"></script>

<script crossorigin="anonymous" defer="defer" integrity="sha512-wdY9IwspBfH+ypwfAHhmLM1NHmc47fnC3OBsm2oCVMP6TITrDyusuknqLqtAY8SEcRhRdGYxEVwyCu/gqqIpTQ==" src="https://github.githubassets.com/assets/vendors-node_modules_stacktrace-parser_dist_stack-trace-parser_esm_js-node_modules_github_bro-d351f6-cld63d230b29.js" type="application/javascript"></script>

<script crossorigin="anonymous" defer="defer" integrity="sha512-U5AnTEJQ2sm/SJp7Xb3d9ttzr1VDFRXR60L4iAZuEOXKqHrFLLO94N/R6/R9sGEt625slTJA5mtyHNhGyBN1XA==" src="https://github.githubassets.com/assets/environment-5390274c4250.js" type="application/javascript"></script>

<script crossorigin="anonymous" defer="defer" integrity="sha512-ZQM3kW29307WR1cDuHZ02wendjeJLzwVD0wy4L1eCNr34RHXiY05wmHUX4hnV9WELD/OEZRGrzK+M8uwiz/WEw==" src="https://github.githubassets.com/assets/vendors-node_modules_selector-observer_dist_index_esm_js-650337916dbd.js" type="application/javascript"></script>

<script crossorigin="anonymous" defer="defer" integrity="sha512-Si8390GeCVPslYj8WomaMCyj33Jutd8vZ+Sdi6WXLsbdZRYC4wwijhTNYLy0zpHhfYnrynP6qArdz1PXtilsOg==" src="https://github.githubassets.com/assets/vendors-node_modules_delegated-events_dist_index_js-node_modules_github_details-dialog-elemen-63debe-4a2f37f7419e.js" type="application/javascript"></script>

<script crossorigin="anonymous" defer="defer" integrity="sha512-LU1+qivNxqamoMiZCJeeGkz+Cs5rfTOGTi7OZeSNYd0KNkr4uqZCiEfDHL2eoVWd0p+sm3UB3CoT/ngeHH9DcA==" src="https://github.githubassets.com/assets/vendors-node_modules_fzy_js_index_js-node_modules_github_combobox-nav_dist_index_js-node_modu-344bff-2d497eaa2bcd.js" type="application/javascript"></script>

<script crossorigin="anonymous" defer="defer" integrity="sha512-dtG985gksn9OuQNxtqqBpmWLH78Eh+YwATyKAXgIeZTOq6OkdJOqYnRQWmn062dW7HWcnbZIUgwhQ88CWFkjq==" src="https://github.githubassets.com/assets/vendors-node_modules_github_filter-input-element_dist_index_js-node_modules_github_remote-inp-5333cf-76d1bdf39824.js" type="application/javascript"></script>

<script crossorigin="anonymous" defer="defer" integrity="sha512-OMNqWXGEHws0bOVmDm9Nau8e8ZrjKUF77hq8heNd45JYuDu+gm4tZhYB/bUbysfBQ/6y31S1R0VIpjOHICotUA==" src="https://github.githubassets.com/assets/vendors-node_modules_github_catalyst_lib_index_js-node_modules_github_time-elements_dist_index_js-38c36a597184.js" type="application/javascript"></script>

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```

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<body class="logged-out env-production page-responsive" style="word-wrap: break-word;">
<div class="position-relative js-header-wrapper">
<a class="px-2 py-4 color-bg-accent-emphasis color-fg-on-emphasis show-on-focus js-skip-to-content" href="#start-of-content">Skip to content</a>
<span class="progress-pjax-loader js-pjax-loader-bar Progress position-fixed width-full" data-view-component="true">
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<header class="Header-old header-logged-out js-details-container Details position-relative f4 py-2" role="banner">
<div class="container-lg d-lg-flex flex-items-center p-responsive">
<div class="d-flex flex-justify-between flex-items-center">
<a aria-label="Homepage" class="mr-4 color-fg-inherit" data-ga-click="(Logged out) Header, go to homepage, icon:logo-wordmark" href="https://github.com/">
<svg aria-hidden="true" class="octicon octicon-mark-github" data-view-component="true" height="32" version="1.1" viewBox="0 0 16 16" width="32">
<path d="M8 0C3.58 0 0 3.58 0 8c0 3.54 2.29 6.53 5.47 7.59.4.07.55-.17.55-.38 0-.19-.01-.82-.01-1.49-2.01-3.7-2.53-.49-2.69-.94-.09-.23-.48-.94-.82-1.13-.28-.15-.68-.52-.01-.53.63-.01 1.08.58 1.23.82.72 1.21 1.87.87 2.33.66.07-.52.28-.87.51-1.07-1.78-.2-3.64-.89-3.64-3.95 0-.87.31-1.59.82-2.15-.08-.2-.36-1.02.08-2.12 0 0 .67-.21 2.28-.64-.18 1.32-.27 2-.27.68 0 1.36.09 2 .27 1.53-1.04 2.2-.82 2.2-.82.44 1.16 1.92.08 2.12.51.56.82 1.27.82 2.15 0 3.07-1.87 3.75-3.65 3.95.29.25.54.73.54 1.48 0 1.07-.01 1.93-.01 2.2 0 .21.15.46.55.38A8.013 8.013 0 0016 8c0-4.42-3.58-8-8-8z" fill-rule="evenodd"></path>
</svg>
</a>
<div class="d-lg-none css-truncate css-truncate-target width-fit p-2">
</div>
<div class="d-flex flex-items-center">
<a class="d-inline-block d-lg-none f5 no-underline border color-border-default rounded-2 px-2 py-1 mr-3 mr-sm-5 color-fg-inherit" data-hydro-click="{"event_type":"authentication.click","payload":{"location_in_page":"site header","repository_id":null,"auth_type":"SIGN_UP","originating_url":"https://github.com/topics/3d","user_id":null}}" data-hydro-click-hmac="bb5c242d26174601d48fbc4c824acaf01b0b0b41d78d7b84f29910adcf53abed" href="/signup?ref_cta=Sign up&ref_loc=header+logged+out&ref_page=%2Ftopics%2F3d&source=header">
      Sign up
    </a>
<button aria-expanded="false" aria-label="Toggle navigation" class="js-details-target btn-link d-lg-none mt-1 color-fg-inherit" data-view-component="true" type="button"> <svg aria-hidden="true" class="octicon octicon-three-bars" data-view-component="true" height="24" version="1.1" viewBox="0 0 16 16" width="24">
<path d="M1 2.75A.75.75 0 011.75 2h12.5a.75.75 0 011.5H1.75A.75.75 0 011 2.75zm0 5A.75.75 0 011.75 7h12.5a.75.75 0 011.5H1.75A.75.75 0 011 7.75zm0 7A.75.75 0 011.75 12.5h12.5a.75.75 0 011.5H1.75A.75.75 0 011 12.5z" fill-rule="evenodd"></path>
</svg>
</button> </div>
</div>
```

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<div class="HeaderMenu HeaderMenu--logged-out position-fixed top-0 right-0 bottom-0 height-fit position-lg-relative d-lg-flex flex-justify-between flex-items-center flex-auto">
<div class="d-flex d-lg-none flex-justify-end border-bottom color-bg-subtle p-3">
<button aria-expanded="false" aria-label="Toggle navigation" class="js-details-target btn-link" data-view-component="true" type="button"> <svg aria-hidden="true" class="octicon octicon-x color-fg-muted" data-view-component="true" height="24" version="1.1" viewBox="0 0 24 24" width="24">
<path d="M5.72 5.72a.75.75 0 0 1 1.06 0L12 10.9415.22-5.22a.75.75 0 1 1 1.06 1.06L13.06 12 5.22 5.22a.75.75 0 1 1 1.06 1.06L12 13.061-5.22 5.22a.75.75 0 1 1 1.06 1.06L10.94 12 5.72 6.78a.75.75 0 0 1 0 1.06z" fill-rule="evenodd"></path>
</svg>
</button> </div>
<nav aria-label="Global" class="mt-0 px-3 px-lg-0 mb-5 mb-lg-0">
<ul class="d-lg-flex list-style-none">
<li class="mr-0 mr-lg-3 position-relative flex-wrap flex-justify-between flex-items-center border-bottom border-lg-bottom-0 d-block d-lg-flex flex-lg-nowrap flex-lg-items-center">
<details class="HeaderMenu-details details-overlay details-reset width-full">
<summary class="HeaderMenu-summary HeaderMenu-link px-0 py-3 border-0 no-wrap d-block d-lg-inline-block">
Product
<svg class="icon-chevron-down-mktg position-absolute position-lg-relative" fill="none" viewBox="0 0 14 8" x="0" xml:space="preserve" y="0"><path d="M1,116.2,6L13,1"></path></svg>
</summary>
<div class="dropdown-menu flex-auto rounded px-0 mt-0 pb-4 p-lg-4 position-relative position-lg-absolute left-0 left-lg-n4">
<ul class="list-style-none f5 pb-1">
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--primary text-bold py-2" data-analytics-event='{"category":"Header dropdown (logged out), Product","action":"click to go to Features","label":"ref_page:/topics/3d;ref_cta:Features;"}' href="/features">
Features
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-2" data-analytics-event='{"category":"Header dropdown (logged out), Product","action":"click to go to Mobile","label":"ref_page:/topics/3d;ref_cta:Mobile;"}' href="/mobile">
Mobile
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<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-2" data-analytics-event='{"category":"Header dropdown (logged out), Product","action":"click to go to Actions","label":"ref_page:/topics/3d;ref_cta:Actions;"}' href="/features/actions">
Actions
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-2" data-analytics-event='{"category":"Header dropdown (logged out), Product","action":"click to go to Codespaces","label":"ref_page:/topics/3d;ref_cta:Codespaces;"}' href="/features/codespaces">
Codespaces
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<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-2" data-analytics-event='{"category":"Header dropdown (logged out), Product","action":"click to go to Copilot","label":"ref_page:/topics/3d;ref_cta:Copilot;"}' href="/features/copilot">
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```

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s/packages">
    Packages
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-2" data-analytics-event="{\"category\":\"Header dropdown (logged out), Product\",\"action\":\"click to go to Security\",\"label\":\"ref_page:/topics/3d;ref_cta:Security;\"}" href="/features/security">
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</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-2" data-analytics-event="{\"category\":\"Header dropdown (logged out), Product\",\"action\":\"click to go to Code review\",\"label\":\"ref_page:/topics/3d;ref_cta:Code review;\"}" href="/features/code-review">
    Code review
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-2" data-analytics-event="{\"category\":\"Header dropdown (logged out), Product\",\"action\":\"click to go to Issues\",\"label\":\"ref_page:/topics/3d;ref_cta:Issues;\"}" href="/features/issues">
    Issues
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-2" data-analytics-event="{\"category\":\"Header dropdown (logged out), Product\",\"action\":\"click to go to Discussions\",\"label\":\"ref_page:/topics/3d;ref_cta:Discussions;\"}" href="/features/discussions">
    Discussions
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-2" data-analytics-event="{\"category\":\"Header dropdown (logged out), Product\",\"action\":\"click to go to Integrations\",\"label\":\"ref_page:/topics/3d;ref_cta:Integrations;\"}" href="/features/integrations">
    Integrations
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--primary text-bold border-top pt-4 pb-2 mt-3" data-analytics-event="{\"category\":\"Header dropdown (logged out), Product\",\"action\":\"click to go to GitHub Sponsors\",\"label\":\"ref_page:/topics/3d;ref_cta:GitHub Sponsors;\"}" href="/sponsors">
    GitHub Sponsors
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--primary text-bold py-2" data-analytics-event="{\"category\":\"Header dropdown (logged out), Product\",\"action\":\"click to go to Customer stories\",\"label\":\"ref_page:/topics/3d;ref_cta:Customer stories;\"}" href="/customer-stories">
    Customer stories
</a> </li>
</ul>
</div>
</details>
</li>
<li class="mr-0 mr-lg-3 position-relative flex-wrap flex-justify-between flex-items-center border-bottom border-lg-bottom-0 d-block d-lg-flex flex-lg-nowrap flex-lg-items-center">
<a class="HeaderMenu-link no-underline py-3 d-block d-lg-inline-block" data-analytics-event="{\"category\":\"Header menu top item (logged out)\",\"action\":\"click to go to Team\",\"label\":\"ref_page:/topics/3d;ref_cta:Team;\"}" href="/team">Team</a>
</li>
<li class="mr-0 mr-lg-3 position-relative flex-wrap flex-justify-between flex-items-center border-bottom border-lg-bottom-0 d-block d-lg-flex flex-lg-nowrap flex-lg-items-center">

```

```
<li class="HeaderMenu-link no-underline py-3 d-block d-lg-inline-block" data-analytics-event="{\"category\":\"Header menu top item (logged out)\",\"action\":\"click to go to Enterprise\", \"label\":\"ref_page:/topics/3d;ref_cta:Enterprise;\"}" href="/enterprise">Enterprise</li>
<li class="mr-0 mr-lg-3 position-relative flex-wrap flex-justify-between flex-items-center border-bottom border-lg-bottom-0 d-block d-lg-flex flex-lg-nowrap flex-lg-items-center">
<details class="HeaderMenu-details details-overlay details-reset width-full">
<summary class="HeaderMenu-summary HeaderMenu-link px-0 py-3 border-0 no-wrap d-block d-lg-inline-block">
    Explore
    <svg class="icon-chevron-down-mktg position-absolute position-lg-relative" fill="none" viewBox="0 0 14 8" x="0" xml:space="preserve" y="0"><path d="M1,116.2,6L13,1"></path></svg>
</summary>
<div class="dropdown-menu flex-auto rounded px-0 mt-0 pb-4 p-lg-4 position-relative position-lg-absolute left-0 left-lg-n4">
<ul class="list-style-none f5 pb-1">
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--primary text-bold py-2" data-analytics-event="{\"category\":\"Header dropdown (logged out), Explore\", \"action\":\"click to go to Explore GitHub\", \"label\":\"ref_page:/topics/3d;ref_cta:Explore GitHub;\"}" href="/explore">
    Explore GitHub
</a> </li>
<li class="color-fg-muted text-normal f6 text-mono mb-1 border-top pt-3 mt-3 mb-1">Learn and contribute</li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-2" data-analytics-event="{\"category\":\"Header dropdown (logged out), Explore\", \"action\":\"click to go to Topics\", \"label\":\"ref_page:/topics/3d;ref_cta:Topics;\"}" href="/topics">
    Topics
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-2" data-analytics-event="{\"category\":\"Header dropdown (logged out), Explore\", \"action\":\"click to go to Collections\", \"label\":\"ref_page:/topics/3d;ref_cta:Collections;\"}" href="/collections">
    Collections
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-2" data-analytics-event="{\"category\":\"Header dropdown (logged out), Explore\", \"action\":\"click to go to Trending\", \"label\":\"ref_page:/topics/3d;ref_cta:Trending;\"}" href="/trending">
    Trending
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-2" data-analytics-event="{\"category\":\"Header dropdown (logged out), Explore\", \"action\":\"click to go to Skills\", \"label\":\"ref_page:/topics/3d;ref_cta:Skills;\"}" href="https://skills.github.com/">
    Skills
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-2" data-analytics-event="{\"category\":\"Header dropdown (logged out), Explore\", \"action\":\"click to go to GitHub Sponsors\", \"label\":\"ref_page:/topics/3d;ref_cta:GitHub Sponsors;\"}" href="/sponsors/explore">
    GitHub Sponsors
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-2" data-analytics-event="{\"category\":\"Header dropdown (logged out), Explore\", \"action\":\"click to go to Open source guides\", \"label\":\"ref_page:/topics/3d;ref_cta:Open source guides;\"}" href="https://opensource.guide">
```



```

</a> </li>
<li class="color-fg-muted text-normal f6 text-mono mb-1 border-top pt-3 mt-3 mb-1">Conne
ct with others</li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-
2" data-analytics-event='{"category":"Header dropdown (logged out), Explore","action":"c
lick to go to The ReadME Project","label":"ref_page:/topics/3d;ref_cta:The ReadME Projec
t;"}' href="/readme">
    The ReadME Project
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-
2" data-analytics-event='{"category":"Header dropdown (logged out), Explore","action":"c
lick to go to Events","label":"ref_page:/topics/3d;ref_cta:Events;"}' href="/events">
    Events
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-
2" data-analytics-event='{"category":"Header dropdown (logged out), Explore","action":"c
lick to go to Community forum","label":"ref_page:/topics/3d;ref_cta:Community forum;"}'
href="https://github.community">
    Community forum
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-
2" data-analytics-event='{"category":"Header dropdown (logged out), Explore","action":"c
lick to go to GitHub Education","label":"ref_page:/topics/3d;ref_cta:GitHub Educatio
n;"}' href="https://education.github.com">
    GitHub Education
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-
2" data-analytics-event='{"category":"Header dropdown (logged out), Explore","action":"c
lick to go to GitHub Stars program","label":"ref_page:/topics/3d;ref_cta:GitHub Stars pr
ogram;"}' href="https://stars.github.com">
    GitHub Stars program
</a> </li>
</ul>
</div>
</details>
</li>
<li class="mr-0 mr-lg-3 position-relative flex-wrap flex-justify-between flex-items-cent
er border-bottom border-lg-bottom-0 d-block d-lg-flex flex-lg-nowrap flex-lg-items-cente
r">
<a class="HeaderMenu-link no-underline py-3 d-block d-lg-inline-block" data-analytics-ev
ent='{"category":"Header menu top item (logged out)","action":"click to go to Marketplac
e","label":"ref_page:/topics/3d;ref_cta:Marketplace;"}' href="/marketplace">Marketplace
</a>
</li>
<li class="mr-0 mr-lg-3 position-relative flex-wrap flex-justify-between flex-items-cent
er border-bottom border-lg-bottom-0 d-block d-lg-flex flex-lg-nowrap flex-lg-items-cente
r">
<details class="HeaderMenu-details details-overlay details-reset width-full">
<summary class="HeaderMenu-summary HeaderMenu-link px-0 py-3 border-0 no-wrap d-block d-
lg-inline-block">
    Pricing
    <svg class="icon-chevron-down-mktg position-absolute position-lg-relative" fill
="none" viewBox="0 0 14 8" x="0" xml:space="preserve" y="0"><path d="M1,116.2,6L13,1"></
path></svg>
</summary>
<div class="dropdown-menu flex-auto rounded px-0 mt-0 pb-4 p-lg-4 position-relative posi
tion-lg-absolute left-0 left-lg-n4">
<ul class="list-style-none f5 pb-1">
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--primary text-b

```

```
old py-2" data-analytics-event='{ "category": "Header dropdown (logged out), Pricing", "action": "click to go to Plans", "label": "ref_page:/topics/3d;ref_cta:Plans;" }' href="/pricing">
    Plans
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-2" data-analytics-event='{ "category": "Header dropdown (logged out), Pricing", "action": "click to go to Compare plans", "label": "ref_page:/topics/3d;ref_cta:Compare plans;" }' href="/pricing#compare-features">
    Compare plans
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--secondary py-2" data-analytics-event='{ "category": "Header dropdown (logged out), Pricing", "action": "click to go to Contact Sales", "label": "ref_page:/topics/3d;ref_cta:Contact Sales;" }' href="https://github.com/enterprise/contact">
    Contact Sales
</a> </li>
<li>
<a class="lh-condensed-ultra d-block no-underline position-relative Link--primary text-b old border-top pt-4 pb-2 mt-3" data-analytics-event='{ "category": "Header dropdown (logged out), Pricing", "action": "click to go to Education", "label": "ref_page:/topics/3d;ref_cta:Education;" }' href="https://education.github.com">
    Education
</a> </li>
</ul>
</div>
</details>
</li>
</ul>
</nav>
<div class="d-lg-flex flex-items-center px-3 px-lg-0 text-center text-lg-left">
<div class="d-lg-flex min-width-0 mb-3 mb-lg-0">
<div class="header-search flex-auto js-site-search position-relative flex-self-stretch flex-md-self-auto mb-3 mb-md-0 mr-0 mr-md-3 scoped-search site-scoped-search js-jump-to">
<div class="position-relative">
<!-- '"` --><!-- </textarea></xmp> --><form accept-charset="UTF-8" action="/topics/3d" aria-label="Site" class="js-site-search-form" data-scope-id="238400" data-scope-type="Topic" data-scoped-search-url="/topics/3d" data-turbo="false" data-unscoped-search-url="/search" method="get" role="search">
<label class="form-control input-sm header-search-wrapper p-0 js-chromeless-input-container header-search-wrapper-jump-to position-relative d-flex flex-justify-between flex-items-center">
<input aria-autocomplete="list" aria-controls="jump-to-results" aria-expanded="false" aria-haspopup="listbox" aria-label="Search" autocapitalize="off" autocomplete="off" class="form-control input-sm header-search-input jump-to-field js-jump-to-field js-site-search-focus js-site-search-field is-clearable" data-hotkey="s,/" data-jump-to-suggestions-path="/_graphql/GetSuggestedNavigationDestinations" data-scoped-placeholder="Search" data-test-selector="nav-search-input" data-unscoped-placeholder="Search GitHub" name="q" placeholder="Search" role="combobox" spellcheck="false" type="text" value=""/>
<input class="js-data-jump-to-suggestions-path-csrf" data-csrf="true" type="hidden" value="m/iiPXQhLvKMuILnZT/+2oLiJy/tLmwIcy6+xud4eUkpgPcfnhfsHyFwEhAvfQcR3SJMjDJa7zRH7ZMH/hWDmg==">
<input class="js-site-search-type-field" name="type" type="hidden"/>
<svg aria-hidden="true" class="mr-1 header-search-key-slash" height="20" width="22" xmlns="http://www.w3.org/2000/svg"><path d="M3.5.5h12c1.7 0 3 1.3 3 3v13c0 1.7-1.3 3-3 3h-12c-1.7 0-3-1.3-3-3v-13c0-1.7 1.3-3 3-3z" fill="none" opacity=".4" stroke="#979A9C"></path><path d="M11.8 6L8 15.1h-.9L10.8 6h1z" fill="#979A9C"></path></svg>
<div class="Box position-absolute overflow-hidden d-none jump-to-suggestions js-jump-to-suggestions-container">
<ul class="d-none js-jump-to-suggestions-template-container">
<li class="d-flex flex-justify-start flex-items-center p-0 f5 navigation-item js-navigation-item js-jump-to-suggestion" role="option">
<a class="no-underline d-flex flex-auto flex-items-center jump-to-suggestions-path js-jump-to-suggestion-path js-navigation-open p-2" data-item-type="suggestion" href="" tabind
```

```
ex="-1">
<div class="jump-to-octicon js-jump-to-octicon flex-shrink-0 mr-2 text-center d-none">
<svg aria-label="Repository" class="octicon octicon-repo js-jump-to-octicon-repo d-none
  flex-shrink-0" data-view-component="true" height="16" role="img" title="Repository" vers
  ion="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.7
  5.75 0 110-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5
  v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.4.2
  1.45-1.087a.25.25 0 01.3 0L8.6 15.7a.25.25 0 00.4-.2v-3.25a.25.25 0 00-.25-.25h-3.5a.2
  5.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
<svg aria-label="Project" class="octicon octicon-project js-jump-to-octicon-project d-no
  ne flex-shrink-0" data-view-component="true" height="16" role="img" title="Project" vers
  ion="1.1" viewBox="0 0 16 16" width="16">
<path d="M1.75 0A1.75 1.75 0 000 1.75v12.5C0 15.216.784 16 1.75 16h12.5A1.75 1.75 0 0016
  14.25V1.75A1.75 1.75 0 0014.25 0H1.75zM1.5 1.75a.25.25 0 01.25-.25h12.5a.25.25 0 01.25.
  25v12.5a.25.25 0 01-.25.25H1.75a.25.25 0 01-.25-.25V1.75zM11.75 3a.75.75 0 00-.75.75v7.5
  a.75.75 0 001.5 0v-7.5a.75.75 0 00-.75-.75zm-8.25.75a.75.75 0 011.5 0v5.5a.75.75 0 01-1.
  5 0v-5.5zM8 3a.75.75 0 00-.75.75v3.5a.75.75 0 001.5 0v-3.5A.75.75 0 008 3z" fill-rule="e
  venodd"></path>
</svg>
<svg aria-label="Search" class="octicon octicon-search js-jump-to-octicon-search d-none
  flex-shrink-0" data-view-component="true" height="16" role="img" title="Search" version
  ="1.1" viewBox="0 0 16 16" width="16">
<path d="M11.5 7a4.499 4.499 0 11-8.998 0A4.499 4.499 0 0111.5 7zm-.82 4.74a6 6 0 111.06
  -1.06l3.04 3.04a.75.75 0 11-1.06 1.06l-3.04-3.04z" fill-rule="evenodd"></path>
</svg>
</div>
<img alt="" aria-label="Team" class="avatar mr-2 flex-shrink-0 js-jump-to-suggestion-ava
  tar d-none" height="28" src="" width="28"/>
<div class="jump-to-suggestion-name js-jump-to-suggestion-name flex-auto overflow-hidden
  text-left no-wrap css-truncate css-truncate-target">
</div>
<div class="border rounded-2 flex-shrink-0 color-bg-subtle px-1 color-fg-muted ml-1 f6 d
  -none js-jump-to-badge-search">
<span aria-label="in this topic" class="js-jump-to-badge-search-text-default d-none">
  In this topic
</span>
<span aria-label="in all of GitHub" class="js-jump-to-badge-search-text-global d-none">
  All GitHub
</span>
<span aria-hidden="true" class="d-inline-block ml-1 v-align-middle">⌵</span>
</div>
<div aria-hidden="true" class="border rounded-2 flex-shrink-0 color-bg-subtle px-1 color
  -fg-muted ml-1 f6 d-none d-on-nav-focus js-jump-to-badge-jump">
  Jump to
  <span class="d-inline-block ml-1 v-align-middle">⌵</span>
</div>
</a>
</li>
</ul>
<ul class="d-none js-jump-to-no-results-template-container">
<li class="d-flex flex-justify-center flex-items-center f5 d-none js-jump-to-suggestion
  p-2">
<span class="color-fg-muted">No suggested jump to results</span>
</li>
</ul>
<ul class="p-0 m-0 js-navigation-container jump-to-suggestions-results-container js-jump
  -to-suggestions-results-container" id="jump-to-results" role="listbox">
<li class="d-flex flex-justify-start flex-items-center p-0 f5 navigation-item js-navigat
  ion-item js-jump-to-scoped-search d-none" role="option">
<a class="no-underline d-flex flex-auto flex-items-center jump-to-suggestions-path js-ju
  mp-to-suggestion-path js-navigation-open p-2" data-item-type="scoped_search" href="" tab
  index="-1">
<div class="jump-to-octicon js-jump-to-octicon flex-shrink-0 mr-2 text-center d-none">
<svg aria-label="Repository" class="octicon octicon-repo js-jump-to-octicon-repo d-none
```

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flex-shrink-0" data-view-component="true" height="16" role="img" title="Repository" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.75.75 0 01-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.4.25v-3.25a.25.25 0 00-.25-.25h-3.5a.25.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
<svg aria-label="Project" class="octicon octicon-project js-jump-to-octicon-project d-none flex-shrink-0" data-view-component="true" height="16" role="img" title="Project" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M1.75 0A1.75 1.75 0 000 1.75v12.5C0 15.216.784 16 1.75 16h12.5A1.75 1.75 0 0016 14.25V1.75A1.75 1.75 0 0014.25 0H1.75zM1.5 1.75a.25.25 0 01.25-.25h12.5a.25.25 0 01.25.25v12.5a.25.25 0 01-.25.25H1.75a.25.25 0 01-.25-.25V1.75zM11.75 3a.75.75 0 00-.75.75v7.5a.75.75 0 001.5 0v-7.5a.75.75 0 00-.75-.75zm-8.25.75a.75.75 0 011.5 0v5.5a.75.75 0 01-1.5 0v-5.5zM8 3a.75.75 0 00-.75.75v3.5a.75.75 0 001.5 0v-3.5A.75.75 0 008 3z" fill-rule="evenodd"></path>
</svg>
<svg aria-label="Search" class="octicon octicon-search js-jump-to-octicon-search d-none flex-shrink-0" data-view-component="true" height="16" role="img" title="Search" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M11.5 7a4.499 4.499 0 11-8.998 0A4.499 4.499 0 0111.5 7zm-.82 4.74a6 6 0 111.06-1.06l3.04 3.04a.75.75 0 01-1.06 1.06l-3.04-3.04z" fill-rule="evenodd"></path>
</svg>
</div>
<img alt="" aria-label="Team" class="avatar mr-2 flex-shrink-0 js-jump-to-suggestion-avatar d-none" height="28" src="" width="28"/>
<div class="jump-to-suggestion-name js-jump-to-suggestion-name flex-auto overflow-hidden text-left no-wrap css-truncate css-truncate-target">
</div>
<div class="border rounded-2 flex-shrink-0 color-bg-subtle px-1 color-fg-muted ml-1 f6 d-none js-jump-to-badge-search">
<span aria-label="in this topic" class="js-jump-to-badge-search-text-default d-none">
  In this topic
</span>
<span aria-label="in all of GitHub" class="js-jump-to-badge-search-text-global d-none">
  All GitHub
</span>
<span aria-hidden="true" class="d-inline-block ml-1 v-align-middle">⌵</span>
</div>
<div aria-hidden="true" class="border rounded-2 flex-shrink-0 color-bg-subtle px-1 color-fg-muted ml-1 f6 d-none d-on-nav-focus js-jump-to-badge-jump">
  Jump to
  <span class="d-inline-block ml-1 v-align-middle">⌵</span>
</div>
</a>
</li>
<li class="d-flex flex-justify-start flex-items-center p-0 f5 navigation-item js-navigation-item js-jump-to-owner-scoped-search d-none" role="option">
<a class="no-underline d-flex flex-auto flex-items-center jump-to-suggestions-path js-jump-to-suggestion-path js-navigation-open p-2" data-item-type="owner_scoped_search" href="" tabindex="-1">
<div class="jump-to-octicon js-jump-to-octicon flex-shrink-0 mr-2 text-center d-none">
<svg aria-label="Repository" class="octicon octicon-repo js-jump-to-octicon-repo d-none flex-shrink-0" data-view-component="true" height="16" role="img" title="Repository" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.75.75 0 01-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.4.25v-3.25a.25.25 0 00-.25-.25h-3.5a.25.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
<svg aria-label="Project" class="octicon octicon-project js-jump-to-octicon-project d-none flex-shrink-0" data-view-component="true" height="16" role="img" title="Project" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M1.75 0A1.75 1.75 0 000 1.75v12.5C0 15.216.784 16 1.75 16h12.5A1.75 1.75 0 0016 14.25V1.75A1.75 1.75 0 0014.25 0H1.75zM1.5 1.75a.25.25 0 01.25-.25h12.5a.25.25 0 01.25.25v12.5a.25.25 0 01-.25.25H1.75a.25.25 0 01-.25-.25V1.75zM11.75 3a.75.75 0 00-.75.75v7.5a.75.75 0 001.5 0v-7.5a.75.75 0 00-.75-.75zm-8.25.75a.75.75 0 011.5 0v5.5a.75.75 0 01-1.5 0v-5.5zM8 3a.75.75 0 00-.75.75v3.5a.75.75 0 001.5 0v-3.5A.75.75 0 008 3z" fill-rule="evenodd"></path>
</svg>
<svg aria-label="Search" class="octicon octicon-search js-jump-to-octicon-search d-none flex-shrink-0" data-view-component="true" height="16" role="img" title="Search" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M11.5 7a4.499 4.499 0 11-8.998 0A4.499 4.499 0 0111.5 7zm-.82 4.74a6 6 0 111.06-1.06l3.04 3.04a.75.75 0 01-1.06 1.06l-3.04-3.04z" fill-rule="evenodd"></path>
</svg>
</div>
<div class="border rounded-2 flex-shrink-0 color-bg-subtle px-1 color-fg-muted ml-1 f6 d-none js-jump-to-badge-search">
<span aria-label="in this topic" class="js-jump-to-badge-search-text-default d-none">
  In this topic
</span>
<span aria-label="in all of GitHub" class="js-jump-to-badge-search-text-global d-none">
  All GitHub
</span>
<span aria-hidden="true" class="d-inline-block ml-1 v-align-middle">⌵</span>
</div>
<div aria-hidden="true" class="border rounded-2 flex-shrink-0 color-bg-subtle px-1 color-fg-muted ml-1 f6 d-none d-on-nav-focus js-jump-to-badge-jump">
  Jump to
  <span class="d-inline-block ml-1 v-align-middle">⌵</span>
</div>
</a>
</li>
<li class="d-flex flex-justify-start flex-items-center p-0 f5 navigation-item js-navigation-item js-jump-to-owner-scoped-search d-none" role="option">
<a class="no-underline d-flex flex-auto flex-items-center jump-to-suggestions-path js-jump-to-suggestion-path js-navigation-open p-2" data-item-type="owner_scoped_search" href="" tabindex="-1">
<div class="jump-to-octicon js-jump-to-octicon flex-shrink-0 mr-2 text-center d-none">
<svg aria-label="Repository" class="octicon octicon-repo js-jump-to-octicon-repo d-none flex-shrink-0" data-view-component="true" height="16" role="img" title="Repository" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.75.75 0 01-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.4.25v-3.25a.25.25 0 00-.25-.25h-3.5a.25.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
<svg aria-label="Project" class="octicon octicon-project js-jump-to-octicon-project d-none flex-shrink-0" data-view-component="true" height="16" role="img" title="Project" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M1.75 0A1.75 1.75 0 000 1.75v12.5C0 15.216.784 16 1.75 16h12.5A1.75 1.75 0 0016 14.25V1.75A1.75 1.75 0 0014.25 0H1.75zM1.5 1.75a.25.25 0 01.25-.25h12.5a.25.25 0 01.25.25v12.5a.25.25 0 01-.25.25H1.75a.25.25 0 01-.25-.25V1.75zM11.75 3a.75.75 0 00-.75.75v7.5a.75.75 0 001.5 0v-7.5a.75.75 0 00-.75-.75zm-8.25.75a.75.75 0 011.5 0v5.5a.75.75 0 01-1.5 0v-5.5zM8 3a.75.75 0 00-.75.75v3.5a.75.75 0 001.5 0v-3.5A.75.75 0 008 3z" fill-rule="evenodd"></path>
</svg>
<svg aria-label="Search" class="octicon octicon-search js-jump-to-octicon-search d-none flex-shrink-0" data-view-component="true" height="16" role="img" title="Search" version="1.1" viewBox
```

```
14.25v1.75A1.75 1.75 0 0014.25 0H1.75zM1.5 1.75a.25.25 0 01.25-.25h12.5a.25.25 0 01.25.
25v12.5a.25.25 0 01-.25.25H1.75a.25.25 0 01-.25-.25V1.75zM1.75 3a.75.75 0 00-.75.75v7.5
a.75.75 0 001.5 0v-7.5a.75.75 0 00-.75-.75zm-8.25.75a.75.75 0 011.5 0v5.5a.75.75 0 01-1.
5 0v-5.5zM8 3a.75.75 0 00-.75.75v3.5a.75.75 0 001.5 0v-3.5A.75.75 0 008 3z" fill-rule="e
venodd"></path>
</svg>
<svg aria-label="Search" class="octicon octicon-search js-jump-to-octicon-search d-none
flex-shrink-0" data-view-component="true" height="16" role="img" title="Search" version
="1.1" viewBox="0 0 16 16" width="16">
<path d="M11.5 7a4.499 4.499 0 11-8.998 0A4.499 4.499 0 0111.5 7zm-.82 4.74a6 6 0 111.06
-1.06l3.04 3.04a.75.75 0 11-1.06 1.06l-3.04-3.04z" fill-rule="evenodd"></path>
</svg>
</div>
<img alt="" aria-label="Team" class="avatar mr-2 flex-shrink-0 js-jump-to-suggestion-ava
tar d-none" height="28" src="" width="28"/>
<div class="jump-to-suggestion-name js-jump-to-suggestion-name flex-auto overflow-hidden
text-left no-wrap css-truncate css-truncate-target">
</div>
<div class="border rounded-2 flex-shrink-0 color-bg-subtle px-1 color-fg-muted ml-1 f6 d
-none js-jump-to-badge-search">
<span aria-label="in all of GitHub" class="js-jump-to-badge-search-text-default d-none">
Search
</span>
<span aria-label="in all of GitHub" class="js-jump-to-badge-search-text-global d-none">
All GitHub
</span>
<span aria-hidden="true" class="d-inline-block ml-1 v-align-middle">⌵</span>
</div>
<div aria-hidden="true" class="border rounded-2 flex-shrink-0 color-bg-subtle px-1 color
-fg-muted ml-1 f6 d-none d-on-nav-focus js-jump-to-badge-jump">
Jump to
<span class="d-inline-block ml-1 v-align-middle">⌵</span>
</div>
</a>
</li>
<li class="d-flex flex-justify-start flex-items-center p-0 f5 navigation-item js-navigat
ion-item js-jump-to-global-search d-none" role="option">
<a class="no-underline d-flex flex-auto flex-items-center jump-to-suggestions-path js-ju
mp-to-suggestion-path js-navigation-open p-2" data-item-type="global_search" href="" tab
index="-1">
<div class="jump-to-octicon js-jump-to-octicon flex-shrink-0 mr-2 text-center d-none">
<svg aria-label="Repository" class="octicon octicon-repo js-jump-to-octicon-repo d-none
flex-shrink-0" data-view-component="true" height="16" role="img" title="Repository" ver
sion="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.7
5.75 0 110-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5
v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.4.2
1.45-1.087a.25.25 0 01.3 0L8.6 15.7a.25.25 0 00.4-.2v-3.25a.25.25 0 00-.25-.25h-3.5a.2
5.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
<svg aria-label="Project" class="octicon octicon-project js-jump-to-octicon-project d-no
ne flex-shrink-0" data-view-component="true" height="16" role="img" title="Project" vers
ion="1.1" viewBox="0 0 16 16" width="16">
<path d="M1.75 0A1.75 1.75 0 000 1.75v12.5C0 15.216.784 16 1.75 16h12.5A1.75 1.75 0 0016
14.25V1.75A1.75 1.75 0 0014.25 0H1.75zM1.5 1.75a.25.25 0 01.25-.25h12.5a.25.25 0 01.25.
25v12.5a.25.25 0 01-.25.25H1.75a.25.25 0 01-.25-.25V1.75zM1.75 3a.75.75 0 00-.75.75v7.5
a.75.75 0 001.5 0v-7.5a.75.75 0 00-.75-.75zm-8.25.75a.75.75 0 011.5 0v5.5a.75.75 0 01-1.
5 0v-5.5zM8 3a.75.75 0 00-.75.75v3.5a.75.75 0 001.5 0v-3.5A.75.75 0 008 3z" fill-rule="e
venodd"></path>
</svg>
<svg aria-label="Search" class="octicon octicon-search js-jump-to-octicon-search d-none
flex-shrink-0" data-view-component="true" height="16" role="img" title="Search" version
="1.1" viewBox="0 0 16 16" width="16">
<path d="M11.5 7a4.499 4.499 0 11-8.998 0A4.499 4.499 0 0111.5 7zm-.82 4.74a6 6 0 111.06
-1.06l3.04 3.04a.75.75 0 11-1.06 1.06l-3.04-3.04z" fill-rule="evenodd"></path>
</svg>
```

```
</div>
<img alt="" aria-label="Team" class="avatar mr-2 flex-shrink-0 js-jump-to-suggestion-ava
tar d-none" height="28" src="" width="28"/>
<div class="jump-to-suggestion-name js-jump-to-suggestion-name flex-auto overflow-hidden
text-left no-wrap css-truncate css-truncate-target">
</div>
<div class="border rounded-2 flex-shrink-0 color-bg-subtle px-1 color-fg-muted ml-1 f6 d
-none js-jump-to-badge-search">
<span aria-label="in this topic" class="js-jump-to-badge-search-text-default d-none">
  In this topic
</span>
<span aria-label="in all of GitHub" class="js-jump-to-badge-search-text-global d-none">
  All GitHub
</span>
<span aria-hidden="true" class="d-inline-block ml-1 v-align-middle">⌵</span>
</div>
<div aria-hidden="true" class="border rounded-2 flex-shrink-0 color-bg-subtle px-1 color
-fg-muted ml-1 f6 d-none d-on-nav-focus js-jump-to-badge-jump">
  Jump to
  <span class="d-inline-block ml-1 v-align-middle">⌵</span>
</div>
</a>
</li>
</ul>
</div>
</input></label>
</form> </div>
</div>
</div>
<div class="position-relative mr-3 mb-4 mb-lg-0 d-inline-block">
<a class="HeaderMenu-link flex-shrink-0 no-underline" data-ga-click="(Logged out) Heade
r, clicked Sign in, text:sign-in" data-hydro-click='{"event_type":"authentication.clic
k","payload":{"location_in_page":"site header menu","repository_id":null,"auth_type":"SI
GN_UP","originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-cli
ck-hmac="54a43cd551e8f9dca797503a36b41ef2cead0b370275f230403f19b37b01254c" href="/login?
return_to=https%3A%2F%2Fgithub.com%2Ftopics%2F3d">
  Sign in
</a>
</div>
<a class="HeaderMenu-link flex-shrink-0 d-inline-block no-underline border color-border-
default rounded px-2 py-1" data-analytics-event='{"category":"Sign up","action":"click t
o sign up for account","label":"ref_page:/topics/3d;ref_cta:Sign up;ref_loc:header logge
d out}"' data-hydro-click='{"event_type":"authentication.click","payload":{"location_in_
page":"site header menu","repository_id":null,"auth_type":"SIGN_UP","originating_url":"h
ttps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="54a43cd551e8f9dca7
97503a36b41ef2cead0b370275f230403f19b37b01254c" href="/signup?ref_cta=Sign+up&ref_lo
c=header+logged+out&ref_page=%2Ftopics%2F3d&source=header">
  Sign up
</a>
</div>
</div>
</div>
</div>
</div>
<div class="show-on-focus" id="start-of-content"></div>
<div data-pjax-replace="" data-turbo-replace="" id="js-flash-container">
<template class="js-flash-template">
<div class="flash flash-full {{ className }}">
<div class="px-2">
<button aria-label="Dismiss this message" class="flash-close js-flash-close" type="butto
n">
<svg aria-hidden="true" class="octicon octicon-x" data-view-component="true" height="16"
version="1.1" viewBox="0 0 16 16" width="16">
<path d="M3.72 3.72a.75.75 0 011.06 0L8 6.9413.22-3.22a.75.75 0 111.06 1.06L9.06 8.13.22
3.22a.75.75 0 11-1.06 1.06L8 9.061-3.22 3.22a.75.75 0 01-1.06-1.06L6.94 8 3.72 4.78a.7
5.75 0 010-1.06z" fill-rule="evenodd"></path>
```

```
</svg>
</button>
<div>{{ message }}</div>
</div>
</div>
</template>
</div>
<include-fragment class="js-notification-shelf-include-fragment" data-base-src="https://
github.com/notifications/beta/shelf"></include-fragment>
<div class="application-main" data-commit-hovercards-enabled="" data-discussion-hovercar
ds-enabled="" data-issue-and-pr-hovercards-enabled="">
<main data-pjax-container="" id="js-pjax-container">
<div class="site-subnav color-bg-default site-subnav-sticky js-sticky">
<nav aria-label="Explore navigation" class="container-lg mx-auto p-responsive" role="nav
igation">
<div class="d-flex flex-wrap flex-items-center flex-justify-center flex-md-justify-start
text-center text-md-left">
<a class="js-selected-navigation-item d-inline-block subnav-primary f5 py-0 py-md-3 mt-2
mt-md-0 mr-0 mr-md-4 no-underline subnav-link" data-ga-click="Explore, go to explore, l
ocation:explore nav" data-hydro-click='{"event_type":"explore.click","payload":{"click_c
ontext":"NAVIGATION_BAR","click_target":"EXPLORE","click_visual_representation":"CLICK_V
ISUAL_REPRESENTATION_UNKNOWN","actor_id":null,"record_id":null,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="9547d9c55a7568a967a56
bec9f65d312319d069478f7d19274af211733b9ea5c" data-selected-links="/explore /explore/emai
l /explore" href="/explore">Explore</a>
<a aria-current="page" class="js-selected-navigation-item selected d-inline-block py-2 p
y-md-3 mr-3 mr-md-4 no-underline subnav-link" data-ga-click="Explore, go to topics, loca
tion:explore nav" data-hydro-click='{"event_type":"explore.click","payload":{"click_cont
ext":"NAVIGATION_BAR","click_target":"TOPICS","click_visual_representation":"CLICK_VISUA
L_REPRESENTATION_UNKNOWN","actor_id":null,"record_id":null,"originating_url":"https://gi
thub.com/topics/3d","user_id":null}}' data-hydro-click-hmac="0ea57f9f171eaaee1e7cc3b30ae5
0123a12090b693f3d6e5a55350bc679b176fc" data-selected-links="topics_path /topics/3d /topi
cs" href="/topics">Topics</a>
<a class="js-selected-navigation-item d-inline-block py-2 py-md-3 mr-3 mr-md-4 no-underl
ine subnav-link" data-ga-click="Explore, go to trending, location:explore nav" data-hydr
o-click='{"event_type":"explore.click","payload":{"click_context":"NAVIGATION_BAR","clic
k_target":"TRENDING","click_visual_representation":"CLICK_VISUAL_REPRESENTATION_UNKNOW
N","actor_id":null,"record_id":null,"originating_url":"https://github.com/topics/3d","us
er_id":null}}' data-hydro-click-hmac="03541b847e7677111febc61caebdc63a13e75616e8c0917d7e
c245f3fa993308" data-selected-links="/trending /trending/developers /trending/developers
/trending /trending" href="/trending">Trending</a>
<a class="js-selected-navigation-item d-inline-block py-2 py-md-3 mr-3 mr-md-4 no-underl
ine subnav-link" data-ga-click="Explore, go to collections, location:explore nav" data-h
ydro-click='{"event_type":"explore.click","payload":{"click_context":"NAVIGATION_BAR","c
lick_target":"COLLECTIONS","click_visual_representation":"CLICK_VISUAL_REPRESENTATION_UN
KNOWN","actor_id":null,"record_id":null,"originating_url":"https://github.com/topics/3
d","user_id":null}}' data-hydro-click-hmac="efcfe300dfe4bbb4ade038a89e96cc1f748706dea488
677a2e4decabc532ba60" data-selected-links="collections_path /collections/ /collections"
href="/collections">Collections</a>
<a class="js-selected-navigation-item d-inline-block py-2 py-md-3 mr-3 mr-md-4 no-underl
ine subnav-link" data-ga-click="Explore, go to events, location:explore nav" data-hydro-
click='{"event_type":"explore.click","payload":{"click_context":"NAVIGATION_BAR","click_
target":"EVENTS","click_visual_representation":"CLICK_VISUAL_REPRESENTATION_UNKNOWN","ac
tor_id":null,"record_id":null,"originating_url":"https://github.com/topics/3d","user_i
d":null}}' data-hydro-click-hmac="377157ffcdabc204f4b3472097201ba021a9dc98877c6f87b00aaa4
cd2fc73de0" data-selected-links="events_path /events/ /events" href="/events">Events</a>
<a class="js-selected-navigation-item d-inline-block py-2 py-md-3 mr-3 mr-md-4 no-underl
ine subnav-link" data-ga-click="Explore, go to Sponsors, location:explore nav" data-hydr
o-click='{"event_type":"explore.click","payload":{"click_context":"NAVIGATION_BAR","clic
k_target":"GITHUB_SPONSORS","click_visual_representation":"CLICK_VISUAL_REPRESENTATION_U
NKNOWN","actor_id":null,"record_id":null,"originating_url":"https://github.com/topics/3
d","user_id":null}}' data-hydro-click-hmac="a4023f83167e07c98f3614981fd6cc5f65ea4e7ff139
3242ca33485503157c17" data-selected-links="sponsors_explore_index_path /sponsors/explore
/sponsors/explore" href="/sponsors/explore">GitHub Sponsors</a>
<divclass="d-none d-md-block flex-auto text-right">
<a class="btn px-3 py-2" data-ga-click="Explore, change email updates, location:explore
```

```
nav" data-hydro-click="{\"event_type\":\"explore.click\",\"payload\":{\"click_context\":\"NAVIGATION_BAR\",\"click_target\":\"EXPLORE_EMAIL\",\"click_visual_representation\":\"GET_EMAIL_UPDATE_S_BUTTON\",\"actor_id\":null,\"record_id\":null,\"originating_url\":\"https://github.com/topics/3d\",\"user_id\":null}}\" data-hydro-click-hmac=\"3a07fdf474b81498857142a5afa0671ad4c7a3843d4af4e59d6e03ec9fd1d359\" data-view-component=\"true\" href=\"/explore/email\">
    Get email updates
</a> </div>
</div>
</nav>
</div>
<div>
<div class=\"container-lg d-sm-flex flex-items-center p-responsive py-5\">
<div class=\"col-sm-10 d-flex flex-items-center mb-3 mb-sm-0\">
<div class=\"border color-border-subtle color-bg-accent f4 color-fg-muted text-bold rounded flex-shrink-0 text-center mr-3\" style=\"width: 48px; height: 48; line-height: 48px;\">
    #
</div>
<h1 class=\"h1\">
    3D
</h1>
</div>
<div class=\"col-sm-2 text-sm-right\">
<div class=\"d-block\" data-view-component=\"true\">
<a aria-label=\"You must be signed in to star a repository\" class=\"tooltipped tooltipped-s btn-sm btn\" data-hydro-click=\"{\"event_type\":\"authentication.click\",\"payload\":{\"location_in_page\":\"star button\",\"repository_id\":null,\"auth_type\":\"LOG_IN\",\"originating_url\":\"https://github.com/topics/3d\",\"user_id\":null}}\" data-hydro-click-hmac=\"3535ba29d95e20d1984f681cee0925a581b62a9816a0303af07e7b761defc7c1\" data-view-component=\"true\" href=\"/login?return_to=%2Ftopic.3d\" rel=\"nofollow\"> <svg aria-hidden=\"true\" class=\"octicon octicon-star v-align-text-bottom d-inline-block mr-2\" data-view-component=\"true\" height=\"16\" version=\"1.1\" viewBox=\"0 0 16 16\" width=\"16\">
<path d=\"M8 .25a.75.75 0 0 1.673.418 11.882 3.815 4.21.612a.75.75 0 0 1.416 1.279 1-3.046 2.97.719 4.192a.75.75 0 0 1-1.088.791 L8 12.347 1-3.766 1.98a.75.75 0 0 1-1.088-.791 72-4.194 L.818 6.374a.75.75 0 0 1.416-1.281 4.21-.611 L7.327.668a.75.75 0 0 18 .25zm0 2.445 L6.615 5.5a.75.75 0 0 1-.564.411-3.097.45 2.24 2.184a.75.75 0 0 1.216.664 1-.528 3.084 2.769-1.456a.75.75 0 0 1.698 0 12.77 1.456-.53-3.084a.75.75 0 0 1.216-.664 12.24-2.183-3.096-.45a.75.75 0 0 1-.564-.411 L8 2.694v.001z\" fill-rule=\"evenodd\"></path>
</svg><span class=\"d-inline\" data-view-component=\"true\">
    Star
</span>
</a></div>
</div>
</div>
<div class=\"topic p-responsive container-lg\">
<div class=\"d-md-flex gutter-md\">
<div class=\"col-md-8 col-lg-9\" data-hpc=\"\">
<div class=\"border rounded color-shadow-small color-bg-default p-4 mb-5\">
<div class=\"markdown-body f5 mb-2\">
<p>3D modeling uses specialized software to create a digital model of a physical object. It is an aspect of 3D computer graphics, used for video games, 3D printing, and VR, among other applications.</p>
</div>
</div>
<h2 class=\"h3 color-fg-muted\">
    Here are
    5,740 public repositories
    matching this topic...
</h2>
<div class=\"d-sm-flex\">
<details class=\"details-reset details-overlay mt-2 mr-3 select-menu\">
<summary class=\"select-menu-button btn-sm btn\" data-view-component=\"true\"> <i>Language:</i>
</summary>
<span data-menu-button=\"\">All</span>
</details>
<details-menu class=\"select-menu-modal position-absolute\" style=\"z-index: 99;\">
<div class=\"select-menu-header\">
```



```
<span class="select-menu-title">Filter by language</span>
</div>
<div class="select-menu-list">
<a aria-checked="true" class="select-menu-item" href="https://github.com/topics/3d" role="menuitemradio">
<svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0 011.06-1.06L6 10.94l6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
<span class="select-menu-item-text d-flex flex-justify-between" data-menu-button-text="">

All
<span>5,740</span>

</span>
</a> <a aria-checked="false" class="select-menu-item" href="https://github.com/topics/3d?l=javascript" role="menuitemradio">
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<path d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0 011.06-1.06L6 10.94l6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
<span class="select-menu-item-text d-flex flex-justify-between" data-menu-button-text="">

JavaScript
<span>1,125</span>

</span>
</a> <a aria-checked="false" class="select-menu-item" href="https://github.com/topics/3d?l=c%2B%2B" role="menuitemradio">
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<path d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0 011.06-1.06L6 10.94l6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
<span class="select-menu-item-text d-flex flex-justify-between" data-menu-button-text="">

C++
<span>806</span>

</span>
</a> <a aria-checked="false" class="select-menu-item" href="https://github.com/topics/3d?l=python" role="menuitemradio">
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<path d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0 011.06-1.06L6 10.94l6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
<span class="select-menu-item-text d-flex flex-justify-between" data-menu-button-text="">

Python
<span>663</span>

</span>
</a> <a aria-checked="false" class="select-menu-item" href="https://github.com/topics/3d?l=c%23" role="menuitemradio">
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<path d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0 011.06-1.06L6 10.94l6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
<span class="select-menu-item-text d-flex flex-justify-between" data-menu-button-text="">

C#
<span>526</span>

</span>
</a> <a aria-checked="false" class="select-menu-item" href="https://github.com/topics/3d?l=c" role="menuitemradio">
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```

```
mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0
  011.06-1.06L6 10.94l6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
<span class="select-menu-item-text d-flex flex-justify-between" data-menu-button-text
="">

      C
    <span>300</span>

  </span>
</a> <a aria-checked="false" class="select-menu-item" href="https://github.com/topics/3
d?l=typescript" role="menuitemradio">
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mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0
  011.06-1.06L6 10.94l6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
<span class="select-menu-item-text d-flex flex-justify-between" data-menu-button-text
="">

      TypeScript
    <span>279</span>

  </span>
</a> <a aria-checked="false" class="select-menu-item" href="https://github.com/topics/3
d?l=html" role="menuitemradio">
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mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0
  011.06-1.06L6 10.94l6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
<span class="select-menu-item-text d-flex flex-justify-between" data-menu-button-text
="">

      HTML
    <span>236</span>

  </span>
</a> <a aria-checked="false" class="select-menu-item" href="https://github.com/topics/3
d?l=java" role="menuitemradio">
  <svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" data-view-co
mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0
  011.06-1.06L6 10.94l6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
<span class="select-menu-item-text d-flex flex-justify-between" data-menu-button-text
="">

      Java
    <span>222</span>

  </span>
</a> <a aria-checked="false" class="select-menu-item" href="https://github.com/topics/3
d?l=css" role="menuitemradio">
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mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
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  011.06-1.06L6 10.94l6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
<span class="select-menu-item-text d-flex flex-justify-between" data-menu-button-text
="">

      CSS
    <span>104</span>

  </span>
</a> <a aria-checked="false" class="select-menu-item" href="https://github.com/topics/3
d?l=rust" role="menuitemradio">
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mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0
  011.06-1.06L6 10.94l6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
<span class="select-menu-item-text d-flex flex-justify-between" data-menu-button-text
="">
```

Rust
102

```
</span>
</a> </div>
</details-menu>
</details>
<details class="details-reset details-overlay select-menu mt-2">
<summary class="select-menu-button btn-sm btn" data-view-component="true"> <i>Sort:</i>
<span data-menu-button="">Best match</span>
</summary> <details-menu class="select-menu-modal position-absolute" style="z-index: 9
9;">
<div class="select-menu-header">
<span class="select-menu-title">Sort options</span>
</div>
<div class="select-menu-list">
<a aria-checked="true" class="select-menu-item" href="/topics/3d?o=desc&s=" role="me
nuitemradio">
<svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" data-view-co
mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0
011.06-1.06L6 10.94l6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
<span class="select-menu-item-text" data-menu-button-text="">
Best match
</span>
</a> <a aria-checked="false" class="select-menu-item" href="/topics/3d?o=desc&s=star
s" role="menuitemradio">
<svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" data-view-co
mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0
011.06-1.06L6 10.94l6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
<span class="select-menu-item-text" data-menu-button-text="">
Most stars
</span>
</a> <a aria-checked="false" class="select-menu-item" href="/topics/3d?o=asc&s=star
s" role="menuitemradio">
<svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" data-view-co
mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0
011.06-1.06L6 10.94l6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
<span class="select-menu-item-text" data-menu-button-text="">
Fewest stars
</span>
</a> <a aria-checked="false" class="select-menu-item" href="/topics/3d?o=desc&s=fork
s" role="menuitemradio">
<svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" data-view-co
mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0
011.06-1.06L6 10.94l6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
<span class="select-menu-item-text" data-menu-button-text="">
Most forks
</span>
</a> <a aria-checked="false" class="select-menu-item" href="/topics/3d?o=asc&s=fork
s" role="menuitemradio">
<svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" data-view-co
mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0
011.06-1.06L6 10.94l6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
<span class="select-menu-item-text" data-menu-button-text="">
Fewest forks
</span>
</a> <a aria-checked="false" class="select-menu-item" href="/topics/3d?o=desc&s=upda
```

```
ted" role="menuitemradio">
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mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0
011.06-1.06L6 10.94l6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
<span class="select-menu-item-text" data-menu-button-text="">
    Recently updated
</span>
</a> <a aria-checked="false" class="select-menu-item" href="/topics/3d?o=asc&s=updat
ed" role="menuitemradio">
<svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" data-view-co
mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M13.78 4.22a.75.75 0 010 1.06l-7.25 7.25a.75.75 0 01-1.06 0L2.22 9.28a.75.75 0
011.06-1.06L6 10.94l6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
<span class="select-menu-item-text" data-menu-button-text="">
    Least recently updated
</span>
</a> </div>
</details-menu>
</details>
</div>
<article class="border rounded color-shadow-small color-bg-subtle my-4">
<a class="overflow-hidden flex-items-center rounded-top-2 color-border-muted border-bott
om d-flex position-relative" data-hydro-click='{"event_type":"explore.click","payload":
{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representat
ion":"REPOSITORY_IMAGE","actor_id":null,"record_id":576201,"originating_url":"https://gi
thub.com/topics/3d","user_id":null}}' data-hydro-click-hmac="4d35331fe0d41fe0f2af831aff9
ef10f06bca2ade29df5c58fe82a8022d899b5" data-turbo="false" data-view-component="true" hre
f="/mrdoob/three.js" style="max-height:275px">

</a>
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
<span style="margin-top:2px">
<svg aria-hidden="true" class="octicon octicon-repo color-fg-muted mr-2" data-view-compo
nent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.7
5.75 0 110-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5
v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 01-1h8zM5 12.25v3.25a.25.25 0 00.4.2
1.45-1.087a.25.25 0 01.3 0L8.6 15.7a.25.25 0 00.4-.2v-3.25a.25.25 0 00-.25-.25h-3.5a.2
5.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
</span>
<h3 class="f3 color-fg-muted text-normal lh-condensed">
<a data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITOR
Y_CARD","click_target":"OWNER","click_visual_representation":"REPOSITORY_OWNER_HEADIN
G","actor_id":null,"record_id":97088,"originating_url":"https://github.com/topics/3d","u
ser_id":null}}' data-hydro-click-hmac="4bdbc49d3c05ae7f70b531fbce709a384200b0768554e0172
950286a8db30940" data-turbo="false" data-view-component="true" href="/mrdoob">
    mrdoob
</a>
    <a class="text-bold wb-break-word" data-hydro-click='{"event_type":"explore.cl
ick","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_vis
ual_representation":"REPOSITORY_NAME_HEADING","actor_id":null,"record_id":576201,"origin
ating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="517d3
d5cb9d89752156923904a4238816bc9b51ab7772f3e3644ce897d8dd4e5" data-turbo="false" data-vie
w-component="true" href="/mrdoob/three.js">
        three.js
</a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
<a aria-label="Sponsor @mrdoob" class="btn btn-sm mr-2" data-hydro-click='{"event_typ
```

```
e":"sponsors.click","payload":{"button":{"TOPIC_PAGE_SPONSOR","sponsorable_logi
n":"mrdoob","originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydr
o-click-hmac="0426c5b1d00643f42d8cec677f8189072cd84b2e68505debb1deb846cbbabe0d" data-vie
w-component="true" href="/sponsors/mrdoob">
<svg aria-hidden="true" class="octicon octicon-heart icon-sponsor mr-1 v-align-middle co
lor-fg-sponsors anim-pulse-in" data-view-component="true" height="16" version="1.1" view
box="0 0 16 16" width="16">
<path d="M4.25 2.5c-1.336 0-2.75 1.164-2.75 3 0 2.15 1.58 4.144 3.365 5.682A20.565 20.56
5 0 008 13.393a20.561 20.561 0 003.135-2.211C12.92 9.644 14.5 7.65 14.5 5.5c0-1.836-1.41
4-3-2.75-3-1.373 0-2.609.986-3.029 2.456a.75.75 0 01-1.442 0C6.859 3.486 5.623 2.5 4.25
2.5zM8 14.25l-.345.666-.002-.001-.006-.003-.018-.01a7.643 7.643 0 01-.31-.17 22.075 22.
075 0 01-3.434-2.414C2.045 10.731 0 8.35 0 5.5 0 2.836 2.086 1 4.25 1 5.797 1 7.153 1.80
2 8 3.02 8.847 1.802 10.203 1 11.75 1 13.914 1 16 2.836 16 5.5c0 2.85-2.045 5.231-3.885
6.818a22.08 22.08 0 01-3.744 2.584l-.018.01-.006.003h-.002L8 14.25zm0 0l.345.666a.752.7
52 0 01-.69 0L8 14.25z" fill-rule="evenodd"></path>
</svg>
<span class="v-align-middle">Sponsor</span>
</a>
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-
s btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type":"authentica
tion.click","payload":{"location_in_page":"star button","repository_id":576201,"auth_typ
e":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydr
o-click-hmac="b901d0051f5d392e6990ed43be8259b46c6bc69b73fa228065a5b24cb7acf2cf" data-vie
w-component="true" href="/login?return_to=%2Fmrdoob%2Fthree.js" rel="nofollow"> <svg ari
a-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline-block mr-2" dat
a-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 .25a.75.75 0 01.673.418l1.882 3.815 4.21.612a.75.75 0 01.416 1.279l-3.046 2.
97.719 4.192a.75.75 0 01-1.088.791L8 12.347l-3.766 1.98a.75.75 0 01-1.088-.791.72-4.194
L.818 6.374a.75.75 0 01.416-1.281.4.21-.611L7.327.668A.75.75 0 018 .25zm0 2.445L6.615 5.5
a.75.75 0 01-.564.411-3.097.45 2.24 2.184a.75.75 0 01.216.664l-.528 3.084 2.769-1.456a.7
5.75 0 01.698 0l2.77 1.456-.53-3.084a.75.75 0 01.216-.664l2.24-2.183-3.096-.45a.75.75 0
01-.564-.411L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
Star
</span> <span aria-label="84683 users starred this repository" class="Counter js-social-
count" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-
singular-suffix="user starred this repository" data-turbo-replace="true" data-view-compo
nent="true" id="repo-stars-counter-star" title="84,683">84.7k</span>
</a> <button aria-label="You must be signed in to add this repository to a list" class
="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="bu
tton"> <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component
="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.427 7.427l3.396 3.396a.25.25 0 00.354 0l3.396-3.396A.25.25 0 0011.396 7H4.60
4a.25.25 0 00-.177.427z"></path>
</svg>
</button></div>
</div>
</div>
</div>
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
<a aria-current="true" class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_typ
e":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITO
RY","click_visual_representation":"CODE_TAB","actor_id":null,"record_id":576201,"origina
ting_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="96d141
d07f5ef2635557596f0c18e5c22681ab2a3b4458bb89d001cfc80e2723" data-turbo="false" data-view
-component="true" href="/mrdoob/three.js" id="code-tab-576201">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-componen
t="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 8.13.72 3.72a.75.75 0 01-1.06 1.06L.47 8.53
a.75.75 0 010-1.06l4.25-4.25zm6.56 0a.75.75 0 010-1.06 1.06L13.94 8.1-3.72 3.72a.75.75 0 1
01.06 1.06l4.25-4.25a.75.75 0 000-1.06l-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code
```

```
</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_ISSUES","click_visual_representation":"ISSUES_TAB","actor_id":null,"record_id":576201,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="b1f7acfe2c4051d57774c6aee910258397a403009b1b71cdedffd2b16091f6ef" data-turbo="false" data-view-component="true" href="/mrdoob/three.js/issues" id="issues-tab-576201">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 00 3z"></path><path d="M8 0a8 8 0 100 16A8 8 0 008 0zM1.5 8a6.5 6.5 0 113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues
```

```
</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_PULL_REQUESTS","click_visual_representation":"PULL_REQUESTS_TAB","actor_id":null,"record_id":576201,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="5479008d97eb9d2b0ab08e81450199ca50e837afba0e3d392d838e32fcb28a7f" data-turbo="false" data-view-component="true" href="/mrdoob/three.js/pulls" id="pull-requests-tab-576201">
<svg aria-hidden="true" class="octicon octicon-git-pull-request color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M7.177 3.073L9.573.677A.25.25 0 0110 .854v4.792a.25.25 0 01-.427.177L7.177 3.427a.25.25 0 010-.354zM3.75 2.5a.75.75 0 100 1.5.75.75 0 000-1.5zm-2.25.75a2.25 2.25 0 113 2.122v5.256a2.251 2.251 0 11-1.5 0V5.372A2.25 2.25 0 011.5 3.25zM11 2.5h-1V4h1a1 1 0 011 1v5.628a2.251 2.251 0 010 1.5V5A2.5 2.5 0 0011 2.5zm1 10.25a.75.75 0 110 1.5.75.75 0 000-1.5z" fill-rule="evenodd"></path>
</svg> Pull requests
```

```
</a></li>
</ul>
</nav>
<div class="color-bg-default rounded-bottom-2">
<div class="px-3 pt-3">
<p class="color-fg-muted mb-0"><div>JavaScript 3D Library.</div></p>
</div>
<div class="d-flex flex-wrap border-bottom color-border-muted px-3 pt-2 pb-2">
<a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":40,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="8f9ebc678303a547c14f32e3d50c2e68b385c6c6fd50d193abf2641fc57c5153" data-view-component="true" href="/topics/javascript" title="Topic: javascript">
    javascript
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":123,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="fd9948dfa42409669662033df52c488e925d4f3d90c6fe8136f3e6020bb49ffe" data-view-component="true" href="/topics/svg" title="Topic: svg">
    svg
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":2119,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="d2e607f9d7b25ee5a5f68ce176febce6c2f1236e5bf9ca64fdb5da5a01a19767" data-view-component="true" href="/topics/webgl" title="Topic: webgl">
    webgl
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":9045,"originating_url":"http
```

```
s://github.com/topics/3d", "user_id": null}}' data-hydro-click-hmac="01ad1ab6e219e5b4b6f09
e782220dff67dcccfb0d0e752daff6a8ed79ebc8a20" data-view-component="true" href="/topics/ht
ml5" title="Topic: html5">
    html5
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="0694e7e822f74b8a606df
97d0cb6572a660b366fa0697b2001a01371c72f3bd2" data-view-component="true" href="/topics/ca
nvas" title="Topic: canvas">
    canvas
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
e.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visu
al_representation":"TOPIC_TAG","actor_id":null,"record_id":12758,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="745d51d5127d96956634d
d70fd148c84d9aff6b0c48d0bea18c8fd880ce6d44c" data-view-component="true" href="/topics/au
gmented-reality" title="Topic: augmented-reality">
    augmented-reality
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="927129dc1f55047771c17
1780cacedaf87358ae04349fb7513fe535114891375" data-view-component="true" href="/topics/we
baudio" title="Topic: webaudio">
    webaudio
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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al_representation":"TOPIC_TAG","actor_id":null,"record_id":28032,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="ea85696e8aa0a67c81a14
1f30c695d159fc4481d2d6f4f600b8e98fc46139f77" data-view-component="true" href="/topics/vi
rtual-reality" title="Topic: virtual-reality">
    virtual-reality
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
e.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visu
al_representation":"TOPIC_TAG","actor_id":null,"record_id":177465,"originating_url":"htt
ps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="cf61b63494249752f032
1b2eccd33ed2bcf9ca557f15ed9efcd28b7992d76571" data-view-component="true" href="/topics/w
ebgl2" title="Topic: webgl2">
    webgl2
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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al_representation":"TOPIC_TAG","actor_id":null,"record_id":238400,"originating_url":"htt
ps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="028a08f740516273aa7f
05a2f5db3c450593017549ffa99920f497664d796dbe" data-view-component="true" href="/topics/3
d" title="Topic: 3d">
    3d
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
e.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visu
al_representation":"TOPIC_TAG","actor_id":null,"record_id":353880,"originating_url":"htt
ps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="395c436d2736ec9d5a79
c790c2dd0221e3f58fc0cd466345ceed230d8b22f23e" data-view-component="true" href="/topics/w
ebgpu" title="Topic: webgpu">
    webgpu
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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al_representation":"TOPIC_TAG","actor_id":null,"record_id":571668,"originating_url":"htt
ps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="8e774c5aba5347fe9bbf
c3b57e647cd08049698eee18b701801a0e351990b17f" data-view-component="true" href="/topics/w
ebxr" title="Topic: webxr">
    webxr
</a> </div>
<div class="p-3">
<ul class="d-flex f6 list-style-none color-fg-muted">
<li class="mr-4">
    Updated
    <relative-time class="no-wrap" datetime="2022-08-25T07:46:45Z">Aug 25, 2022
```

```
</relative-time>
</li>
<li class="mr-4">
<span class="f6 my-1 ml-0">
<span class="repo-language-color" style="background-color: #f1e05a"></span>
<span itemprop="programmingLanguage">JavaScript</span>
</span>
</li>
</ul>
</div>
</div>
</article>
<article class="border rounded color-shadow-small color-bg-subtle my-4">
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
<span style="margin-top:2px">
<svg aria-hidden="true" class="octicon octicon-repo color-fg-muted mr-2" data-view-compo
nent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.7
5.75 0 110-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5
v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.4.2
11.45-1.087a.25.25 0 01.3 0L8.6 15.7a.25.25 0 00.4-.2v-3.25a.25.25 0 00-.25-.25h-3.5a.2
5.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
</span>
<h3 class="f3 color-fg-muted text-normal lh-condensed">
<a data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITOR
Y_CARD","click_target":"OWNER","click_visual_representation":"REPOSITORY_OWNER_HEADIN
G","actor_id":null,"record_id":509841,"originating_url":"https://github.com/topics/3
d","user_id":null}}' data-hydro-click-hmac="760dcd7b253cbl27d9b1a8675e86db885295be4e0d8
d9fa7397adf923075d36" data-turbo="false" data-view-component="true" href="/libgdx">
libgdx
</a>
<a class="text-bold wb-break-word" data-hydro-click='{"event_type":"explore.cl
ick","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_vis
ual_representation":"REPOSITORY_NAME_HEADING","actor_id":null,"record_id":5373551,"origi
nating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="ff9d
8fbd4b6a268d54aa44ebd06922a789e146ae9d21db01b8ba7839646f5507" data-turbo="false" data-vi
ew-component="true" href="/libgdx/libgdx">
libgdx
</a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-s
btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type":"authentica
tion.click","payload":{"location_in_page":"star button","repository_id":5373551,"auth_ty
pe":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-hyd
ro-click-hmac="745b762a1830090ce43c319b505d834312b47cda19b12735c540f72f19f0b01e" data-vi
ew-component="true" href="/login?return_to=%2Flibgdx%2Flibgdx" rel="nofollow"> <svg aria
-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline-block mr-2" data
-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 .25a.75.75 0 01.673.418l1.882 3.815 4.21.612a.75.75 0 01.416 1.279l-3.046 2.
97.719 4.192a.75.75 0 01-1.088.791L8 12.347l-3.766 1.98a.75.75 0 01-1.088-.791.72-4.194
L8.18 6.374a.75.75 0 01.416-1.281.4.21-.611L7.327.668A.75.75 0 018 .25zm0 2.445L6.615 5.5
a.75.75 0 01-.564.411-3.097.45 2.24 2.184a.75.75 0 01.216.664l-.528 3.084 2.769-1.456a.7
5.75 0 01.698 0.12.77 1.456-.53-3.084a.75.75 0 01.216-.664l2.24-2.183-3.096-.45a.75.75 0
01-.564-.41L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
Star
</span> <span aria-label="20369 users starred this repository" class="Counter js-social-
count" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-
singular-suffix="user starred this repository" data-turbo-replace="true" data-view-compo
nent="true" id="repo-stars-counter-star" title="20,369">20.4k</span>
</a><button aria-label="You must be signed in to add this repository to a list" class
```



```
= "btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="button"> <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.427 7.427l3.396 3.396a.25.25 0 00.354 0l3.396-3.396A.25.25 0 0011.396 7H4.604a.25.25 0 00-.177.427z"></path>
</svg>
</button></div>
</div>
</div>
</div>
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
<a aria-current="true" class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type": "explore.click", "payload": {"click_context": "REPOSITORY_CARD", "click_target": "REPOSITORY", "click_visual_representation": "CODE_TAB", "actor_id": null, "record_id": 5373551, "originating_url": "https://github.com/topics/3d", "user_id": null}}' data-hydro-click-hmac="9b2b17058ad109b33e6b7c2a178751b96a932e233679b156e2e9c7791692c167" data-turbo="false" data-view-component="true" href="/libgdx/libgdx" id="code-tab-5373551">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 8l3.72 3.72a.75.75 0 11-1.06 1.06L.47 8.53a.75.75 0 010-1.06l4.25-4.25zm6.56 0a.75.75 0 10-1.06 1.06L13.94 8l-3.72 3.72a.75.75 0 101.06 1.06l4.25-4.25a.75.75 0 00-1.06-1.06l-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type": "explore.click", "payload": {"click_context": "REPOSITORY_CARD", "click_target": "REPOSITORY_ISSUES", "click_visual_representation": "ISSUES_TAB", "actor_id": null, "record_id": 5373551, "originating_url": "https://github.com/topics/3d", "user_id": null}}' data-hydro-click-hmac="3dfb9c34636ea503669de3274a4e913ec9fc2929cf708039ff3976f8693910d2" data-turbo="false" data-view-component="true" href="/libgdx/libgdx/issues" id="issues-tab-5373551">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 000 3z"></path><path d="M8 0a8 8 0 100 16A8 8 0 008 0zM1.5 8a6.5 6.5 0 113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type": "explore.click", "payload": {"click_context": "REPOSITORY_CARD", "click_target": "REPOSITORY_PULL_REQUESTS", "click_visual_representation": "PULL_REQUESTS_TAB", "actor_id": null, "record_id": 5373551, "originating_url": "https://github.com/topics/3d", "user_id": null}}' data-hydro-click-hmac="d5ca5ab1f5e5865a642e02cf8d5ee43fb1f611b12089cbb7c9984f8147d8a98d" data-turbo="false" data-view-component="true" href="/libgdx/libgdx/pulls" id="pull-requests-tab-5373551">
<svg aria-hidden="true" class="octicon octicon-git-pull-request color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M7.177 3.073L9.573.677A.25.25 0 0110 .854v4.792a.25.25 0 01-.427.177L7.177 3.427a.25.25 0 010-.354zM3.75 2.5a.75.75 0 100 1.5.75.75 0 000-1.5zm-2.25.75a2.25 2.25 0 113.222v5.256a2.251 2.251 0 11-1.5 0V5.372A2.25 2.25 0 011.5 3.25zM11 2.5h-1V4h1a1 1 0 011 1v5.628a2.251 2.251 0 010 1.5V5A2.5 2.5 0 0011 2.5zm1 10.25a.75.75 0 111.5 0 1-1.5 0zM3.75 12a.75.75 0 100 1.5.75.75 0 000-1.5z" fill-rule="evenodd"></path>
</svg> Pull requests

</a></li>
</ul>
</nav>
<div class="color-bg-default rounded-bottom-2">
<div class="px-3 pt-3">
<p class="color-fg-muted mb-0"><div>Desktop/Android/HTML5/iOS Java game development fram
```

```
ework</div></p>
</div>
<div class="d-flex flex-wrap border-bottom color-border-muted px-3 pt-2 pb-2">
<a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":67,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="79746627ead63b3a2eaa4453130c73c0833fd2abda86900c40786ff951b9d49a" data-view-component="true" href="/topics/android" title="Topic: android">
    android
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":70,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="b28e67e2c0c88528359daf69ae700878d160f1f82719fae9ec88e9502eb8e0a2" data-view-component="true" href="/topics/game" title="Topic: game">
    game
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":160,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="belfaecbd5173268561e1551dd8ce21cfb8c0335dc1b91f5280345c390bd331b" data-view-component="true" href="/topics/java" title="Topic: java">
    java
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":198,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="4401c780d23c889b9c76f45497f970453541d4a81d69592220d29292a9c84fe3" data-view-component="true" href="/topics/windows" title="Topic: windows">
    windows
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":200,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="bafae3445ec7531a94b91fa467812f2418f9bfe23ec640e316c25bf4621e00e5" data-view-component="true" href="/topics/linux" title="Topic: linux">
    linux
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":743,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="5253cd08fef65ac6cd46816e135caf72670da4439e602b3f4e970c5f32a4cb2d" data-view-component="true" href="/topics/ios" title="Topic: ios">
    ios
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":7521,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="82f021eaa05596a49f171c23b34d431056dclalef0543029ee831a2ae52e0b2d" data-view-component="true" href="/topics/framework" title="Topic: framework">
    framework
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":9045,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="01ad1ab6e219e5b4b6f09e782220dff67dcccfb0d0e752daff6a8ed79ebc8a20" data-view-component="true" href="/topics/html5" title="Topic: html5">
    html5
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":9621,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="7c29f06812aaf75129d4e43659117665235e057b4f8cb267bbfc5065c3209600" data-view-component="true" href="/topics/cross-platform" title="Topic: cross-platform">
    cross-platform
```

```
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\":\"explore.click\",\"payload\":{\"click_context\":\"REPOSITORY_CARD\",\"click_target\":\"TOPIC\",\"click_visual_representation\":\"TOPIC_TAG\",\"actor_id\":null,\"record_id\":12957,\"originating_url\":\"https://github.com/topics/3d\",\"user_id\":null}}\" data-hydro-click-hmac=\"d5406c2726aeald74957122518f592e51d27ca61fb3ca2f256c94c41155db0c4\" data-view-component=\"true\" href=\"/topics/libgdx\" title=\"Topic: libgdx\">
  libgdx
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\":\"explore.click\",\"payload\":{\"click_context\":\"REPOSITORY_CARD\",\"click_target\":\"TOPIC\",\"click_visual_representation\":\"TOPIC_TAG\",\"actor_id\":null,\"record_id\":60888,\"originating_url\":\"https://github.com/topics/3d\",\"user_id\":null}}\" data-hydro-click-hmac=\"1260f0749d074b58b7d25023c875c469a0be1647db5069d94ea229b801137fb2\" data-view-component=\"true\" href=\"/topics/macosex\" title=\"Topic: macosex\">
  macosex
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\":\"explore.click\",\"payload\":{\"click_context\":\"REPOSITORY_CARD\",\"click_target\":\"TOPIC\",\"click_visual_representation\":\"TOPIC_TAG\",\"actor_id\":null,\"record_id\":238400,\"originating_url\":\"https://github.com/topics/3d\",\"user_id\":null}}\" data-hydro-click-hmac=\"028a08f740516273aa7f05a2f5db3c450593017549ffa99920f497664d796dbe\" data-view-component=\"true\" href=\"/topics/3d\" title=\"Topic: 3d\">
  3d
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\":\"explore.click\",\"payload\":{\"click_context\":\"REPOSITORY_CARD\",\"click_target\":\"TOPIC\",\"click_visual_representation\":\"TOPIC_TAG\",\"actor_id\":null,\"record_id\":248512,\"originating_url\":\"https://github.com/topics/3d\",\"user_id\":null}}\" data-hydro-click-hmac=\"6608a741a5bb365111a189e4fb161b7be32438564f7eeade46e580e52d186a5c\" data-view-component=\"true\" href=\"/topics/2d\" title=\"Topic: 2d\">
  2d
</a> </div>
<div class="p-3">
<ul class="d-flex f6 list-style-none color-fg-muted">
<li class="mr-4">
  Updated
  <relative-time class="no-wrap" datetime="2022-08-19T17:57:33Z">Aug 19, 2022
</relative-time>
</li>
<li class="mr-4">
<span class="f6 my-1 ml-0">
<span class="repo-language-color" style="background-color: #b07219"></span>
<span itemprop="programmingLanguage">Java</span>
</span>
</li>
</ul>
</div>
</div>
</article>
<article class="border rounded color-shadow-small color-bg-subtle my-4">
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
<span style="margin-top:2px">
<svg aria-hidden="true" class="octicon octicon-repo color-fg-muted mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.75.75 0 110-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.4.25h-1.087a.25.25 0 01.3 0L8.6 15.7a.25.25 0 00.4-.25v-3.25a.25.25 0 00-.25-.25h-3.5a.25.25 0 00-.25.25z\" fill-rule="evenodd"></path>
</svg>
</span>
<h3 class="f3 color-fg-muted text-normal lh-condensed">
<a data-hydro-click="{\"event_type\":\"explore.click\",\"payload\":{\"click_context\":\"REPOSITORY_CARD\",\"click_target\":\"OWNER\",\"click_visual_representation\":\"REPOSITORY_OWNER_HEADER\",\"actor_id\":null,\"record_id\":45790596,\"originating_url\":\"https://github.com/topics/3d\",\"user_id\":null}}\" data-hydro-click-hmac=\"14658fab6217ec4ba70f16dd98006d4334793fae49cc25ce2e1c0bb5a8950006\" data-turbo="false" data-view-component="true\" href="/pmndrs">
```

```
pmndrs
</a>
    <a class="text-bold wb-break-word" data-hydro-click='{ "event_type": "explore.click", "payload": { "click_context": "REPOSITORY_CARD", "click_target": "REPOSITORY", "click_visual_representation": "REPOSITORY_NAME_HEADING", "actor_id": null, "record_id": 172521926, "originating_url": "https://github.com/topics/3d", "user_id": null } }' data-hydro-click-hmac="629be4efc1260d27fe29201a1901eb808cbf995e4a51d877282b7164242dbadf" data-turbo="false" data-view-component="true" href="/pmndrs/react-three-fiber">
        react-three-fiber
    </a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
    <a aria-label="Sponsor @pmndrs" class="btn btn-sm mr-2" data-hydro-click='{ "event_type": "sponsors.button_click", "payload": { "button": "TOPIC_PAGE_SPONSOR", "sponsorable_login": "pmndrs", "originating_url": "https://github.com/topics/3d", "user_id": null } }' data-hydro-click-hmac="a9d912f4e2bd4a5034a79bea00dfdfd45af92fdd45e1119b326a7e28321eeeb2" data-view-component="true" href="/sponsors/pmndrs">
        <svg aria-hidden="true" class="octicon octicon-heart icon-sponsor mr-1 v-align-middle color-fg-sponsors anim-pulse-in" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
            <path d="M4.25 2.5c-1.336 0-2.75 1.164-2.75 3 0 2.15 1.58 4.144 3.365 5.682A20.565 20.565 0 008 13.393a20.561 20.561 0 003.135-2.211C12.92 9.644 14.5 7.65 14.5 5.5c0-1.836-1.414-3-2.75-3-1.373 0-2.609.986-3.029 2.456a.75.75 0 01-1.442 0C6.859 3.486 5.623 2.5 4.25 2.5zM8 14.25l-.345.666-.002-.001-.006-.003-.018-.01a7.643 7.643 0 01-.31-.17 22.075 22.075 0 01-3.434-2.414C2.045 10.731 0 8.35 0 5.5 0 2.836 2.086 1 4.25 1 5.797 1 7.153 1.802 8 3.02 8.847 1.802 10.203 1 11.75 1 13.914 1 16 2.836 16 5.5c0 2.85-2.045 5.231-3.885 6.818a22.08 22.08 0 01-3.744 2.584l-.018.01-.006.003h-.002L8 14.25zm0 0l-.69 0L8 14.25z" fill-rule="evenodd"></path>
        </svg>
        <span class="v-align-middle">Sponsor</span>
    </a>
    <div class="BtnGroup d-flex" data-view-component="true">
        <a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-s btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{ "event_type": "authentication.click", "payload": { "location_in_page": "star button", "repository_id": 172521926, "auth_type": "LOG_IN", "originating_url": "https://github.com/topics/3d", "user_id": null } }' data-hydro-click-hmac="71b361da494f1b8716e6415addbe4f0a649f6b5a7a11807eca9315963170dlee" data-view-component="true" href="/login?return_to=%2Fpmndrs%2Freact-three-fiber" rel="nofollow">
            <svg aria-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline-block mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
                <path d="M8 .25a.75.75 0 01.673.418l1.882 3.815 4.216.612a.75.75 0 01.416 1.279l-3.046 2.977 19 4.192a.75.75 0 01-1.088.791L12 3.471-3.766 1.98a.75.75 0 01-1.088-.791 72-4.194L8.18 6.374a.75.75 0 01.416-1.281 4.21-.611L7.327.668A.75.75 0 018 .25zm0 2.445L6.615 5.5a.75.75 0 01-.564.411-3.097.45 2.24 2.184a.75.75 0 01.216.664l-.528 3.084 2.769-1.456a.75.75 0 01.698 0 12.77 1.456-.53-3.084a.75.75 0 01.216-.664 12.24-2.183-3.096-.45a.75.75 0 01-.564-.411L8 2.694v.001z" fill-rule="evenodd"></path>
            </svg><span class="d-inline" data-view-component="true">
                Star
            </span>
            <span aria-label="19236 users starred this repository" class="Counter js-social-count" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-singular-suffix="user starred this repository" data-turbo-replace="true" data-view-component="true" id="repo-stars-counter-star" title="19,236">19.2k</span>
        </a>
        <button aria-label="You must be signed in to add this repository to a list" class="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="button">
            <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
                <path d="M4.427 7.427l3.396 3.396a.25.25 0 00.354 0l3.396-3.396A.25.25 0 0011.396 7.427H4.427a.25.25 0 00-.177.427z"></path>
            </svg>
        </button>
    </div>
</div>
</div>
<div>
    <nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
        <ul class="tabnav-tabs" data-view-component="true">
```

```
<li class="d-inline-flex" data-view-component="true">
<a aria-current="true" class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type": "explore.click", "payload": {"click_context": "REPOSITORY_CARD", "click_target": "REPOSITORY", "click_visual_representation": "CODE_TAB", "actor_id": null, "record_id": 172521926, "originating_url": "https://github.com/topics/3d", "user_id": null}}' data-hydro-click-hmac="c203ac49000ad11ab2f38dea653b435072c01d1f070a6f45443393b5a4792afa" data-turbo="false" data-view-component="true" href="/pmndrs/react-three-fiber" id="code-tab-172521926">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 8.13.72 3.72a.75.75 0 11-1.06 1.06L.47 8.53a.75.75 0 010-1.06l4.25-4.25zm6.56 0a.75.75 0 10-1.06 1.06L13.94 8.1-3.72 3.72a.75.75 0 101.06 1.06l4.25-4.25a.75.75 0 00-1.06-1.06l-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code
```

```
</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type": "explore.click", "payload": {"click_context": "REPOSITORY_CARD", "click_target": "REPOSITORY_ISSUES", "click_visual_representation": "ISSUES_TAB", "actor_id": null, "record_id": 172521926, "originating_url": "https://github.com/topics/3d", "user_id": null}}' data-hydro-click-hmac="726bb4814d45355477ec52b57ec5744b9bd1538988d609f13551a6139845684e" data-turbo="false" data-view-component="true" href="/pmndrs/react-three-fiber/issues" id="issues-tab-172521926">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 00 3z"></path><path d="M8 0a8 8 0 100 16A8 8 0 008 0zM1.5 8a6.5 6.5 0 113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues
```

```
</a></li>
<li class="d-inline-flex" data-view-component="true">
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<svg aria-hidden="true" class="octicon octicon-git-pull-request color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M7.177 3.073L9.573.677A.25.25 0 0110 .854v4.792a.25.25 0 01-.427.177L7.177 3.427a.25.25 0 010-.354zM3.75 2.5a.75.75 0 100 1.5.75.75 0 000-1.5zm-2.25.75a2.25 2.25 0 113.222v5.256a2.251 2.251 0 11-1.5 0V5.372A2.25 2.25 0 011.5 3.25zM11 2.5h-1V4h1a1 1 0 011 1v5.628a2.251 2.251 0 010 1.5V5A2.5 2.5 0 0011 2.5zm1 10.25a.75.75 0 111.5 0 1-1.5 0zM3.75 12a.75.75 0 100 1.5.75.75 0 000-1.5z" fill-rule="evenodd"></path>
</svg> Pull requests
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```
</a></li>
<li class="d-inline-flex" data-view-component="true">
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<path d="M1.5 2.75a.25.25 0 01.25-.25h8.5a.25.25 0 01.25.25v5.5a.25.25 0 01-.25.25h-3.5a.75.75 0 00-.53.22L3.5 11.44V9.25a.75.75 0 00-.75-.75h-1a.25.25 0 01-.25-.25v-5.5zM1.75 1A1.75 1.75 0 000 2.75v5.5C0 9.216.784 10 1.75 10H2v1.543a1.457 1.457 0 002.487 1.03L7.061 10h3.189A1.75 1.75 0 0012 8.25v-5.5A1.75 1.75 0 0010.25 1h-8.5zM14.5 4.75a.25.25 0 00-.25-.25h-.5a.75.75 0 110-1.5h.5c.966 0 1.75.784 1.75 1.75v5.5A1.75 1.75 0 0114.25 12H14v1.543a1.457 1.457 0 01-2.487 1.03L9.22 12.28a.75.75 0 111.06-1.06l2.22v-2.19a.75.
```


</nav>
<div class="color-bg-default rounded-bottom-2">
<div class="px-3 pt-3">
<p class="color-fg-muted mb-0"><div><g-emoji alias="switzerland" class="g-emoji" fallback-src="https://github.githubassets.com/images/icons/emoji/unicode/1f1e8-1f1ed.png">CH</g-emoji> A React renderer for Three.js</div></p>
</div>
<div class="d-flex flex-wrap border-bottom color-border-muted px-3 pt-2 pb-2">

 react

 threejs

 animation

 renderer

 fiber

 3d
 </div>
<div class="p-3">
<ul class="d-flex f6 list-style-none color-fg-muted">
<li class="mr-4">
 Updated
 <relative-time class="no-wrap\" datetime="2022-08-24T23:57:08Z">Aug 24, 2022
</relative-time>

<li class="mr-4">


```
<span class="repo-language-color" style="background-color: #3178c6"></span>
<span itemprop="programmingLanguage">TypeScript</span>
</span>
</li>
</ul>
</div>
</div>
</article>
<article class="border rounded color-shadow-small color-bg-subtle my-4">
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</a>
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
<span style="margin-top:2px">
<svg aria-hidden="true" class="octicon octicon-repo color-fg-muted mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.75.75 0 01-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.42 1.145-1.087a.25.25 0 01.3 0L8.6 15.7a.25.25 0 00.4-.2v-3.25a.25.25 0 00-.25-.25h-3.5a.25.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
</span>
<h3 class="f3 color-fg-muted text-normal lh-condensed">
<a data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"OWNER","click_visual_representation":"REPOSITORY_OWNER_HEADER","actor_id":null,"record_id":4855800,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="35041b8540fc503301f61f50122b6ae6d1b78719943ab6392df86920498edb30" data-turbo="false" data-view-component="true" href="/BabylonJS/BabylonJS">
    BabylonJS
</a>
    <a class="text-bold wb-break-word" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representation":"REPOSITORY_NAME_HEADING","actor_id":null,"record_id":11007313,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="2806ba0b1bf7f4081c38662a53b466b7bc022050b5d4fe4108bfab142f5214b41" data-turbo="false" data-view-component="true" href="/BabylonJS/Babylon.js">
    Babylon.js
</a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-s btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type":"authentication.click","payload":{"location_in_page":"star button","repository_id":11007313,"auth_type":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="db3ec3fd6c2c5b4b09ecae978b4e83cf29d34c70237da7c2577492bdafde6923" data-view-component="true" href="/login?return_to=%2FBabylonJS%2FBabylon.js" rel="nofollow"> <svg aria-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline-block mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 .25a.75.75 0 01.673.418l1.882 3.815 4.216.612a.75.75 0 01.416 1.279l-3.046 2.977 19 4.192a.75.75 0 01-1.088.791L8 12.347l-3.766 1.98a.75.75 0 01-1.088-.791l-2.419 4.818 6.374a.75.75 0 01.416-1.281l4.21-.611L7.327 6.68a.75.75 0 01.25zm0 2.445L6.615 5.5a.75.75 0 01-.564.41l-3.097 4.5 2.24 2.184a.75.75 0 01.216.664l-.528 3.084 2.769-1.456a.75.75 0 01.698 0.127 1.456-.53 3.084a.75.75 0 01.216-.664l2.24-2.183-3.096-.45a.75.75 0 01-.564-.41L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
```

Star

```
</span> <span aria-label="18192 users starred this repository" class="Counter js-social-count" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-singular-suffix="user starred this repository" data-turbo-replace="true" data-view-component="true" id="repo-stars-counter-star" title="18,192">18.2k</span>
</a> <button aria-label="You must be signed in to add this repository to a list" class="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="button"> <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.427 7.427l3.396 3.396a.25.25 0 00.354 0l3.396-3.396A.25.25 0 0011.396 7.427l-3.396 3.396a.25.25 0 00-.177.427z"></path>
</svg>
</button></div>
</div>
</div>
</div>
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
<a aria-current="true" class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representation":"CODE_TAB","actor_id":null,"record_id":11007313,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="e5e1d39c1cf16df1bec954b53d8d5415b3d6f94438ae67c7961310053c0a4915" data-turbo="false" data-view-component="true" href="/BabylonJS/Babylon.js" id="code-tab-11007313">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 8.13.72 3.72a.75.75 0 01-1.06 1.06L.47 8.53a.75.75 0 010-1.06l4.25-4.25zm6.56 0a.75.75 0 01-1.06 1.06L13.94 8.13.72 3.72a.75.75 0 011.06 1.06l4.25-4.25a.75.75 0 00-1.06-1.06l-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_ISSUES","click_visual_representation":"ISSUES_TAB","actor_id":null,"record_id":11007313,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="9d455a368b42e21a8176a8f1bf93516260456f0f58523aa538666b81da2050ad" data-turbo="false" data-view-component="true" href="/BabylonJS/Babylon.js/issues" id="issues-tab-11007313">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 00 3z"></path><path d="M8 0a8 8 0 100 16A8 8 0 008 0zM1.5 8a6.5 6.5 0 113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_PULL_REQUESTS","click_visual_representation":"PULL_REQUESTS_TAB","actor_id":null,"record_id":11007313,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="1a0be87922f417512d9c95e999192c1b986873bdf0e78f3c6cf79fe835889c45" data-turbo="false" data-view-component="true" href="/BabylonJS/Babylon.js/pulls" id="pull-requests-tab-11007313">
<svg aria-hidden="true" class="octicon octicon-git-pull-request color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M7.177 3.073L9.573.677A.25.25 0 0110 .854v4.792a.25.25 0 01-.427.177L7.177 3.427a.25.25 0 010-.354zM3.75 2.5a.75.75 0 100 1.5.75.75 0 000-1.5zm-2.25.75a2.25 2.25 0 113 2.122v5.256a2.251 2.251 0 01-1.5 0V5.372A2.25 2.25 0 011.5 3.25zM11 2.5h-1V4h1a1 1 0 011 1v5.628a2.251 2.251 0 010 1.5V5A2.5 2.5 0 0011 2.5zm1 10.25a.75.75 0 011.5 0 01-1.5 0zM3.75 12a.75.75 0 100 1.5.75.75 0 000-1.5z" fill-rule="evenodd"></path>
</svg> Pull requests
```



```
</a></li>
</ul>
</nav>
<div class="color-bg-default rounded-bottom-2">
<div class="px-3 pt-3">
<p class="color-fg-muted mb-0"><div>Babylon.js is a powerful, beautiful, simple, and open game and rendering engine packed into a friendly JavaScript framework.</div></p>
</div>
<div class="d-flex flex-wrap border-bottom color-border-muted px-3 pt-2 pb-2">
<a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":2119,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="d2e607f9d7b25ee5a5f68ce176febce6c2f1236e5bf9ca64fdb5da5a01a19767" data-view-component="true" href="/topics/webgl" title="Topic: webgl">
    webgl
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":7537,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="3ad9ad86d001282422212601ale5756b842eb01e0c354aabb41be937fc84e09" data-view-component="true" href="/topics/typescript" title="Topic: typescript">
    typescript
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":9691,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="094187bd578b0af2ca4ddce2dee5c56d24f949bd1f64166f94567416c247a61c" data-view-component="true" href="/topics/game-engine" title="Topic: game-engine">
    game-engine
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":13255,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="bda371a5aa3dda868843505b5a28de34a11f9ffefale78ab23bda618e3b47cde" data-view-component="true" href="/topics/webvr" title="Topic: webvr">
    webvr
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":17135,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="97ebb0c4cebe425821647eff3f7686beaf57bc04e57bf7f5c65a193c70d10824" data-view-component="true" href="/topics/game-development" title="Topic: game-development">
    game-development
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":22694,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="927129dc1f55047771c171780cacedaf87358ae04349fb7513fe535114891375" data-view-component="true" href="/topics/webaudio" title="Topic: webaudio">
    webaudio
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":23054,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="32ec1742edd80215f9fd1c622975699dfef3d5a6b6b4ef1c10b10cc60bfb1b1" data-view-component="true" href="/topics/babylon" title="Topic: babylon">
    babylon
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":177465,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="cf61b63494249752f0321b2eccd33ed2bcf9ca557f15ed9efcd28b7992d76571" data-view-component="true" href="/topics/webgl2" title="Topic: webgl2">
    webgl2
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":177465,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="cf61b63494249752f0321b2eccd33ed2bcf9ca557f15ed9efcd28b7992d76571" data-view-component="true" href="/topics/webgl2" title="Topic: webgl2">
```

```
e.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":189572,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="bb8c241747b75aee4ec4b0992f64e02460eb10d5b0f7e16a77f9d886069bdd8b" data-view-component="true" href="/topics/game-engine-3d" title="Topic: game-engine-3d">
    game-engine-3d
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":238400,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="028a08f740516273aa7f05a2f5db3c450593017549ffa99920f497664d796dbe" data-view-component="true" href="/topics/3d" title="Topic: 3d">
    3d
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":353880,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="395c436d2736ec9d5a79c790c2dd0221e3f58fc0cd466345ceed230d8b22f23e" data-view-component="true" href="/topics/webgpu" title="Topic: webgpu">
    webgpu
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":571668,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="8e774c5aba5347fe9bbfc3b57e647cd08049698eee18b701801a0e351990b17f" data-view-component="true" href="/topics/webxr" title="Topic: webxr">
    webxr
</a> </div>
<div class="p-3">
<ul class="d-flex f6 list-style-none color-fg-muted">
<li class="mr-4">
    Updated
    <relative-time class="no-wrap" datetime="2022-08-25T07:46:12Z">Aug 25, 2022
</relative-time>
</li>
<li class="mr-4">
<span class="f6 my-1 ml-0">
<span class="repo-language-color" style="background-color: #3178c6"></span>
<span itemprop="programmingLanguage">TypeScript</span>
</span>
</li>
</ul>
</div>
</div>
</article>
<article class="border rounded color-shadow-small color-bg-subtle my-4">
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
<span style="margin-top:2px">
<svg aria-hidden="true" class="octicon octicon-repo color-fg-muted mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.75.75 0 110-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.4.25h-3.25a.25.25 0 00-.25-.25h-3.5a.25.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
</span>
<h3 class="f3 color-fg-muted text-normal lh-condensed">
<a data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"OWNER","click_visual_representation":"REPOSITORY_OWNER_HEADER","actor_id":null,"record_id":1029298,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="35cf14368807d0a0abce48667cf2c0778c4e44ceeb4edde9a860e17a9efe6443" data-turbo="false" data-view-component="true" href="/ssloy">
    ssloy
```

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</a>
    <a class="text-bold wb-break-word" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representation":"REPOSITORY_NAME_HEADING","actor_id":null,"record_id":29397594,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="b27b44faaea7b496d3a92fd58b20e39b4306098a16dc535f3a74969bd25fc472" data-turbo=">false" data-view-component="true" href="/ssloy/tinyrenderer">
        tinyrenderer
</a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-s btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type":"authentication.click","payload":{"location_in_page":"star button","repository_id":29397594,"auth_type":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="b6ccaaf002bed7807f6bfb4d2b8d8340e26b867ed8b263a5a3062559b8a34182" data-view-component="true" href="/login?return_to=%2Fssloy%2Ftinyrenderer" rel="nofollow"> <svg aria-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline-block mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 .25a.75.75 0 0 1.673.418l1.882 3.815 4.216.612a.75.75 0 0 1.416 1.279l-3.046 2.977 19 4.192a.75.75 0 0 1-1.088.791L12 3.471-3.766 1.98a.75.75 0 0 1-1.088-.791l2-4.194L8.818 6.374a.75.75 0 0 1.416-1.281l4.21-.611L7.327 6.668a.75.75 0 0 1.25 0 2.445L6.615 5.5a.75.75 0 0 1-.564.411-3.097.45 2.24 2.184a.75.75 0 0 1.216.664l-.528 3.084 2.769-1.456a.75.75 0 0 1.698 0 12.77 1.456-.53-3.084a.75.75 0 0 1.216-.664l2.24-2.183-3.096-.45a.75.75 0 0 1-.564-.411L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
    Star
</span> <span aria-label="14495 users starred this repository" class="Counter js-social-count" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-singular-suffix="user starred this repository" data-turbo-replace="true" data-view-component="true" id="repo-stars-counter-star" title="14,495">14.5k</span>
</a> <button aria-label="You must be signed in to add this repository to a list" class="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="button"> <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.427 7.427l3.396 3.396a.25.25 0 0 0.354 0 13.396-3.396A.25.25 0 0 11.396 7.427H4.427a.25.25 0 0 0-.177.427z"></path>
</svg>
</button></div>
</div>
</div>
</div>
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
<a aria-current="true" class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representation":"CODE_TAB","actor_id":null,"record_id":29397594,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="a207e5f10c69a2ac07fd473b4e5984ba6cfb9b1b95b6af3658585eb3873b82a6" data-turbo=">false" data-view-component="true" href="/ssloy/tinyrenderer" id="code-tab-29397594">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.72 3.22a.75.75 0 0 11.06 1.06L2.06 8.13 7.2 3.72a.75.75 0 0 11-1.06 1.06L4.7 8.53a.75.75 0 0 10-1.06l4.25-4.25zm6.56 0a.75.75 0 0 10-1.06 1.06L13.94 8.13 7.2 3.72 3.72a.75.75 0 0 10.06 1.06l4.25-4.25a.75.75 0 0 00-1.06l-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code
</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_ISSUES","click_visual_representation":"ISSUES_TAB","actor_id":null,"record_id":29397594,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="e7d1654806273e96f52
```

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7a294dcdcf8689ad296b054815262eea5a67a0b0d0db8b" data-turbo="false" data-view-component="true" href="/ssloy/tinyrenderer/issues" id="issues-tab-29397594">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 000 3z"></path><path d="M8 0a8 8 0 100 16A8 8 0 008 0zM1.5 8a6.5 6.5 0 1113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_PULL_REQUESTS","click_visual_representation":"PULL_REQUESTS_TAB","actor_id":null,"record_id":29397594,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="df67f41bee471289c9d1bf84315b27726a716fc86719a22d071497effcc1e5bc" data-turbo="false" data-view-component="true" href="/ssloy/tinyrenderer/pulls" id="pull-requests-tab-29397594">
<svg aria-hidden="true" class="octicon octicon-git-pull-request color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M7.177 3.073L9.573.677A2.25 2.25 0 0110 .854v4.792a2.25 2.25 0 01-.427 1.777L7.177 3.427a2.25 2.25 0 010-.354zM3.75 2.5a2.75 2.75 0 100 1.5 2.75 2.75 0 000-1.5zM2.25 2.25 2.25 0 113 2.122v5.256a2.25 2.25 0 11-1.5 0V5.372A2.25 2.25 0 011.5 3.25zM11 2.5h-1V4h1a1 1 0 011 1v5.628a2.25 2.25 0 101.5 0V5A2.5 2.5 0 0011 2.5zm1 10.25a2.75 2.75 0 111.5 0 2.75 2.75 0 000-1.5zM3.75 12a2.75 2.75 0 100 1.5 2.75 2.75 0 000-1.5z" fill-rule="evenodd"></path>
</svg> Pull requests

</a></li>
</ul>
</nav>
<div class="color-bg-default rounded-bottom-2">
<div class="px-3 pt-3">
<p class="color-fg-muted mb-0"><div>A brief computer graphics / rendering course</div></p>
</div>
<div class="d-flex flex-wrap border-bottom color-border-muted px-3 pt-2 pb-2">
<a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":365,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="299965c1e09b0b7cb7cd57cade434e25ecb923c7c461caad11867add1a56e160" data-view-component="true" href="/topics/learning" title="Topic: learning">
    learning
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":658,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="839a6eeb2274c8da68dbc0d261e541da47bfcd8ff2930932df94162f9346b88b" data-view-component="true" href="/topics/c-plus-plus" title="Topic: c-plus-plus">
    c-plus-plus
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":871,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="4c3b6a31c7994583b64df16a162f53a001392e5c6e5468468971692f37f8655b" data-view-component="true" href="/topics/fun" title="Topic: fun">
    fun
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":7510,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="bb926a56e33f7407a42b2989b18d5f8f81d4f0a05545677c372edc3e1b2d83c3" data-view-component="true" href="/topics/tutorial" title="Topic: tutorial">
    tutorial
</a><a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visu
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opengl

cpp

shaders

picture

graphics

software-rendering

engine

rendering

images
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```
computer-graphics" title="Topic: computer-graphics">
  computer-graphics
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\":\"explor
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s://github.com/topics/3d\",\"user_id\":null}}\" data-hydro-click-hmac=\"89e434f95497e9bf76d00
6856aab9a5441a4ed915a2802fbb233f550f57e574d\" data-view-component=\"true\" href=\"/topics/pi
xels\" title="Topic: pixels">
  pixels
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\":\"explor
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s://github.com/topics/3d\",\"user_id\":null}}\" data-hydro-click-hmac=\"b146dfc000f8bcdcbba5f5
e0d94d1d9a9795a25d7c2d34b57a7bcce6a548f8287\" data-view-component=\"true\" href=\"/topics/ra
sterizer\" title="Topic: rasterizer">
  rasterizer
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\":\"explor
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s://github.com/topics/3d\",\"user_id\":null}}\" data-hydro-click-hmac=\"0930a4053471d66210ada
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ndering-engine\" title="Topic: rendering-engine">
  rendering-engine
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\":\"explor
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ps://github.com/topics/3d\",\"user_id\":null}}\" data-hydro-click-hmac=\"d4e834e6568188e5d4fe
8688a386dce368301f1081de78ecff1f848d2713c25\" data-view-component=\"true\" href=\"/topics/r
endering-pipeline\" title="Topic: rendering-pipeline">
  rendering-pipeline
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ps://github.com/topics/3d\",\"user_id\":null}}\" data-hydro-click-hmac=\"028a08f740516273aa7f
05a2f5db3c450593017549ffa99920f497664d796dbe\" data-view-component=\"true\" href=\"/topics/3
d\" title="Topic: 3d">
  3d
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\":\"explor
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ps://github.com/topics/3d\",\"user_id\":null}}\" data-hydro-click-hmac=\"067a48a3f9f47e9a40ea
c965cb487150f6316888b370986da8f3c036fd4cd028\" data-view-component=\"true\" href=\"/topics/3
d-graphics\" title="Topic: 3d-graphics">
  3d-graphics
</a> </div>
<div class="p-3">
<ul class="d-flex f6 list-style-none color-fg-muted">
<li class="mr-4">
  Updated
  <relative-time class="no-wrap" datetime="2022-07-23T05:29:08Z">Jul 23, 2022
</relative-time>
</li>
<li class="mr-4">
<span class="f6 my-1 ml-0">
<span class="repo-language-color" style="background-color: #f34b7d"></span>
<span itemprop="programmingLanguage">C++</span>
</span>
</li>
</ul>
</div>
</div>
</article>
<article class="border rounded color-shadow-small color-bg-subtle my-4">
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
```

```
<span style="margin-top:2px">
<svg aria-hidden="true" class="octicon octicon-repo color-fg-muted mr-2" data-view-compo
nent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.7
5.75 0 110-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5
v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.4.2
1.45-1.087a.25.25 0 01.3 0L8.6 15.7a.25.25 0 00.4-.2v-3.25a.25.25 0 00-.25-.25h-3.5a.2
5.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
</span>
<h3 class="f3 color-fg-muted text-normal lh-condensed">
<a data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITOR
Y_CARD","click_target":"OWNER","click_visual_representation":"REPOSITORY_OWNER_HEADIN
G","actor_id":null,"record_id":16024092,"originating_url":"https://github.com/topics/3
d","user_id":null}}' data-hydro-click-hmac="b3db1ab47cddd377d61855a33924676044d55c8724ce
9233f202e64b2a59e40e" data-turbo="false" data-view-component="true" href="/aframevr">
aframevr
</a>
/
<a class="text-bold wb-break-word" data-hydro-click='{"event_type":"explore.cl
ick","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_vis
ual_representation":"REPOSITORY_NAME_HEADING","actor_id":null,"record_id":42488903,"orig
inating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="1e9
7be781c78a538510c9e0a7eb97d3d14666ccab0fce09440cf2ef4f543317a" data-turbo="false" data-v
iew-component="true" href="/aframevr/aframe">
aframe
</a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-
s btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type":"authenticat
ion.click","payload":{"location_in_page":"star button","repository_id":42488903,"auth_t
ype":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-hy
dro-click-hmac="a8c4f99905cfbde49af80da42191e760a64450a70c4051138ae495ab044de6e1" data-v
iew-component="true" href="/login?return_to=%2Faframevr%2Faframe" rel="nofollow"> <svg a
ria-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline-block mr-2" d
ata-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 .25a.75.75 0 01.673.418l1.882 3.815 4.21.612a.75.75 0 01.416 1.279l-3.046 2.
97.719 4.192a.75.75 0 01-1.088.791L8 12.347l-3.766 1.98a.75.75 0 01-1.088-.791.72-4.194
L.818 6.374a.75.75 0 01.416-1.281.4.21-.611L7.327.668A.75.75 0 018 .25zm0 2.445L6.615 5.5
a.75.75 0 01-.564.411-3.097.45 2.24 2.184a.75.75 0 01.216.664l-.528 3.084 2.769-1.456a.7
5.75 0 01.698 0.12.77 1.456-.53-3.084a.75.75 0 01.216-.664l2.24-2.183-3.096-.45a.75.75 0
01-.564-.41L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
Star
</span> <span aria-label="14467 users starred this repository" class="Counter js-social-
count" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-
singular-suffix="user starred this repository" data-turbo-replace="true" data-view-compo
nent="true" id="repo-stars-counter-star" title="14,467">14.5k</span>
</a> <button aria-label="You must be signed in to add this repository to a list" class
="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="bu
tton"> <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component
="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.427 7.427l3.396 3.396a.25.25 0 00.354 0l3.396-3.396A.25.25 0 0011.396 7H4.60
4a.25.25 0 00-.177.427z"></path>
</svg>
</button></div>
</div>
</div>
</div>
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
<a aria-current="true" class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_typ
e":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITO
RY","click_visual_representation":"CODE_TAB","actor_id":null,"record_id":42488903,"origi
```

```
nating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="c0e2ae27139ef650de51b10a780577fae90a40c34731aff987ae8e56addf7c90" data-turbo="false" data-view-component="true" href="/aframevr/aframe" id="code-tab-42488903">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 8.13.72 3.72a.75.75 0 11-1.06 1.06L.47 8.53a.75.75 0 010-1.06L4.25-4.25zm6.56 0a.75.75 0 10-1.06 1.06L13.94 8.1-3.72 3.72a.75.75 0 101.06 1.06L4.25-4.25a.75.75 0 00-1.06-1.06L-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code
```

```
</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_ISSUES","click_visual_representation":"ISSUES_TAB","actor_id":null,"record_id":42488903,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="e3b6c60ce8282f61b9bec430814e676c864b8876a535479a402b2611556c82f0" data-turbo="false" data-view-component="true" href="/aframevr/aframe/issues" id="issues-tab-42488903">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 00 3z"></path><path d="M8 0a8 8 0 100 16A8 8 0 008 0zM1.5 8a6.5 6.5 0 113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues
```

```
</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_PULL_REQUESTS","click_visual_representation":"PULL_REQUESTS_TAB","actor_id":null,"record_id":42488903,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="4cced9374f41f5b401b5e323bf988328653709ec2fb2667ccb986696da95431c" data-turbo="false" data-view-component="true" href="/aframevr/aframe/pulls" id="pull-requests-tab-42488903">
<svg aria-hidden="true" class="octicon octicon-git-pull-request color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M7.177 3.073L9.573.677A2.25.25 0 0110 .854v4.792a2.25.25 0 01-.427.177L7.177 3.427a2.25.25 0 010-.354zM3.75 2.5a.75.75 0 100 1.5.75.75 0 00-1.5zm-2.25.75a2.25 2.25 0 113 2.122v5.256a2.251 2.251 0 11-1.5 0V5.372A2.25 2.25 0 011.5 3.25zM11 2.5h-1V4h1a1 1 0 011 1v5.628a2.251 2.251 0 010 1.5V5A2.5 2.5 0 0011 2.5zm1 10.25a.75.75 0 111.5 0 1.5 0 01-1.5 0zM3.75 12a.75.75 0 100 1.5.75.75 0 00-1.5z" fill-rule="evenodd"></path>
</svg> Pull requests
```

```
</a></li>
</ul>
</nav>
<div class="color-bg-default rounded-bottom-2">
<div class="px-3 pt-3">
<p class="color-fg-muted mb-0"><div><g-emoji alias="a" class="g-emoji" fallback-src="https://github.githubassets.com/images/icons/emoji/unicode/1f170.png">🔗</g-emoji> web framework for building virtual reality experiences.</div></p>
</div>
<div class="d-flex flex-wrap border-bottom color-border-muted px-3 pt-2 pb-2">
<a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":203,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="f525ea5f52b2e439dab9a3dc7cff6e7622aa2b7a26f82bf10d8ddcc250ce6402" data-view-component="true" href="/topics/html" title="Topic: html">
html
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":2120,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="7ac60336afb502388a7b4d9d01d780620c0532c7cb9a549e5ef23f06607aa3b8" data-view-component="true" href="/topics/th
```



```
reejs" title="Topic: threejs">
    threejs
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="094187bd578b0af2ca4dd
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me-engine" title="Topic: game-engine">
    game-engine
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="2aa841c249722918446bf
8d4bb58980892b3af4a53a14e243a2f52a7a3a2bf6d" data-view-component="true" href="/topics/v
r" title="Topic: vr">
    vr
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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al_representation":"TOPIC_TAG","actor_id":null,"record_id":13255,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="bda371a5aa3dda8688435
05b5a28de34a11f9ffefale78ab23bda618e3b47cde" data-view-component="true" href="/topics/we
bvr" title="Topic: webvr">
    webvr
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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al_representation":"TOPIC_TAG","actor_id":null,"record_id":13263,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="4ea265920e7b46b8b6e5e
0a31714f9cbe06ac8eeeedad9794d64eb3f067ee6d9" data-view-component="true" href="/topics/vi
rtualreality" title="Topic: virtualreality">
    virtualreality
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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al_representation":"TOPIC_TAG","actor_id":null,"record_id":13391,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="80f118377f299ae8d9c80
867583a03e827188d9e5c9eb843ebaa9063c5f8e232" data-view-component="true" href="/topics/vi
ve" title="Topic: vive">
    vive
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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al_representation":"TOPIC_TAG","actor_id":null,"record_id":13438,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="5ff6f22b856b3dd5bed33
0bab01f9e7493f8826913653fb84dlab116e91497e0" data-view-component="true" href="/topics/oc
ulus" title="Topic: oculus">
    oculus
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
e.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visu
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s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="7a369a5d63d489995ef71
c54ad5165d454a15b74c3ab570836cc5000b2328500" data-view-component="true" href="/topics/ri
ft" title="Topic: rift">
    rift
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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al_representation":"TOPIC_TAG","actor_id":null,"record_id":22501,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="ae95ca2961478e4262f69
4a41249b1be0a260b10aaf273739aa83af613706e59" data-view-component="true" href="/topics/ec
s" title="Topic: ecs">
    ecs
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s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="7d018575d507bf2ace0f4
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rame" title="Topic: aframe">
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e.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":28032,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="ea85696e8aa0a67c81a141f30c695d159fc4481d2d6f4f600b8e98fc46139f77" data-view-component="true" href="/topics/virtual-reality" title="Topic: virtual-reality">
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    daydream
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    3d
</a> </div>
<div class="p-3">
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</relative-time>
</li>
<li class="mr-4">
<span class="f6 my-1 ml-0">
<span class="repo-language-color" style="background-color: #f1e05a"></span>
<span itemprop="programmingLanguage">JavaScript</span>
</span>
</li>
</ul>
</div>
</div>
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</a>
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
<span style="margin-top:2px">
<svg aria-hidden="true" class="octicon octicon-repo color-fg-muted mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
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</svg>
</span>
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G","actor_id":null,"record_id":1661343,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="92e006e158e11505867ec48dd3b1f9f2e0a12e03556d650ac6163f635b6018db" data-turbo="false" data-view-component="true" href="/lettier">
    lettier
</a>
    <a class="text-bold wb-break-word" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representation":"REPOSITORY_NAME_HEADING","actor_id":null,"record_id":186309296,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="632d2fdc55d44af08fele943134b255567a5fc78d44f267f13687602afc3c8f4" data-turbo="false" data-view-component="true" href="/lettier/3d-game-shaders-for-beginners">
        3d-game-shaders-for-beginners
</a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-s btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type":"authentication.click","payload":{"location_in_page":"star button","repository_id":186309296,"auth_type":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="15204eb9e4692dbc57588cc1557e7af26de96cf29748c9487aea6c0509c74bb8" data-view-component="true" href="/login?return_to=%2Flettier%2F3d-game-shaders-for-beginners" rel="nofollow"> <svg aria-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline-block mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 .25a.75.75 0 01.673.418l1.882 3.815 4.216.612a.75.75 0 01.416 1.279l-3.046 2.977 4.192a.75.75 0 01-1.088.791L8 12.347l-3.766 1.98a.75.75 0 01-1.088-.791l-2.419 4.818 6.374a.75.75 0 01.416-1.281l2.121-.611L7.327.668a.75.75 0 018 .25zm0 2.445L6.615 5.5a.75.75 0 01-.564.411l-3.097.45 2.24 2.184a.75.75 0 01.216.664l-.528 3.084 2.769-1.456a.75.75 0 01.698 .127 1.456-.53 3.084a.75.75 0 01.216-.664l2.24-2.183-3.096-.45a.75.75 0 01-.564-.411L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
    Star
</span> <span aria-label="13551 users starred this repository" class="Counter js-social-count" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-singular-suffix="user starred this repository" data-turbo-replace="true" data-view-component="true" id="repo-stars-counter-star" title="13,551">13.6k</span>
</a> <button aria-label="You must be signed in to add this repository to a list" class="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="button"> <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.427 7.427l3.396 3.396a.25.25 0 00.354 0l3.396-3.396A.25.25 0 0011.396 7H4.604a.25.25 0 00-.177.427z"></path>
</svg>
</button></div>
</div>
</div>
</div>
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
<a aria-current="true" class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representation":"CODE_TAB","actor_id":null,"record_id":186309296,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="7629eae6bfa79bb248e7ef1b803cd431b97f350631db4a467b56e82323bc8891" data-turbo="false" data-view-component="true" href="/lettier/3d-game-shaders-for-beginners" id="code-tab-186309296">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 8.13 7.2 3.72a.75.75 0 011.06 1.06L4.7 8.53a.75.75 0 010-1.06l4.25-4.25zm6.56 0a.75.75 0 010-1.06 1.06L13.94 8.13 7.2 3.72 3.72a.75.75 0 010-1.06 1.06l4.25-4.25a.75.75 0 000-1.06l-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code
```



```
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\": \"explor
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s://github.com/topics/3d\", \"user_id\": null}}\" data-hydro-click-hmac=\"31033761b251a70c82660
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ity\" title=\"Topic: unity">
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</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\": \"explor
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s://github.com/topics/3d\", \"user_id\": null}}\" data-hydro-click-hmac=\"713b91119201bf0ba3810
268d6c51302839f93cc633e66c4148461b70cb0fa5d\" data-view-component=\"true\" href=\"/topics/sh
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s://github.com/topics/3d\", \"user_id\": null}}\" data-hydro-click-hmac=\"2b668f0139bfddf34bc3d
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aphics\" title=\"Topic: graphics">
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s://github.com/topics/3d\", \"user_id\": null}}\" data-hydro-click-hmac=\"c5d5d2b57d6ed1bfef4cc
490d0f653cb1895f760fa23c852a283025af7d75024\" data-view-component=\"true\" href=\"/topics/vu
lkan\" title=\"Topic: vulkan">
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s://github.com/topics/3d\", \"user_id\": null}}\" data-hydro-click-hmac=\"97ebb0c4cebe425821647
eff3f7686beaf57bc04e57bf7f5c65a193c70d10824\" data-view-component=\"true\" href=\"/topics/ga
me-development\" title=\"Topic: game-development">
    game-development
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s://github.com/topics/3d\", \"user_id\": null}}\" data-hydro-click-hmac=\"6d8fc8db3b906bc8c5105
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sl\" title=\"Topic: glsl">
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s://github.com/topics/3d\", \"user_id\": null}}\" data-hydro-click-hmac=\"5545a171f73850cf9473e
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ader\" title=\"Topic: shader">
    shader
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\": \"explor
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al_representation\": \"TOPIC_TAG\", \"actor_id\": null, \"record_id\": 20864, \"originating_url\": \"http
s://github.com/topics/3d\", \"user_id\": null}}\" data-hydro-click-hmac=\"0e82f07de2e9edee2c305
4e640421ddff5c84fcaa3a3aca89aeed20dc0d067a1\" data-view-component=\"true\" href=\"/topics/un
ity3d\" title=\"Topic: unity3d">
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s://github.com/topics/3d\", \"user_id\": null}}\" data-hydro-click-hmac=\"9046766bdf8b2a2a74c23
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dot\" title=\"Topic: godot">
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al_representation\": \"TOPIC_TAG\", \"actor_id\": null, \"record_id\": 50434, \"originating_url\": \"http
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s://github.com/topics/3d", "user_id": null}}' data-hydro-click-hmac="39f5d302642f5b5ca557e1ab17487f3f2d358f56851150e19ef6f3d285e4391c" data-view-component="true" href="/topics/graphics-programming" title="Topic: graphics-programming">
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s://github.com/topics/3d", "user_id": null}}' data-hydro-click-hmac="e83c68e19bfaf5aad98c5f7b5b8aa26818f779a3ebadefc1c8eb6e179e1edc63" data-view-component="true" href="/topics/hl
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ps://github.com/topics/3d", "user_id": null}}' data-hydro-click-hmac="b3da6ca16e8c996cf83afd532f5e1f7377e5884f4690ab2d52756bad16c77b46" data-view-component="true" href="/topics/g
lsl-shader" title="Topic: glsl-shader">
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d" title="Topic: 3d">
  3d
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  3d-graphics
</a> </div>
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  Updated
  <relative-time class="no-wrap" datetime="2022-01-30T20:43:26Z">Jan 30, 2022
</relative-time>
</li>
<li class="mr-4">
<span class="f6 my-1 ml-0">
<span class="repo-language-color" style="background-color: #f34b7d"></span>
<span itemprop="programmingLanguage">C++</span>
</span>
```

```
</li>
</ul>
</div>
</div>
</article>
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<div class="d-flex flex-auto">
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5.75 0 110-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5
v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.4.2
11.45-1.087a.25.25 0 01.3 0L8.6 15.7a.25.25 0 00.4-.2v-3.25a.25.25 0 00-.25-.25h-3.5a.2
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d","user_id":null}}' data-hydro-click-hmac="a27e82740ebd440eb8aec51759f134d74f147b9f07c9
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FreeCAD
</a>
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ual_representation":"REPOSITORY_NAME_HEADING","actor_id":null,"record_id":5736080,"origi
nating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="f409
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ew-component="true" href="/FreeCAD/FreeCAD">
FreeCAD
</a> </h3>
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<div class="d-flex flex-items-center ml-3">
<a aria-label="Sponsor @FreeCAD" class="btn btn-sm mr-2" data-hydro-click='{"event_typ
e":"sponsors.button_click","payload":{"button":"TOPIC_PAGE_SPONSOR","sponsorable_logi
n":"FreeCAD","originating_url":"https://github.com/topics/3d","user_id":null}}' data-hyd
ro-click-hmac="17e7fd4cab0787da0a2af4a9f0debe5abbdd55b4c7ee5361ad0e26ff3b8a5214" data-vi
ew-component="true" href="/sponsors/FreeCAD">
<svg aria-hidden="true" class="octicon octicon-heart icon-sponsor mr-1 v-align-middle co
lor-fg-sponsors anim-pulse-in" data-view-component="true" height="16" version="1.1" view
box="0 0 16 16" width="16">
<path d="M4.25 2.5c-1.336 0-2.75 1.164-2.75 3 0 2.15 1.58 4.144 3.365 5.682A20.565 20.56
5 0 008 13.393a20.561 20.561 0 003.135-2.211C12.92 9.644 14.5 7.65 14.5 5.5c0-1.836-1.41
4-3-2.75-3-1.373 0-2.609.986-3.029 2.456a.75.75 0 01-1.442 0C6.859 3.486 5.623 2.5 4.25
2.5zM8 14.25l-.345.666-.002-.001-.006-.003-.018-.01a7.643 7.643 0 01-.31-.17 22.075 22.
075 0 01-3.434-2.414C2.045 10.731 0 8.35 0 5.5 0 2.836 2.086 1 4.25 1 5.797 1 7.153 1.80
2 8 3.02 8.847 1.802 10.203 1 11.75 1 13.914 1 16 2.836 16 5.5c0 2.85-2.045 5.231-3.885
6.818a22.08 22.08 0 01-3.744 2.584l-.018.01-.006.003h-.002L8 14.25zm0 01.345.666a.752.7
52 0 01-.69 0L8 14.25z" fill-rule="evenodd"></path>
</svg>
<span class="v-align-middle">Sponsor</span>
</a>
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-
s btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type":"authentica
tion.click","payload":{"location_in_page":"star button","repository_id":5736080,"auth_ty
pe":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-hyd
ro-click-hmac="c0644dde27234fde0d56cfef710f244390f742f212de6e403b3a9205cebcabf2" data-vi
ew-component="true" href="/login?return_to=%2FFreeCAD%2FFreeCAD" rel="nofollow"> <svg ar
ia-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline-block mr-2" da
ta-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 .25a.75.75 0 01.673.418l1.882 3.815 4.21.612a.75.75 0 01.416 1.279l-3.046 2.
```

```
97.719 4.192a.75.75 0 01-1.088.791L8 12.3471-3.766 1.98a.75.75 0 01-1.088-.791.72-4.194
L.818 6.374a.75.75 0 01.416-1.2814.21-.611L7.327.668A.75.75 0 018 .25zm0 2.445L6.615 5.5
a.75.75 0 01-.564.411-3.097.45 2.24 2.184a.75.75 0 01.216.6641-.528 3.084 2.769-1.456a.7
5.75 0 01.698 012.77 1.456-.53-3.084a.75.75 0 01.216-.66412.24-2.183-3.096-.45a.75.75 0
01-.564-.41L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
  Star
</span> <span aria-label="11998 users starred this repository" class="Counter js-social-
count" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-
singular-suffix="user starred this repository" data-turbo-replace="true" data-view-compo
nent="true" id="repo-stars-counter-star" title="11,998">12k</span>
</a> <button aria-label="You must be signed in to add this repository to a list" class
="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="bu
tton"> <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component
="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.427 7.427l3.396 3.396a.25.25 0 00.354 0l3.396-3.396A.25.25 0 0011.396 7H4.60
4a.25.25 0 00-.177.427z"></path>
</svg>
</button></div>
</div>
</div>
</div>
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
<a aria-current="true" class="tabnav-tab f6 px-2 py-1" data-hydro-click='{ "event_typ
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RY", "click_visual_representation": "CODE_TAB", "actor_id": null, "record_id": 5736080, "origin
ating_url": "https://github.com/topics/3d", "user_id": null } }' data-hydro-click-hmac="2cc0c
27fa45e3522b8d84d03b20a7549bf49fdca5a37951e0e0a7fc1d49418eb" data-turbo="false" data-vie
w-component="true" href="/FreeCAD/FreeCAD" id="code-tab-5736080">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-componen
t="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 8l3.72 3.72a.75.75 0 11-1.06 1.06L.47 8.53
a.75.75 0 010-1.06l4.25-4.25zm6.56 0a.75.75 0 10-1.06 1.06L13.94 8l-3.72 3.72a.75.75 0 1
01.06 1.06l4.25-4.25a.75.75 0 00-1.061-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{ "event_type": "explore.click", "payl
oad": { "click_context": "REPOSITORY_CARD", "click_target": "REPOSITORY_ISSUES", "click_visual
_representation": "ISSUES_TAB", "actor_id": null, "record_id": 5736080, "originating_url": "htt
ps://github.com/topics/3d", "user_id": null } }' data-hydro-click-hmac="cd4f50elf9431f699405
7fb9d51086a2de3a21637d69d544728910256926b4e9" data-turbo="false" data-view-component="tr
ue" href="/FreeCAD/FreeCAD/issues" id="issues-tab-5736080">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-co
mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 00 3z"></path><path d="M8 0a8 8 0 100 16A8 8
0 008 0zM1.5 8a6.5 6.5 0 1113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{ "event_type": "explore.click", "payl
oad": { "click_context": "REPOSITORY_CARD", "click_target": "REPOSITORY_PULL_REQUESTS", "click
_visual_representation": "PULL_REQUESTS_TAB", "actor_id": null, "record_id": 5736080, "origina
ting_url": "https://github.com/topics/3d", "user_id": null } }' data-hydro-click-hmac="ed694f
525d0c5a29146dca495c28e2ce240aefc16a693ec4fe6b5af8c88d7690" data-turbo="false" data-vie
w-component="true" href="/FreeCAD/FreeCAD/pulls" id="pull-requests-tab-5736080">
<svg aria-hidden="true" class="octicon octicon-git-pull-request color-fg-muted" data-vie
w-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M7.177 3.073L9.573.677A.25.25 0 0110 .854v4.792a.25.25 0 01-.427.177L7.177 3.42
7a.25.25 0 010-.354zM3.75 2.5a.75.75 0 100 1.5.75.75 0 00-1.5zm-2.25.75a2.25 2.25 0 113
```



```
2.122v5.256a2.251 2.251 0 11-1.5 0V5.372A2.25 2.25 0 011.5 3.25zM11 2.5h-1V4h1a1 1 0 01
1 1v5.628a2.251 2.251 0 101.5 0V5A2.5 2.5 0 0011 2.5zm1 10.25a.75.75 0 111.5 0 .75.75 0
01-1.5 0zM3.75 12a.75.75 0 100 1.5.75.75 0 000-1.5z" fill-rule="evenodd"></path>
</svg> Pull requests

</a></li>
</ul>
</nav>
<div class="color-bg-default rounded-bottom-2">
<div class="px-3 pt-3">
<p class="color-fg-muted mb-0"><div>This is the official source code of FreeCAD, a free
and opensource multiplatform 3D parametric modeler.</div></p>
</div>
<div class="d-flex flex-wrap border-bottom color-border-muted px-3 pt-2 pb-2">
<a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.cli
ck","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_re
presentation":"TOPIC_TAG","actor_id":null,"record_id":198,"originating_url":"https://git
hub.com/topics/3d","user_id":null}}' data-hydro-click-hmac="4401c780d23c889b9c76f45497f9
70453541d4a81d69592220d29292a9c84fe3" data-view-component="true" href="/topics/windows"
title="Topic: windows">
    windows
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
e.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click visu
al_representation":"TOPIC_TAG","actor_id":null,"record_id":200,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="bafae3445ec7531a94b91
fa467812f2418f9bfe23ec640e316c25bf4621e00e5" data-view-component="true" href="/topics/li
nux" title="Topic: linux">
    linux
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
e.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click visu
al_representation":"TOPIC_TAG","actor_id":null,"record_id":741,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="25c37d63221a5527581dd
b34f41eeb6dd921fa6a57ea9be274015d63de99ebc0" data-view-component="true" href="/topics/en
gineering" title="Topic: engineering">
    engineering
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
e.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click visu
al_representation":"TOPIC_TAG","actor_id":null,"record_id":13502,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="4a55fcffc472ed17d03c7
e2a8783e7e51c71d3bc6b3067660b43a07e589b3491" data-view-component="true" href="/topics/ar
chitecture" title="Topic: architecture">
    architecture
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
e.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click visu
al_representation":"TOPIC_TAG","actor_id":null,"record_id":23544,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="65d4192fe8a3163c00615
c9356d501fb040d6b1d43ab20a549dfa5478ed1f878" data-view-component="true" href="/topics/ca
d" title="Topic: cad">
    cad
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
e.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click visu
al_representation":"TOPIC_TAG","actor_id":null,"record_id":73563,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="7aa0c9540530c6d803e4d
e6cad680e9bb08eb4af3a56bc6b98aed0bb889a7fc4" data-view-component="true" href="/topics/ma
c-osx" title="Topic: mac-osx">
    mac-osx
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
e.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click visu
al_representation":"TOPIC_TAG","actor_id":null,"record_id":84413,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="a8e0d2c46435b99073c1d
e05ed24254487808c356c6225c7b83c90e859eb9f17" data-view-component="true" href="/topics/fe
m" title="Topic: fem">
    fem
</a><a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
e.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click visu
```

```
al_representation":"TOPIC_TAG","actor_id":null,"record_id":85165,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="44bffa6bb0113041f4d877
774003c0db4117ef35167a4a2745ce72a1af20b06d6" data-view-component="true" href="/topics/co
in" title="Topic: coin">
    coin
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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al_representation":"TOPIC_TAG","actor_id":null,"record_id":95795,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="f5dc989de1f274f93cdb7
6e7a24cf3ef298f6ef217936bd09d5be81129e161e8" data-view-component="true" href="/topics/bi
m" title="Topic: bim">
    bim
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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ps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="4096f6662544c3c33998
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reecad" title="Topic: freecad">
    freecad
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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ps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="4537651ce91580bfec20
3403e124b62249352a6e978a55da82b9a3cd1fe5e28d" data-view-component="true" href="/topics/3
d-printing" title="Topic: 3d-printing">
    3d-printing
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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al_representation":"TOPIC_TAG","actor_id":null,"record_id":238400,"originating_url":"htt
ps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="028a08f740516273aa7f
05a2f5db3c450593017549ffa99920f497664d796dbe" data-view-component="true" href="/topics/3
d" title="Topic: 3d">
    3d
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
e.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visu
al_representation":"TOPIC_TAG","actor_id":null,"record_id":316910,"originating_url":"htt
ps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="2ab5b4d0735877c1569f
3019293a61a9239c224e527ba9a7778ea4b2ab092ab1" data-view-component="true" href="/topics/o
pencascade" title="Topic: opencascade">
    opencascade
</a> </div>
<div class="p-3">
<ul class="d-flex f6 list-style-none color-fg-muted">
<li class="mr-4">
    Updated
    <relative-time class="no-wrap" datetime="2022-08-25T07:35:07Z">Aug 25, 2022
</relative-time>
</li>
<li class="mr-4">
<span class="f6 my-1 ml-0">
<span class="repo-language-color" style="background-color: #f34b7d"></span>
<span itemprop="programmingLanguage">C++</span>
</span>
</li>
</ul>
</div>
</div>
</article>
<article class="border rounded color-shadow-small color-bg-subtle my-4">
<a class="overflow-hidden flex-items-center rounded-top-2 color-border-muted border-bott
om d-flex position-relative" data-hydro-click='{"event_type":"explore.click","payload":
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ion":"REPOSITORY_IMAGE","actor_id":null,"record_id":174164624,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="06ab89c76ce98657e70a0
bb9b2b8f7999a33be02d5a52986abb99b5939757567" data-turbo="false" data-view-component="tru
e" href="/metafizy/zdog" style="max-height:275px">
```

```

</a>
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
<span style="margin-top:2px">
<svg aria-hidden="true" class="octicon octicon-repo color-fg-muted mr-2" data-view-compo
nent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.7
5.75 0 110-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5
v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.4.2
1.45-1.087a.25.25 0 01.3 0L8.6 15.7a.25.25 0 00.4-.2v-3.25a.25.25 0 00-.25-.25h-3.5a.2
5.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
</span>
<h3 class="f3 color-fg-muted text-normal lh-condensed">
<a data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITOR
Y_CARD","click_target":"OWNER","click_visual_representation":"REPOSITORY_OWNER_HEADIN
G","actor_id":null,"record_id":573910,"originating_url":"https://github.com/topics/3
d","user_id":null}}' data-hydro-click-hmac="f5b3a8fc92d3f30b4468ca6255d50ef1ef41af4a277e
99a44368380d05695b49" data-turbo="false" data-view-component="true" href="/metafizzy">
metafizzy
</a>
/
<a class="text-bold wb-break-word" data-hydro-click='{"event_type":"explore.cl
ick","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_vis
ual_representation":"REPOSITORY_NAME_HEADING","actor_id":null,"record_id":174164624,"ori
ginating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="6e
f1f8dc07d99135ad796148e15edb48576348e33a218fa22dbb0a3954450801" data-turbo="false" data-
view-component="true" href="/metafizzy/zdog">
zdog
</a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-
s btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type":"authenticat
ion.click","payload":{"location_in_page":"star button","repository_id":174164624,"auth_
type":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-h
ydro-click-hmac="0a80b40e60b12202f07e5c2f471876c9e160feb007acdc7c8b046c91378351bc" data-
view-component="true" href="/login?return_to=%2Fmetafizzy%2Fzdog" rel="nofollow"> <svg a
ria-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline-block mr-2" d
ata-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 .25a.75.75 0 01.673.418l1.882 3.815 4.21.612a.75.75 0 01.416 1.279l-3.046 2.
97.719 4.192a.75.75 0 01-1.088.791L8 12.347l-3.766 1.98a.75.75 0 01-1.088-.791.72-4.194
L.818 6.374a.75.75 0 01.416-1.281.4.21-.611L7.327.668A.75.75 0 018 .25zm0 2.445L6.615 5.5
a.75.75 0 01-.564.411-3.097.45 2.24 2.184a.75.75 0 01.216.664l-.528 3.084 2.769-1.456a.7
5.75 0 01.698 0.12.77 1.456-.53-3.084a.75.75 0 01.216-.664l2.24-2.183-3.096-.45a.75.75 0
01-.564-.41L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
Star
</span> <span aria-label="9315 users starred this repository" class="Counter js-social-c
ount" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-s
ingular-suffix="user starred this repository" data-turbo-replace="true" data-view-compon
ent="true" id="repo-stars-counter-star" title="9,315">9.3k</span>
</a> <button aria-label="You must be signed in to add this repository to a list" class
="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="bu
tton"> <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component
="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.427 7.427l3.396 3.396a.25.25 0 00.354 0l3.396-3.396A.25.25 0 0011.396 7H4.60
4a.25.25 0 00-.177.427z"></path>
</svg>
</button></div>
</div>
</div>
</div>
```

```
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
<a aria-current="true" class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type": "explore.click", "payload": {"click_context": "REPOSITORY_CARD", "click_target": "REPOSITORY", "click_visual_representation": "CODE_TAB", "actor_id": null, "record_id": 174164624, "originating_url": "https://github.com/topics/3d", "user_id": null}}' data-hydro-click-hmac="3ec54b9ac9f4945129714feab55a2f41e3e25a3f46a88e4e6b2e9ad747df4ca" data-turbo="false" data-view-component="true" href="/metafizzy/zdog" id="code-tab-174164624">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 8.13.72 3.72a.75.75 0 11-1.06 1.06L.47 8.53a.75.75 0 010-1.06l4.25-4.25zm6.56 0a.75.75 0 10-1.06 1.06L13.94 8.1-3.72 3.72a.75.75 0 101.06 1.06l4.25-4.25a.75.75 0 00-1.06-1.06l-4.25z" fill-rule="evenodd"></path>
</svg> Code

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type": "explore.click", "payload": {"click_context": "REPOSITORY_CARD", "click_target": "REPOSITORY_ISSUES", "click_visual_representation": "ISSUES_TAB", "actor_id": null, "record_id": 174164624, "originating_url": "https://github.com/topics/3d", "user_id": null}}' data-hydro-click-hmac="09cde2ab32c55d06f44361a914e1a31736c1b91f8a3f168ab84518ae90231a68" data-turbo="false" data-view-component="true" href="/metafizzy/zdog/issues" id="issues-tab-174164624">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 00 3z"></path><path d="M8 0a8 8 0 100 16A8 8 0 008 0zM1.5 8a6.5 6.5 0 1113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type": "explore.click", "payload": {"click_context": "REPOSITORY_CARD", "click_target": "REPOSITORY_PULL_REQUESTS", "click_visual_representation": "PULL_REQUESTS_TAB", "actor_id": null, "record_id": 174164624, "originating_url": "https://github.com/topics/3d", "user_id": null}}' data-hydro-click-hmac="9bb69fe8bd1d8fc2d0408ab15424ddf452494367422ff294c5a1e0826c130f34" data-turbo="false" data-view-component="true" href="/metafizzy/zdog/pulls" id="pull-requests-tab-174164624">
<svg aria-hidden="true" class="octicon octicon-git-pull-request color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M7.177 3.073L9.573.677A2.25.25 0 0110 .854v4.792a2.25.25 0 01-.427.177L7.177 3.427a2.25.25 0 010-.354zM3.75 2.5a.75.75 0 100 1.5.75.75 0 00-1.5zm-2.25.75a2.25 2.25 0 113.222v5.256a2.251 2.251 0 11-1.5 0V5.372A2.25 2.25 0 011.5 3.25zM11 2.5h-1V4h1a1 1 0 011 1v5.628a2.251 2.251 0 010 1.5V5A2.5 2.5 0 0011 2.5zm1 10.25a.75.75 0 111.5 0 .75.75 0 01-1.5 0zM3.75 12a.75.75 0 100 1.5.75.75 0 00-1.5z" fill-rule="evenodd"></path>
</svg> Pull requests

</a></li>
</ul>
</nav>
<div class="color-bg-default rounded-bottom-2">
<div class="px-3 pt-3">
<p class="color-fg-muted mb-0"><div>Flat, round, designer-friendly pseudo-3D engine for canvas & SVG</div></p>
</div>
<div class="d-flex flex-wrap border-bottom color-border-muted px-3 pt-2 pb-2">
<a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type": "explore.click", "payload": {"click_context": "REPOSITORY_CARD", "click_target": "TOPIC", "click_visual_representation": "TOPIC_TAG", "actor_id": null, "record_id": 123, "originating_url": "https://github.com/topics/3d", "user_id": null}}' data-hydro-click-hmac="fd9948dfa42409669662033df52c488e925d4f3d90c6fe8136f3e6020bb49ffe" data-view-component="true" href="/topics/svg" title="Topic: svg">
svg
```

```
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":9049,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="0694e7e822f74b8a606df97d0cb6572a660b366fa0697b2001a01371c72f3bd2" data-view-component="true" href="/topics/canvas" title="Topic: canvas">
  canvas
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":238400,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="028a08f740516273aa7f05a2f5db3c450593017549ffa99920f497664d796dbe" data-view-component="true" href="/topics/3d" title="Topic: 3d">
  3d
</a> </div>
<div class="p-3">
<ul class="d-flex f6 list-style-none color-fg-muted">
<li class="mr-4">
  Updated
  <relative-time class="no-wrap" datetime="2022-01-22T15:00:52Z">Jan 22, 2022
</relative-time>
</li>
<li class="mr-4">
<span class="f6 my-1 ml-0">
<span class="repo-language-color" style="background-color: #f1e05a"></span>
<span itemprop="programmingLanguage">JavaScript</span>
</span>
</li>
</ul>
</div>
</div>
</article>
<article class="border rounded color-shadow-small color-bg-subtle my-4">
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
<span style="margin-top:2px">
<svg aria-hidden="true" class="octicon octicon-repo color-fg-muted mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.75.75 0 01-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.4.25v-3.25a.25.25 0 00-.25-.25h-3.5a.25.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
</span>
<h3 class="f3 color-fg-muted text-normal lh-condensed">
<a data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"OWNER","click_visual_representation":"REPOSITORY_OWNER_HEADER","actor_id":null,"record_id":54716382,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="61f9f002cfla4e74bf16f253674df30f6d7e65ee4900647326a173ccb8f31afe" data-turbo="false" data-view-component="true" href="/CesiumGS">
  CesiumGS
</a>
  /
  <a class="text-bold wb-break-word" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representation":"REPOSITORY_NAME_HEADING","actor_id":null,"record_id":3606738,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="415cd1ea052027e4073ace6132657d6ac12d43cea98b66453bbcbdbed555faf5" data-turbo="false" data-view-component="true" href="/CesiumGS/cesium">
    cesium
</a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-
```

```
btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type":"authentication.click","payload":{"location_in_page":"star button","repository_id":3606738,"auth_type":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="c3004fb3aa695f94b0fc049032c4cf67205edb81e9c7e120e3085e9a8fa6d621" data-view-component="true" href="/login?return_to=%2FCesiumGS%2Fcesium" rel="nofollow"> <svg aria-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline-block mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 .25a.75.75 0 01.673.418l1.882 3.815 4.216.612a.75.75 0 01.416 1.279l-3.046 2.977 4.192a.75.75 0 01-1.088.791L8 12.347l-3.766 1.98a.75.75 0 01-1.088-.791l-2.419 4.818 6.374a.75.75 0 01.416-1.281l.21-.611L7.327.668a.75.75 0 018 .25zm0 2.445L6.615 5.5a.75.75 0 01-.564.411l-3.097.45 2.24 2.184a.75.75 0 01.216.664l-.528 3.084 2.769-1.456a.75.75 0 01.698.012l.77 1.456-.53-3.084a.75.75 0 01.216-.664l2.24-2.183-3.096-.45a.75.75 0 01-.564-.411L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
  Star
</span> <span aria-label="9124 users starred this repository" class="Counter js-social-count" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-singular-suffix="user starred this repository" data-turbo-replace="true" data-view-component="true" id="repo-stars-counter-star" title="9,124">9.1k</span>
</a> <button aria-label="You must be signed in to add this repository to a list" class="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="button"> <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.427 7.427l3.396 3.396a.25.25 0 00.354 0l3.396-3.396A.25.25 0 0011.396 7H4.604a.25.25 0 00-.177.427z"></path>
</svg>
</button></div>
</div>
</div>
</div>
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
<a aria-current="true" class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representation":"CODE_TAB","actor_id":null,"record_id":3606738,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="4c8cb7a99ca743e899b0c933e96912b1cd3873b6e87735388182a654b547ba3c" data-turbo="false" data-view-component="true" href="/CesiumGS/cesium" id="code-tab-3606738">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 8.13 3.72a.75.75 0 011.06 1.06L4.72 8.53a.75.75 0 010-1.06l4.25-4.25zm6.56 0a.75.75 0 010-1.06 1.06L13.94 8.13 3.72 3.72a.75.75 0 010 1.06 1.06l4.25-4.25a.75.75 0 00-1.06-1.06l-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code
</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_ISSUES","click_visual_representation":"ISSUES_TAB","actor_id":null,"record_id":3606738,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="fb5ab71f7ef02da590c3a8899aa8cd6a21d84591251538314290ccdbaa7a0124" data-turbo="false" data-view-component="true" href="/CesiumGS/cesium/issues" id="issues-tab-3606738">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 00-3 1.5 1.5 0 000 3z"></path><path d="M8 0a8 8 0 00 16 8 0 008 0zM1.5 8a6.5 6.5 0 0111 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues
</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_PULL_REQUESTS","click
```

`-visual_representation":"PULL_REQUESTS_TAB","actor_id":null,"record_id":3606738,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="afe284fbfbcb188b42e2947b1294ffd07f2c96a1e93fe732e42e00ce132e30bd3" data-turbo="false" data-view-component="true" href="/CesiumGS/cesium/pulls" id="pull-requests-tab-3606738">`

`<svg aria-hidden="true" class="octicon octicon-git-pull-request color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">`

`<path d="M7.177 3.073L9.573.677A.25.25 0 0110 .854v4.792a.25.25 0 01-.427.177L7.177 3.427a.25.25 0 010-.354zM3.75 2.5a.75.75 0 100 1.5.75.75 0 000-1.5zm-2.25.75a2.25 2.25 0 113 2.122v5.256a2.251 2.251 0 11-1.5 0V5.372A2.25 2.25 0 011.5 3.25zM11 2.5h-1V4h1a1 1 0 011 1v5.628a2.251 2.251 0 101.5 0V5A2.5 2.5 0 0011 2.5zm1 10.25a.75.75 0 111.5 0 .75.75 0 01-1.5 0zM3.75 12a.75.75 0 100 1.5.75.75 0 000-1.5z" fill-rule="evenodd"></path>`

`</svg> Pull requests`

``

``

`</nav>`

`<div class="color-bg-default rounded-bottom-2">`

`<div class="px-3 pt-3">`

`<p class="color-fg-muted mb-0"><div>An open-source JavaScript library for world-class 3D globes and maps <g-emoji alias="earth_americas" class="g-emoji" fallback-src="https://github.githubassets.com/images/icons/emoji/unicode/1f30e.png">🌐</g-emoji></div></p>`

`</div>`

`<div class="d-flex flex-wrap border-bottom color-border-muted px-3 pt-2 pb-2">`

``

`webgl`

` `

`geospatial`

` `

`gis`

` `

`cesium`

` `

`czml`

` `

`gltf`

```
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":238400,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="028a08f740516273aa7f05a2f5db3c450593017549ffa99920f497664d796dbe" data-view-component="true" href="/topics/3d" title="Topic: 3d">
    3d
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":317014,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="4d06cle64d841bd0fb6cb2cbc8624645007d527326b361e23abbc4f32538c3e9" data-view-component="true" href="/topics/3d-globe" title="Topic: 3d-globe">
    3d-globe
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":505752,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="fc7c27b02a820f2a915bf8d09d6252dabeb36d294b079bc890eac4d15e8f8a8b" data-view-component="true" href="/topics/3d-tiles" title="Topic: 3d-tiles">
    3d-tiles
</a> </div>
<div class="p-3">
<ul class="d-flex f6 list-style-none color-fg-muted">
<li class="mr-4">
    Updated
    <relative-time class="no-wrap" datetime="2022-08-24T21:22:07Z">Aug 24, 2022
</relative-time>
</li>
<li class="mr-4">
<span class="f6 my-1 ml-0">
<span class="repo-language-color" style="background-color: #f1e05a"></span>
<span itemprop="programmingLanguage">JavaScript</span>
</span>
</li>
</ul>
</div>
</div>
</article>
<article class="border rounded color-shadow-small color-bg-subtle my-4">
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
<span style="margin-top:2px">
<svg aria-hidden="true" class="octicon octicon-repo color-fg-muted mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.75.75 0 01-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.42 1.145-1.087a.25.25 0 01.3 0L8.6 15.7a.25.25 0 00.4-.2v-3.25a.25.25 0 00-.25-.25h-3.5a.25.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
</span>
<h3 class="f3 color-fg-muted text-normal lh-condensed">
<a data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"OWNER","click_visual_representation":"REPOSITORY_OWNER_HEADING","actor_id":null,"record_id":16217333,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="0077f42015645d900471e0cf0ce8a3d643d649d4fa3ff4d0b3fca48249c1b695" data-turbo="false" data-view-component="true" href="/timzhang642">
    timzhang642
</a>
    /
    <a class="text-bold wb-break-word" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representation":"REPOSITORY_NAME_HEADING","actor_id":null,"record_id":100120455,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="5ac29541d56b0a4f137b3adb34578840be52d1f547359a52b3f4ac007241de29" data-turbo="false" data-
```



```
view-component="true" href="/timzhang642/3D-Machine-Learning">
    3D-Machine-Learning
</a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-
s btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type":"authentica
tion.click","payload":{"location_in_page":"star button","repository_id":100120455,"auth_
type":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-h
ydro-click-hmac="60a6c5e50f104f9782f487e99a6785b7d32628d2c89b7f03c77d4ed6287a90b3" data-
view-component="true" href="/login?return_to=%2Ftimzhang642%2F3D-Machine-Learning" rel
="nofollow"> <svg aria-hidden="true" class="octicon octicon-star v-align-text-bottom d-i
nline-block mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 1
6" width="16">
<path d="M8 .25a.75.75 0 01.673.418l1.882 3.815 4.21.612a.75.75 0 01.416 1.279l-3.046 2.
97.719 4.192a.75.75 0 01-1.088.791L8 12.347l-3.766 1.98a.75.75 0 01-1.088-.791.72-4.194
L.818 6.374a.75.75 0 01.416-1.281.4.21-.611L7.327.668A.75.75 0 018 .25zm0 2.445L6.615 5.5
a.75.75 0 01-.564.411-3.097.45 2.24 2.184a.75.75 0 01.216.664l-.528 3.084 2.769-1.456a.7
5.75 0 01.698 0.12.77 1.456-.53-3.084a.75.75 0 01.216-.664l2.24-2.183-3.096-.45a.75.75 0
01-.564-.411L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
    Star
</span> <span aria-label="8246 users starred this repository" class="Counter js-social-c
ount" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-s
ingular-suffix="user starred this repository" data-turbo-replace="true" data-view-compon
ent="true" id="repo-stars-counter-star" title="8,246">8.2k</span>
</a> <button aria-label="You must be signed in to add this repository to a list" class
="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="bu
tton"> <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component
="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.427 7.427l3.396 3.396a.25.25 0 00.354 0l3.396-3.396A.25.25 0 0011.396 7H4.60
4a.25.25 0 00-.177.427z"></path>
</svg>
</button></div>
</div>
</div>
</div>
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
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inating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="732
c087db112ec271615bc666976534c417cccfc734b657907be45364a24303b" data-turbo="false" data-v
iew-component="true" href="/timzhang642/3D-Machine-Learning" id="code-tab-100120455">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-componen
t="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
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a.75.75 0 010-1.06l4.25-4.25zm6.56 0a.75.75 0 010-1.06 1.06L13.94 8.13.72 3.72a.75.75 0 1
01.06 1.06l4.25-4.25a.75.75 0 000-1.06l-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code
</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payl
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ttps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="226c7dc4bc2938dcd0
97c1f030b6792d7b01c3dbbdb4c02cb52f1ca48f0efa4f" data-turbo="false" data-view-component
="true" href="/timzhang642/3D-Machine-Learning/issues" id="issues-tab-100120455">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-co
mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 00 3z"></path><path d="M8 0a8 8 0 100 16A8 8
```

0 008 0zM1.5 0a6.5 6.5 0 1113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues

<li class="d-inline-flex" data-view-component="true">

<svg aria-hidden="true" class="octicon octicon-git-pull-request color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">

<path d="M7.177 3.073L9.573.677A.25.25 0 0110 .854v4.792a.25.25 0 01-.427.177L7.177 3.427a.25.25 0 010-.354zM3.75 2.5a.75.75 0 100 1.5.75.75 0 000-1.5zm-2.25.75a2.25 2.25 0 113.2.122v5.256a2.251 2.251 0 11-1.5 0V5.372A2.25 2.25 0 011.5 3.25zM11 2.5h-1V4h1a1 1 0 011 1v5.628a2.251 2.251 0 101.5 0V5A2.5 2.5 0 0011 2.5zm1 10.25a.75.75 0 111.5 0 .75.75 0 01-1.5 0zM3.75 12a.75.75 0 100 1.5.75.75 0 000-1.5z" fill-rule="evenodd"></path>

</svg> Pull requests

</nav>

<div class="color-bg-default rounded-bottom-2">

<div class="px-3 pt-3">

<p class="color-fg-muted mb-0"><div>A resource repository for 3D machine learning</div>
</p>

</div>

<div class="d-flex flex-wrap border-bottom color-border-muted px-3 pt-2 pb-2">

machine-learning

voxel

point-cloud

primitives


```
mesh
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":44842,"originating_url":"https://github.com/topics/3d","user_id":null}}'" data-hydro-click-hmac="72e0d2d1428520e303f3db2fba162efdf8efbfbfd2e4da343f75400930506967" data-view-component="true" href="/topics/neural-networks" title="Topic: neural-networks">
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</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":114317,"originating_url":"https://github.com/topics/3d","user_id":null}}'" data-hydro-click-hmac="e0c8f9e29c891850cd3945b3d6939a04ef1b569de4bef7059eadfd7e3ab26c35" data-view-component="true" href="/topics/papers" title="Topic: papers">
  papers
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":188740,"originating_url":"https://github.com/topics/3d","user_id":null}}'" data-hydro-click-hmac="bbd3f47c393f8cb6956be4e1alddcf02798c4f1e320424e10e8cc652ff5def88" data-view-component="true" href="/topics/constructive-solid-geometries" title="Topic: constructive-solid-geometries">
  constructive-solid-geometries
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":238400,"originating_url":"https://github.com/topics/3d","user_id":null}}'" data-hydro-click-hmac="028a08f740516273aa7f05a2f5db3c450593017549ffa99920f497664d796dbe" data-view-component="true" href="/topics/3d" title="Topic: 3d">
  3d
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":269444,"originating_url":"https://github.com/topics/3d","user_id":null}}'" data-hydro-click-hmac="ee3303d4bc3a2dabe1760495de45e4e2e0b106576f14c21c91afe2d27bd226f4" data-view-component="true" href="/topics/3d-reconstruction" title="Topic: 3d-reconstruction">
  3d-reconstruction
</a> </div>
<div class="p-3">
<ul class="d-flex f6 list-style-none color-fg-muted">
<li class="mr-4">
  Updated
  <relative-time class="no-wrap" datetime="2022-06-25T07:18:45Z">Jun 25, 2022
</relative-time>
</li>
</ul>
</div>
</div>
</article>
<article class="border rounded color-shadow-small color-bg-subtle my-4">
<a class="overflow-hidden flex-items-center rounded-top-2 color-border-muted border-bottom d-flex position-relative" data-hydro-click="{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representation":"REPOSITORY_IMAGE","actor_id":null,"record_id":75413130,"originating_url":"https://github.com/topics/3d","user_id":null}}'" data-hydro-click-hmac="decc886be086aff8b1d369fde840700b486503e30e7a44cadd34c8aad0b545c2" data-turbo="false" data-view-component="true" href="/isl-org/Open3D" style="max-height:275px">

</a>
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
<span style="margin-top:2px">
<svg aria-hidden="true" class="octicon octicon-repo color-fg-muted mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.7
```

```
15.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5
v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.4.2
11.45-1.087a.25.25 0 01.3 0L8.6 15.7a.25.25 0 00.4-.2v-3.25a.25.25 0 00-.25-.25h-3.5a.2
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</svg>
</span>
<h3 class="f3 color-fg-muted text-normal lh-condensed">
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G","actor_id":null,"record_id":23507030,"originating_url":"https://github.com/topics/3
d","user_id":null}}' data-hydro-click-hmac="2690981e9e9eeb03ddf9f0f49f0c3167881395f2850f
1e2b8012d64f5db4088d" data-turbo="false" data-view-component="true" href="/isl-org">
    isl-org
</a>
    <a class="text-bold wb-break-word" data-hydro-click='{"event_type":"explore.cl
ick","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_vis
ual_representation":"REPOSITORY_NAME_HEADING","actor_id":null,"record_id":75413130,"orig
inating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="337
6b3eb05aaf87cba8d79a982e9ed5940507b1d0c89a16fb29986elbdd5e302" data-turbo="false" data-v
iew-component="true" href="/isl-org/Open3D">
        Open3D
</a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-
s btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type":"authenticat
ion.click","payload":{"location_in_page":"star button","repository_id":75413130,"auth_t
ype":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-hy
dro-click-hmac="db2314848e30b2e0c0dcc270cfa75e87737fe0604291e56998a683f5bbe749a7" data-v
iew-component="true" href="/login?return_to=%2Fisl-org%2FOpen3D" rel="nofollow"> <svg ar
ia-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline-block mr-2" da
ta-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
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97.719 4.192a.75.75 0 01-1.088.791L8 12.347l-3.766 1.98a.75.75 0 01-1.088-.791.72-4.194
L.818 6.374a.75.75 0 01.416-1.281.4.21-.611L7.327.668A.75.75 0 018 .25zm0 2.445L6.615 5.5
a.75.75 0 01-.564.411-3.097.45 2.24 2.184a.75.75 0 01.216.664l-.528 3.084 2.769-1.456a.7
5.75 0 01.698 0.12.77 1.456-.53-3.084a.75.75 0 01.216-.664l2.24-2.183-3.096-.45a.75.75 0
01-.564-.411L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
    Star
</span> <span aria-label="7290 users starred this repository" class="Counter js-social-c
ount" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-s
ingular-suffix="user starred this repository" data-turbo-replace="true" data-view-compon
ent="true" id="repo-stars-counter-star" title="7,290">7.3k</span>
</a> <button aria-label="You must be signed in to add this repository to a list" class
="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="bu
tton"> <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component
="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.427 7.427l3.396 3.396a.25.25 0 00.354 0l3.396-3.396A.25.25 0 0011.396 7H4.60
4a.25.25 0 00-.177.427z"></path>
</svg>
</button></div>
</div>
</div>
</div>
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
<a aria-current="true" class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_typ
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RY","click_visual_representation":"CODE_TAB","actor_id":null,"record_id":75413130,"origi
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ew-component="true" href="/isl-org/Open3D" id="code-tab-75413130">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-componen
```

```
t="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 813.72 3.72a.75.75 0 11-1.06 1.06L.47 8.53
a.75.75 0 010-1.06l4.25-4.25zm6.56 0a.75.75 0 10-1.06 1.06L13.94 81-3.72 3.72a.75.75 0 1
01.06 1.06l4.25-4.25a.75.75 0 000-1.06l-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code

</a></li>
<li class="d-inline-flex" data-view-component="true">
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91845710a1304180d69e79bbe0158b2afd1c25e8d94bc" data-turbo="false" data-view-component="t
rue" href="/isl-org/Open3D/issues" id="issues-tab-75413130">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-co
mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 000 3z"></path><path d="M8 0a8 8 0 100 16A8 8
0 008 0zM1.5 8a6.5 6.5 0 1113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payl
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ating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="29ff0
c1f827144377f6ce4c419d288e6ba2dc65991aa74e2cdd4f1ad5c440931" data-turbo="false" data-vie
w-component="true" href="/isl-org/Open3D/pulls" id="pull-requests-tab-75413130">
<svg aria-hidden="true" class="octicon octicon-git-pull-request color-fg-muted" data-vie
w-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M7.177 3.073L9.573.677A.25.25 0 0110 .854v4.792a.25.25 0 01-.427.177L7.177 3.42
7a.25.25 0 010-.354zM3.75 2.5a.75.75 0 100 1.5.75.75 0 000-1.5zm-2.25.75a2.25 2.25 0 113
2.122v5.256a2.251 2.251 0 11-1.5 0V5.372A2.25 2.25 0 011.5 3.25zM11 2.5h-1V4h1a1 1 0 01
1 1v5.628a2.251 2.251 0 010.5 0V5A2.5 2.5 0 0011 2.5zm1 10.25a.75.75 0 111.5 0 .75.75 0
01-1.5 0zM3.75 12a.75.75 0 100 1.5.75.75 0 000-1.5z" fill-rule="evenodd"></path>
</svg> Pull requests

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payl
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g_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="33b40e9a4
63aacbf5c4d00787cf93689ed3a9ef8c5e6d106076e42129ced4a77" data-turbo="false" data-view-co
mponent="true" href="/isl-org/Open3D/discussions" id="discussions-tab-75413130">
<svg aria-hidden="true" class="octicon octicon-comment-discussion color-fg-muted" data-v
iew-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
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a.75.75 0 00-.53.22L3.5 11.44V9.25a.75.75 0 00-.75-.75h-1a.25.25 0 01-.25-.25v-5.5zM1.75
1A1.75 1.75 0 000 2.75v5.5C0 9.216.784 10 1.75 10H2v1.543a1.457 1.457 0 002.487 1.03L7.
061 10h3.189A1.75 1.75 0 0012 8.25v-5.5A1.75 1.75 0 0010.25 1h-8.5zM14.5 4.75a.25.25 0 0
0-.25-.25h-.5a.75.75 0 110-1.5h.5c.966 0 1.75.784 1.75 1.75v5.5A1.75 1.75 0 0114.25 12H1
4v1.543a1.457 1.457 0 01-2.487 1.03L9.22 12.28a.75.75 0 111.06-1.06l2.22 2.22v-2.19a.75.
75 0 01.75-.75h1a.25.25 0 00.25-.25v-5.5z" fill-rule="evenodd"></path>
</svg> Discussions

</a></li>
</ul>
</nav>
<div class="color-bg-default rounded-bottom-2">
<div class="px-3 pt-3">
<p class="color-fg-muted mb-0"><div>Open3D: A Modern Library for 3D Data Processing</div>
```

```
</p>
</div>
<div class="d-flex flex-wrap border-bottom color-border-muted px-3 pt-2 pb-2">
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  </a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":84,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="be04bb3f99b96001c8d5df4567a7b76ee6a378775e20f4cbb3474b09327ca088" data-view-component="true" href="/topics/python" title="Topic: python">
    python
  </a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":2169,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="87e01227589b9a4953e509a62a1245ff1aca4b0d1416cd9a99b6f65234f45a0a" data-view-component="true" href="/topics/machine-learning" title="Topic: machine-learning">
    machine-learning
  </a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":2221,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="72540557934dfd5e4fa4c8de2b7683ef38cf485c2ef788242ceb52f3dc744820" data-view-component="true" href="/topics/arm" title="Topic: arm">
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  </a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":2298,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="b470531e7e3a385c737d94e337a51e66acfc3a324a3bleccd881e91c2bc2ec43" data-view-component="true" href="/topics/gui" title="Topic: gui">
    gui
  </a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":8973,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="adc813d832197f96443bc9ead9e362219f953f9cfdbceb7d210b485a57d17430" data-view-component="true" href="/topics/opengl" title="Topic: opengl">
    opengl
  </a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":9802,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="e904e07fa8e0d57542653ce8f2a688e7a101f7464a09c59717828a65d1797b41" data-view-component="true" href="/topics/cpp" title="Topic: cpp">
    cpp
  </a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":12734,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="63144f67077dc0cac95bc3346b7de02d50281c436875849bbe515c923be99270" data-view-component="true" href="/topics/tensorflow" title="Topic: tensorflow">
    tensorflow
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    gpu
  </a>
</div>
```

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</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\": \"explor
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s://github.com/topics/3d\", \"user_id\": null}}\" data-hydro-click-hmac=\"517f6d4da5ceclee4dfaf
e3eb3aa0f5dd7287c4404569367259665f587636917\" data-view-component=\"true\" href=\"/topics/re
ndering\" title=\"Topic: rendering">
    rendering
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\": \"explor
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s://github.com/topics/3d\", \"user_id\": null}}\" data-hydro-click-hmac=\"0d6ae46592545600a99c0
f4c621dc9f42e729579a898a01de9cc0333c4ec0871\" data-view-component=\"true\" href=\"/topics/co
mputer-graphics\" title=\"Topic: computer-graphics">
    computer-graphics
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\": \"explor
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s://github.com/topics/3d\", \"user_id\": null}}\" data-hydro-click-hmac=\"29e44ab9ba6416528d0e0
dee30556875b603d2af39930eb1943f0f442a3a5629\" data-view-component=\"true\" href=\"/topics/cu
da\" title=\"Topic: cuda">
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95dc792165dfed6c3a89ab490f358cc165b4d4c9f4c\" data-view-component=\"true\" href=\"/topics/py
torch\" title=\"Topic: pytorch">
    pytorch
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\": \"explor
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s://github.com/topics/3d\", \"user_id\": null}}\" data-hydro-click-hmac=\"3a5b832b5f114d1dce692
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    registration
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\": \"explor
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ps://github.com/topics/3d\", \"user_id\": null}}\" data-hydro-click-hmac=\"131646d9046eaa06eb18
9b6acbd9e14df836fabcd80c2d75db3a350c48224de2b\" data-view-component=\"true\" href=\"/topics/r
econstruction\" title=\"Topic: reconstruction">
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05a2f5db3c450593017549ffa99920f497664d796dbe\" data-view-component=\"true\" href=\"/topics/3
d\" title=\"Topic: 3d">
    3d
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\": \"explor
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ps://github.com/topics/3d\", \"user_id\": null}}\" data-hydro-click-hmac=\"315730879a7401058600
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    odometry
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\": \"explor
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ointcloud\" title=\"Topic: pointcloud">
    pointcloud
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click="{\"event_type\": \"explor
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```
ps://github.com/topics/3d", "user_id": null}}' data-hydro-click-hmac="fb6517cf1858d16fdb60
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esh-processing" title="Topic: mesh-processing">
    mesh-processing
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type": "explor
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ps://github.com/topics/3d", "user_id": null}}' data-hydro-click-hmac="9ea036f5fd7d2b3419df
10861755c2abaaae359be398527edac86280fe7ac3df" data-view-component="true" href="/topics/3
d-perception" title="Topic: 3d-perception">
    3d-perception
</a> </div>
<div class="p-3">
<ul class="d-flex f6 list-style-none color-fg-muted">
<li class="mr-4">
    Updated
    <relative-time class="no-wrap" datetime="2022-08-25T08:55:40Z">Aug 25, 2022
</relative-time>
</li>
<li class="mr-4">
<span class="f6 my-1 ml-0">
<span class="repo-language-color" style="background-color: #f34b7d"></span>
<span itemprop="programmingLanguage">C++</span>
</span>
</li>
</ul>
</div>
</div>
</article>
<article class="border rounded color-shadow-small color-bg-subtle my-4">
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
<span style="margin-top: 2px">
<svg aria-hidden="true" class="octicon octicon-repo color-fg-muted mr-2" data-view-compo
nent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.7
5.75 0 110-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5
v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.4.2
5.25 0 01.4.25v-3.25a.25.25 0 00-.4-.25v-3.25a.25.25 0 00-.25-.25h-3.5a.2
5.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
</span>
<h3 class="f3 color-fg-muted text-normal lh-condensed">
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G", "actor_id": null, "record_id": 6295625, "originating_url": "https://github.com/topics/3
d", "user_id": null}}' data-hydro-click-hmac="7220683d54951178816028424a94bb30c0e0deb6ed51
a32331c4c5a4f1344a62" data-turbo="false" data-view-component="true" href="/alstudmuffi
n">
    alstudmuffin
</a>
    /
    <a class="text-bold wb-break-word" data-hydro-click='{"event_type": "explore.cl
ick", "payload": {"click_context": "REPOSITORY_CARD", "click_target": "REPOSITORY", "click_visu
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inating_url": "https://github.com/topics/3d", "user_id": null}}' data-hydro-click-hmac="023
54cc3f2ad7480715b6a482b5f7f035bd5abedba1fc0faead1894e17a61820" data-turbo="false" data-v
iew-component="true" href="/alstudmuffin/SpaceshipGenerator">
    SpaceshipGenerator
</a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-
s btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type": "authentica
tion.click", "payload": {"location_in_page": "star button", "repository_id": 61088333, "auth_t
```



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type":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="59f2dc2e1c5f18344cceef8830f993402b563d020f6698ef1266be3621212d9bb" data-view-component="true" href="/login?return_to=%2Falstudmuffin%2FSpaceshipGenerator" rel="nofollow"> <svg aria-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline-block mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 .25a.75.75 0 01.673.418l1.882 3.815 4.216.612a.75.75 0 01.416 1.279l-3.046 2.977 4.192a.75.75 0 01-1.088.791L8 12.347l-3.766 1.98a.75.75 0 01-1.088-.791l-2.419 4.818 6.374a.75.75 0 01.416-1.281l.21-.611L7.327.668a.75.75 0 018 .25zm0 2.445L6.615 5.5a.75.75 0 01-.564.411l-3.097.45 2.24 2.184a.75.75 0 01.216.664l-.528 3.084 2.769-1.456a.75.75 0 01.698 .012l.77 1.456-.53-3.084a.75.75 0 01.216-.664l2.24-2.183-3.096-.45a.75.75 0 01-.564-.411L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
  Star
</span> <span aria-label="7197 users starred this repository" class="Counter js-social-count" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-singular-suffix="user starred this repository" data-turbo-replace="true" data-view-component="true" id="repo-stars-counter-star" title="7,197">7.2k</span>
</a> <button aria-label="You must be signed in to add this repository to a list" class="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="button"> <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
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</svg>
</button></div>
</div>
</div>
</div>
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
<a aria-current="true" class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representation":"CODE_TAB","actor_id":null,"record_id":61088333,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="044c94b120840916ff9a520871d58b94241e369540898281eb8774e9ca72f5e0" data-turbo="false" data-view-component="true" href="/alstudmuffin/SpaceshipGenerator" id="code-tab-61088333">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 8.13 3.72a.75.75 0 011.06 1.06L4.72 8.53a.75.75 0 010-1.06l4.25-4.25zm6.56 0a.75.75 0 010-1.06 1.06L13.94 8.13 3.72 3.72a.75.75 0 010 1.06 1.06l4.25-4.25a.75.75 0 000-1.06l-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code
</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_ISSUES","click_visual_representation":"ISSUES_TAB","actor_id":null,"record_id":61088333,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="d7468a7631ff4fd4ba4b294bcae31a0d544919bdf26def10b17c6eb22a283f4" data-turbo="false" data-view-component="true" href="/alstudmuffin/SpaceshipGenerator/issues" id="issues-tab-61088333">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 00 3z"></path><path d="M8 0a8 8 0 100 16A8 8 0 008 0zM1.5 8a6.5 6.5 0 113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues
</a></li>
<li class="d-inline-flex" data-view-component="true">
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<svg aria-hidden="true" class="octicon octicon-pull-request" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 00 3z"></path><path d="M8 0a8 8 0 100 16A8 8 0 008 0zM1.5 8a6.5 6.5 0 113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Pull requests
</a></li>
```

```
ating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="ae6c9
f02ca6fdbf03bf1708b72bd084ce2aa5cebc53dd34a3bb111855a9703ab" data-turbo="false" data-vie
w-component="true" href="/alstudmuffin/SpaceshipGenerator/pulls" id="pull-requests-tab-6
1088333">
<svg aria-hidden="true" class="octicon octicon-git-pull-request color-fg-muted" data-vie
w-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M7.177 3.073L9.573.677A.25.25 0 0110 .854v4.792a.25.25 0 01-.427.177L7.177 3.42
7a.25.25 0 010-.354zM3.75 2.5a.75.75 0 100 1.5.75.75 0 000-1.5zm-2.25.75a2.25 2.25 0 113
2.122v5.256a2.251 2.251 0 11-1.5 0V5.372A2.25 2.25 0 011.5 3.25zM11 2.5h-1V4h1a1 1 0 01
1 1v5.628a2.251 2.251 0 101.5 0V5A2.5 2.5 0 0011 2.5zm1 10.25a.75.75 0 111.5 0 .75.75 0
01-1.5 0zM3.75 12a.75.75 0 100 1.5.75.75 0 000-1.5z" fill-rule="evenodd"></path>
</svg> Pull requests

</a></li>
</ul>
</nav>
<div class="color-bg-default rounded-bottom-2">
<div class="px-3 pt-3">
<p class="color-fg-muted mb-0"><div>A Blender script to procedurally generate 3D spacesh
ips</div></p>
</div>
<div class="d-flex flex-wrap border-bottom color-border-muted px-3 pt-2 pb-2">
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ub.com/topics/3d","user_id":null}}' data-hydro-click-hmac="be04bb3f99b96001c8d5df4567a7b
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tle="Topic: python">
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s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="9eec445024df1259265fe
05dd611d8c4f1591f2b5f49d1958646ae33a5a260" data-view-component="true" href="/topics/pr
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    procedural-generation
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s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="16a3dac000c66c59c35a5
3928b2779fcfd62db36f086e43dbf0041033b2b170a" data-view-component="true" href="/topics/bl
ender-scripts" title="Topic: blender-scripts">
    blender-scripts
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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al_representation":"TOPIC_TAG","actor_id":null,"record_id":17135,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="97ebb0c4cebe425821647
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me-development" title="Topic: game-development">
    game-development
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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al_representation":"TOPIC_TAG","actor_id":null,"record_id":238400,"originating_url":"htt
ps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="028a08f740516273aa7f
05a2f5db3c450593017549ffa99920f497664d796dbe" data-view-component="true" href="/topics/3
d" title="Topic: 3d">
    3d
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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al_representation":"TOPIC_TAG","actor_id":null,"record_id":249011,"originating_url":"htt
ps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="5f514470a10f1305dbea
71068d1b9c13ba8ac11b972b3d1c9ff5f2b0e4015463" data-view-component="true" href="/topics/s
paceship" title="Topic: spaceship">
    spaceship
</a></div>
```

```
<div class="p-3">
<ul class="d-flex f6 list-style-none color-fg-muted">
<li class="mr-4">
    Updated
    <relative-time class="no-wrap" datetime="2022-01-19T23:38:53Z">Jan 19, 2022
</relative-time>
</li>
<li class="mr-4">
<span class="f6 my-1 ml-0">
<span class="repo-language-color" style="background-color: #3572A5"></span>
<span itemprop="programmingLanguage">Python</span>
</span>
</li>
</ul>
</div>
</div>
</article>
<article class="border rounded color-shadow-small color-bg-subtle my-4">
<a class="overflow-hidden flex-items-center rounded-top-2 color-border-muted border-bottom d-flex position-relative" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representation":"REPOSITORY_IMAGE","actor_id":null,"record_id":213916896,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="9b1147e236bcadd09ce4c3e4842db6947bcc24bcf55bf38f7b2848afb3c30e2" data-turbo="false" data-view-component="true" href="/blender/blender" style="max-height:275px">

</a>
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
<span style="margin-top:2px">
<svg aria-hidden="true" class="octicon octicon-repo color-fg-muted mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.75.75 0 01-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 01-1h8zM5 12.25v3.25a.25.25 0 00.42 1.145-1.087a.25.25 0 01.3 0L8.6 15.7a.25.25 0 00.4-.2v-3.25a.25.25 0 00-.25-.25h-3.5a.25.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
</span>
<h3 class="f3 color-fg-muted text-normal lh-condensed">
<a data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"OWNER","click_visual_representation":"REPOSITORY_OWNER_HEADER","actor_id":null,"record_id":52924476,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="3ef621e0683e557bb6ec46fbf192cfbffd0fa2e15d1ed98932b3546e43be6655" data-turbo="false" data-view-component="true" href="/blender">
    blender
</a>
    <a class="text-bold wb-break-word" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representation":"REPOSITORY_NAME_HEADING","actor_id":null,"record_id":213916896,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="ac5fee340bdeebc5fd06dbf09aca394adad6d0a397aa20f51ddee7ea76ed61f0" data-turbo="false" data-view-component="true" href="/blender/blender">
    blender
</a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-s btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type":"authentication.click","payload":{"location_in_page":"star button","repository_id":213916896,"auth_type":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="5d7542b8585d18252e1ae47b570fc2dc917158ed95914cf5723a18bc2a054637" data-view-component="true" href="/login?return_to=%2Fblender%2Fblender" rel="nofollow"> <svg
```

```
aria-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline-block mr-2"
data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 .25a.75.75 0 01.673.41811.882 3.815 4.21.612a.75.75 0 01.416 1.2791-3.046 2.
97.719 4.192a.75.75 0 01-1.088.791L8 12.3471-3.766 1.98a.75.75 0 01-1.088-.791.72-4.194
L.818 6.374a.75.75 0 01.416-1.2814.21-.611L7.327.668A.75.75 0 018 .25zm0 2.445L6.615 5.5
a.75.75 0 01-.564.411-3.097.45 2.24 2.184a.75.75 0 01.216.6641-.528 3.084 2.769-1.456a.7
5.75 0 01.698 012.77 1.456-.53-3.084a.75.75 0 01.216-.66412.24-2.183-3.096-.45a.75.75 0
01-.564-.41L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
    Star
</span> <span aria-label="6361 users starred this repository" class="Counter js-social-c
ount" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-s
ingular-suffix="user starred this repository" data-turbo-replace="true" data-view-compon
ent="true" id="repo-stars-counter-star" title="6,361">6.4k</span>
</a> <button aria-label="You must be signed in to add this repository to a list" class
="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="bu
tton"> <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component
="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.427 7.427l3.396 3.396a.25.25 0 00.354 013.396-3.396A.25.25 0 0011.396 7H4.60
4a.25.25 0 00-.177.427z"></path>
</svg>
</button></div>
</div>
</div>
</div>
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
<a aria-current="true" class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type"
":\"explore.click\","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITO
RY","click_visual_representation":"CODE_TAB","actor_id":null,"record_id":213916896,"orig
inating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="066
7885646836cc4efc82c83f166a1442d5d4d95a5fb3aaf16f7a93fd7490baf" data-turbo="false" data-v
iew-component="true" href="/blender/blender" id="code-tab-213916896">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-componen
t="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 813.72 3.72a.75.75 0 11-1.06 1.06L.47 8.53
a.75.75 0 010-1.0614.25-4.25zm6.56 0a.75.75 0 10-1.06 1.06L13.94 81-3.72 3.72a.75.75 0 1
01.06 1.0614.25-4.25a.75.75 0 000-1.061-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code
</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payl
oad":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_ISSUES","click_visual
_representation":"ISSUES_TAB","actor_id":null,"record_id":213916896,"originating_url":"h
ttps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="d1f8ca00b452ee8b77
312a76927a3abccde3e35adc33f4184743a948f163e2a4" data-turbo="false" data-view-component
="true" href="/blender/blender/issues" id="issues-tab-213916896">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-co
mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 000 3z"></path><path d="M8 0a8 8 0 100 16A8 8
0 008 0zM1.5 8a6.5 6.5 0 1113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues
</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payl
oad":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_PULL_REQUESTS","click
_visual_representation":"PULL_REQUESTS_TAB","actor_id":null,"record_id":213916896,"origi
nating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="6bcb
febdae199d524dal783f4b2348e207292ce31da9a79ed88c26b037c43bb3" data-turbo="false" data-vi
ew-component="true" href="/blender/blender/pulls" id="pull-requests-tab-213916896">
<svg aria-hidden="true" class="octicon octicon-git-pull-request color-fg-muted" data-vie
```

w-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M7.177 3.073L9.573.677A.25.25 0 0110 .854v4.792a.25.25 0 01-.427.177L7.177 3.42
7a.25.25 0 010-.354zM3.75 2.5a.75.75 0 100 1.5.75.75 0 000-1.5zm-2.25.75a2.25 2.25 0 113
2.122v5.256a2.251 2.251 0 11-1.5 0V5.372A2.25 2.25 0 011.5 3.25zM11 2.5h-1V4h1a1 1 0 01
1 1v5.628a2.251 2.251 0 101.5 0V5A2.5 2.5 0 0011 2.5zm1 10.25a.75.75 0 111.5 0 .75.75 0
01-1.5 0zM3.75 12a.75.75 0 100 1.5.75.75 0 000-1.5z" fill-rule="evenodd"></path>
</svg> Pull requests

</nav>

<div class="color-bg-default rounded-bottom-2">

<div class="px-3 pt-3">

<p class="color-fg-muted mb-0"><div>Official mirror of Blender</div></p>

</div>

<div class="d-flex flex-wrap border-bottom color-border-muted px-3 pt-2 pb-2">

<a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click",
"payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":
"TOPIC_TAG","actor_id":null,"record_id":12696,"originating_url":"https://github.com/topics/3d",
"user_id":null}}' data-hydro-click-hmac="8d51b40a17d0ec49d8c9f94809ea177ea83b904e1cebb646fa825a2eefc6d778" data-view-component="true" href="/topics/animation" title="Topic: animation">

animation

 <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click",
"payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":
"TOPIC_TAG","actor_id":null,"record_id":13080,"originating_url":"https://github.com/topics/3d",
"user_id":null}}' data-hydro-click-hmac="517f6d4da5ceclee4dfaf e3eb3aa0f5dd7287c4404569367259665f587636917" data-view-component="true" href="/topics/rendering" title="Topic: rendering">

rendering

 <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click",
"payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":
"TOPIC_TAG","actor_id":null,"record_id":13442,"originating_url":"https://github.com/topics/3d",
"user_id":null}}' data-hydro-click-hmac="0d6ae46592545600a99c0f4c621dc9f42e729579a898a01de9cc0333c4ec0871" data-view-component="true" href="/topics/computer-graphics" title="Topic: computer-graphics">

computer-graphics

 <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click",
"payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":
"TOPIC_TAG","actor_id":null,"record_id":13511,"originating_url":"https://github.com/topics/3d",
"user_id":null}}' data-hydro-click-hmac="a4c2d8fff4785fdecedc87fa3a903b736150efbb76d873912121a05ad9448edb" data-view-component="true" href="/topics/modeling" title="Topic: modeling">

modeling

 <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click",
"payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":
"TOPIC_TAG","actor_id":null,"record_id":123644,"originating_url":"https://github.com/topics/3d",
"user_id":null}}' data-hydro-click-hmac="64b75b13a347d711d9209307a447d460f5cf31796e3a2da684335a645a245ee4" data-view-component="true" href="/topics/b3d" title="Topic: b3d">

b3d

 <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click",
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"TOPIC_TAG","actor_id":null,"record_id":238400,"originating_url":"https://github.com/topics/3d",
"user_id":null}}' data-hydro-click-hmac="028a08f740516273aa7f05a2f5db3c450593017549ffa99920f497664d796dbe" data-view-component="true" href="/topics/3d" title="Topic: 3d">

3d

 </div>

<div class="p-3">

<ul class="d-flex f6 list-style-none color-fg-muted">

<li class="mr-4">

Updated

<relative-time class="no-wrap" datetime="2022-08-09T02:06:13Z">Aug 9, 2022</relative-time>

```
</li>
<li class="mr-4">
<span class="f6 my-1 ml-0">
<span class="repo-language-color" style="background-color: #555555"></span>
<span itemprop="programmingLanguage">C</span>
</span>
</li>
</ul>
</div>
</div>
</article>
<article class="border rounded color-shadow-small color-bg-subtle my-4">
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
<span style="margin-top:2px">
<svg aria-hidden="true" class="octicon octicon-repo color-fg-muted mr-2" data-view-compo
nent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.7
5.75 0 110-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5
v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.4.2
11.45-1.087a.25.25 0 01.3 0L8.6 15.7a.25.25 0 00.4-.2v-3.25a.25.25 0 00-.25-.25h-3.5a.2
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</svg>
</span>
<h3 class="f3 color-fg-muted text-normal lh-condensed">
<a data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITOR
Y_CARD","click_target":"OWNER","click_visual_representation":"REPOSITORY_OWNER_HEADIN
G","actor_id":null,"record_id":5639024,"originating_url":"https://github.com/topics/3
d","user_id":null}}' data-hydro-click-hmac="2b46ab94ba783e748930d230cdb4e412a8f4935af6bb
89136ae4f1c32f1b5ccb" data-turbo="false" data-view-component="true" href="/domlysz">
    domlysz
</a>
    <a class="text-bold wb-break-word" data-hydro-click='{"event_type":"explore.cl
ick","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_vis
ual_representation":"REPOSITORY_NAME_HEADING","actor_id":null,"record_id":19577136,"orig
inating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="7c9
7f5ccba5ac252cf18348fde7349654b1bcc5a2849dff71c6c86aa5659f495" data-turbo="false" data-v
iew-component="true" href="/domlysz/BlenderGIS">
    BlenderGIS
</a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-
s btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type":"authentica
tion.click","payload":{"location_in_page":"star button","repository_id":19577136,"auth_t
ype":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-hy
dro-click-hmac="fb29fb1b0efacb88f4d630b36b9c4517ee2b764bf7dc6d0305ca43c292a3efb5" data-v
iew-component="true" href="/login?return_to=%2Fdomlysz%2FBlenderGIS" rel="nofollow"> <sv
g aria-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline-block mr-
2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 .25a.75.75 0 01.673.41811.882 3.815 4.21.612a.75.75 0 01.416 1.2791-3.046 2.
97.719 4.192a.75.75 0 01-1.088.791L8 12.3471-3.766 1.98a.75.75 0 01-1.088-.791.72-4.194
L.818 6.374a.75.75 0 01.416-1.2814.21-.611L7.327.668A.75.75 0 018 .25zm0 2.445L6.615 5.5
a.75.75 0 01-.564.411-3.097.45 2.24 2.184a.75.75 0 01.216.6641-.528 3.084 2.769-1.456a.7
5.75 0 01.698 012.77 1.456-.53-3.084a.75.75 0 01.216-.66412.24-2.183-3.096-.45a.75.75 0
01-.564-.41L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
    Star
</span> <span aria-label="5532 users starred this repository" class="Counter js-social-c
ount" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-s
ingular-suffix="user starred this repository" data-turbo-replace="true" data-view-compon
ent="true" id="repo-stars-counter-star" title="5,532">5.5k</span>
</a><button aria-label="You must be signed in to add this repository to a list" class
="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="bu
```

```
tion"><svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component
="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.427 7.427l3.396 3.396a.25.25 0 00.354 0l3.396-3.396A.25.25 0 0011.396 7H4.60
4a.25.25 0 00-.177.427z"></path>
</svg>
</button></div>
</div>
</div>
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
<a aria-current="true" class="tabnav-tab f6 px-2 py-1" data-hydro-click='{ "event_type":
"explore.click", "payload": { "click_context": "REPOSITORY_CARD", "click_target": "REPOSITO
RY", "click_visual_representation": "CODE_TAB", "actor_id": null, "record_id": 19577136, "origi
nating_url": "https://github.com/topics/3d", "user_id": null } }' data-hydro-click-hmac="66cf
ea9e3d938b94f6e594166319fbdd038bfe5ee2c747b6b11cf18938ef2400" data-turbo="false" data-vi
ew-component="true" href="/domlysz/BlenderGIS" id="code-tab-19577136">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-componen
t="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 8l3.72 3.72a.75.75 0 11-1.06 1.06L.47 8.53
a.75.75 0 010-1.06l4.25-4.25zm6.56 0a.75.75 0 10-1.06 1.06L13.94 8l-3.72 3.72a.75.75 0 1
01.06 1.06l4.25-4.25a.75.75 0 00-1.06-1.06l-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{ "event_type": "explore.click", "payl
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_representation": "ISSUES_TAB", "actor_id": null, "record_id": 19577136, "originating_url": "ht
tps://github.com/topics/3d", "user_id": null } }' data-hydro-click-hmac="aa8d3584e40034aa45f
c6335efd52f64dc1d0bba3417448593dc4a44ea92b5aa" data-turbo="false" data-view-component="t
rue" href="/domlysz/BlenderGIS/issues" id="issues-tab-19577136">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-co
mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 00 3z"></path><path d="M8 0a8 8 0 100 16A8 8
0 008 0zM1.5 8a6.5 6.5 0 1113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{ "event_type": "explore.click", "payl
oad": { "click_context": "REPOSITORY_CARD", "click_target": "REPOSITORY_PULL_REQUESTS", "click
_visual_representation": "PULL_REQUESTS_TAB", "actor_id": null, "record_id": 19577136, "origin
ating_url": "https://github.com/topics/3d", "user_id": null } }' data-hydro-click-hmac="38b35
8c25327691d6f2e7530c2ece758dfd35374a42ea794bfb236825c0f9f97" data-turbo="false" data-vie
w-component="true" href="/domlysz/BlenderGIS/pulls" id="pull-requests-tab-19577136">
<svg aria-hidden="true" class="octicon octicon-git-pull-request color-fg-muted" data-vie
w-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M7.177 3.073L9.573.677A.25.25 0 0110 .854v4.792a.25.25 0 01-.427.177L7.177 3.42
7a.25.25 0 010-.354zM3.75 2.5a.75.75 0 100 1.5.75.75 0 000-1.5zm-2.25.75a2.25 2.25 0 113
2.122v5.256a2.251 2.251 0 11-1.5 0V5.372A2.25 2.25 0 011.5 3.25zM11 2.5h-1V4h1a1 1 0 01
1 1v5.628a2.251 2.251 0 101.5 0V5A2.5 2.5 0 0011 2.5zm1 10.25a.75.75 0 111.5 0 .75.75 0
01-1.5 0zM3.75 12a.75.75 0 100 1.5.75.75 0 000-1.5z" fill-rule="evenodd"></path>
</svg> Pull requests

</a></li>
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g_url": "https://github.com/topics/3d", "user_id": null } }' data-hydro-click-hmac="0e94f1531
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```

```
mponent="true" href="/domlysz/BlenderGIS/discussions" id="discussions-tab-19577136">
<svg aria-hidden="true" class="octicon octicon-comment-discussion color-fg-muted" data-v
iew-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
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a.75.75 0 00-.53.22L3.5 11.44V9.25a.75.75 0 00-.75-.75h-1a.25.25 0 01-.25-.25v-5.5zM1.75
1A1.75 1.75 0 000 2.75v5.5C0 9.216.784 10 1.75 10H2v1.543a1.457 1.457 0 002.487 1.03L7.
061 10h3.189A1.75 1.75 0 0012 8.25v-5.5A1.75 1.75 0 0010.25 1h-8.5zM14.5 4.75a.25.25 0 0
0-.25-.25h-.5a.75.75 0 0110-1.5h.5c.966 0 1.75.784 1.75 1.75v5.5A1.75 1.75 0 0114.25 12H1
4v1.543a1.457 1.457 0 01-2.487 1.03L9.22 12.28a.75.75 0 011.06-1.06L12.22 2.22v-2.19a.75.
75 0 01.75-.75h1a.25.25 0 00.25-.25v-5.5z" fill-rule="evenodd"></path>
</svg> Discussions
```


</nav>

<div class="color-bg-default rounded-bottom-2">

<div class="px-3 pt-3">

<p class="color-fg-muted mb-0"><div>Blender addons to make the bridge between Blender an
d geographic data</div></p>

</div>

<div class="d-flex flex-wrap border-bottom color-border-muted px-3 pt-2 pb-2">

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python

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s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="ddd521e9b650a065fbe2c
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p" title="Topic: map">

map

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ender" title="Topic: blender">

blender

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don" title="Topic: addon">

addon

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enstreetmap" title="Topic: openstreetmap">

openstreetmap

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ospatial" title="Topic: geospatial">

geospatial

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ster" title="Topic: raster">
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ps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="af2e584df11576da3979
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dem
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ps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="028a08f740516273aa7f
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3d
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ps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="774bbb95d30a0a11c8c1
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dgis" title="Topic: 3dgis">
3dgis
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ps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="3de5b5c0d8e83490c5c3
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```
importexport" title="Topic: importexport">
    importexport
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":387932,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="154ce94e24ff3b9cc1079539ad1852cd1c4f480fe1230bc87152c2e36064d89e" data-view-component="true" href="/topics/terrain-model" title="Topic: terrain-model">
    terrain-model
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":387933,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="37e9062eca3ca5b1f6c661f80231590c9bacb66d562fb2425a82dbcc576fb317" data-view-component="true" href="/topics/basemap" title="Topic: basemap">
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</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":387934,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="8bbc3f7bef04c33455ec65549a7dc758a05a2323b0bb425e3d0bbac3fed6ca3d" data-view-component="true" href="/topics/3d-map" title="Topic: 3d-map">
    3d-map
</a> </div>
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<ul class="d-flex f6 list-style-none color-fg-muted">
<li class="mr-4">
    Updated
    <relative-time class="no-wrap" datetime="2022-07-15T20:12:37Z">Jul 15, 2022
</relative-time>
</li>
<li class="mr-4">
<span class="f6 my-1 ml-0">
<span class="repo-language-color" style="background-color: #3572A5"></span>
<span itemprop="programmingLanguage">Python</span>
</span>
</li>
</ul>
</div>
</div>
</article>
<article class="border rounded color-shadow-small color-bg-subtle my-4">
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
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</svg>
</span>
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    spritejs
</a>
    <a class="text-bold wb-break-word" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representation":"REPOSITORY_NAME_HEADING","actor_id":null,"record_id":96287699,"orig
```

```
inating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="a56
e16d0a40310d1b96aaa49cca27395eeced1a101cf1a0bacaf5355cd7d0b54" data-turbo="false" data-v
iew-component="true" href="/spritejs/spritejs">
    spritejs
</a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-
s btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type":"authentica
tion.click","payload":{"location_in_page":"star button","repository_id":96287699,"auth_t
ype":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-hy
dro-click-hmac="d9f7fd925f56e6d6cf308bba5b7ec338dbf1b1e92ddd0872427f493871ede987" data-v
iew-component="true" href="/login?return_to=%2Fspritejs%2Fspritejs" rel="nofollow"> <svg
    aria-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline-block mr-2"
    data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 .25a.75.75 0 01.673.418l1.882 3.815 4.216.612a.75.75 0 01.416 1.279l-3.046 2.
977l9 4.192a.75.75 0 01-1.088.791L12 3.471l-3.766 1.98a.75.75 0 01-1.088-.791l-7.2-4.194
L8 6.374a.75.75 0 01.416-1.281l4.21-.611L12 7.327l6.688.75.75 0 018 .25zm0 2.445L6.615 5.5
a.75.75 0 01-.564.411l-3.097.45 2.24 2.184a.75.75 0 01.216.664l-.528 3.084 2.769-1.456a.7
5.75 0 01.698 0l2.77 1.456-.53-3.084a.75.75 0 01.216-.664l2.24-2.183-3.096-.45a.75.75 0
01-.564-.411L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
    Star
</span> <span aria-label="4952 users starred this repository" class="Counter js-social-c
ount" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-s
ingular-suffix="user starred this repository" data-turbo-replace="true" data-view-compon
ent="true" id="repo-stars-counter-star" title="4,952">5k</span>
</a> <button aria-label="You must be signed in to add this repository to a list" class
="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="bu
tton"> <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component
="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
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4a.25.25 0 00-.177.427z"></path>
</svg>
</button></div>
</div>
</div>
</div>
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
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dac02573900692181b40fe046afa2281139d690163639a4cd21207a01146" data-turbo="false" data-vi
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<path d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 8l3.72 3.72a.75.75 0 011.06 1.06L4.7 8.53
a.75.75 0 010-1.06l4.25-4.25zm6.56 0a.75.75 0 010-1.06 1.06L13.94 8l-3.72 3.72a.75.75 0 1
01.06 1.06l4.25-4.25a.75.75 0 000-1.06l-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code
</a></li>
<li class="d-inline-flex" data-view-component="true">
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tps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="16255d771c44a7e64ef
c5ce9843c9373ec49cb738ff2dcb9c64b1b599b9783a4" data-turbo="false" data-view-component="t
rue" href="/spritejs/spritejs/issues" id="issues-tab-96287699">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-co
mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
```

```
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 000 3z"></path><path d="M8 0a8 8 0 100 16A8 8
0 008 0zM1.5 8a6.5 6.5 0 1113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_PULL_REQUESTS","click_visual_representation":"PULL_REQUESTS_TAB","actor_id":null,"record_id":96287699,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="b752e85748a6e062fbde7847f2762b8e77a7c86eb3fb3b44248a93f3fab74c32" data-turbo="false" data-view-component="true" href="/spritejs/spritejs/pulls" id="pull-requests-tab-96287699">
<svg aria-hidden="true" class="octicon octicon-git-pull-request color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M7.177 3.073L9.573.677A.25.25 0 0110 .854v4.792a.25.25 0 01-.427.177L7.177 3.427a.25.25 0 010-.354zM3.75 2.5a.75.75 0 100 1.5.75.75 0 000-1.5zm-2.25.75a2.25 2.25 0 113.2.122v5.256a2.251 2.251 0 11-1.5 0V5.372A2.25 2.25 0 011.5 3.25zM11 2.5h-1V4h1a1 1 0 011 1v5.628a2.251 2.251 0 101.5 0V5A2.5 2.5 0 0011 2.5zm1 10.25a.75.75 0 111.5 0 .75.75 0 01-1.5 0zM3.75 12a.75.75 0 100 1.5.75.75 0 000-1.5z" fill-rule="evenodd"></path>
</svg> Pull requests

</a></li>
</ul>
</nav>
<div class="color-bg-default rounded-bottom-2">
<div class="px-3 pt-3">
<p class="color-fg-muted mb-0"><div>A cross platform high-performance graphics system.</div></p>
</div>
<div class="d-flex flex-wrap border-bottom color-border-muted px-3 pt-2 pb-2">
<a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":2119,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="d2e607f9d7b25ee5a5f68ce176febce6c2f1236e5bf9ca64fdb5da5a01a19767" data-view-component="true" href="/topics/webgl" title="Topic: webgl">
webgl
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":9049,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="0694e7e822f74b8a606df97d0cb6572a660b366fa0697b2001a01371c72f3bd2" data-view-component="true" href="/topics/canvas" title="Topic: canvas">
canvas
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":13080,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="517f6d4da5ceclee4dfaf e3eb3aa0f5dd7287c4404569367259665f587636917" data-view-component="true" href="/topics/rendering" title="Topic: rendering">
rendering
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":177465,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="cf61b63494249752f0321b2eccd33ed2bcf9ca557f15ed9efcd28b7992d76571" data-view-component="true" href="/topics/webgl2" title="Topic: webgl2">
webgl2
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":238400,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="028a08f740516273aa7f05a2f5db3c450593017549ffa99920f497664d796dbe" data-view-component="true" href="/topics/3d" title="Topic: 3d">
```

```
</a> <a class="topic-tag topic-tag-linkf6 mb-2" data-hydro-click='{"event_type":"explore.click", "payload":{"click_context":"REPOSITORY_CARD", "click_target":"TOPIC", "click_visual_representation":"TOPIC_TAG", "actor_id":null, "record_id":248512, "originating_url":"https://github.com/topics/3d", "user_id":null}}' data-hydro-click-hmac="6608a741a5bb365111a189e4fb161b7be32438564f7eeade46e580e52d186a5c" data-view-component="true" href="/topics/2d" title="Topic: 2d">
    2d
</a> </div>
<div class="p-3">
<ul class="d-flex f6 list-style-none color-fg-muted">
<li class="mr-4">
    Updated
    <relative-time class="no-wrap" datetime="2022-07-03T03:29:28Z">Jul 3, 2022</relative-time>
</li>
<li class="mr-4">
<span class="f6 my-1 ml-0">
<span class="repo-language-color" style="background-color: #f1e05a"></span>
<span itemprop="programmingLanguage">JavaScript</span>
</span>
</li>
</ul>
</div>
</div>
</article>
<article class="border rounded color-shadow-small color-bg-subtle my-4">
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
<span style="margin-top:2px">
<svg aria-hidden="true" class="octicon octicon-repo color-fg-muted mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.75.75 0 01-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 01-1h8zM5 12.25v3.25a.25.25 0 00.4.25h-1.087a.25.25 0 01.3 0L8.6 15.7a.25.25 0 00.4-.25v-3.25a.25.25 0 00-.25-.25h-3.5a.25.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
</span>
<h3 class="f3 color-fg-muted text-normal lh-condensed">
<a data-hydro-click='{"event_type":"explore.click", "payload":{"click_context":"REPOSITORY_CARD", "click_target":"OWNER", "click_visual_representation":"REPOSITORY_OWNER_HEADER", "actor_id":null, "record_id":466370, "originating_url":"https://github.com/topics/3d", "user_id":null}}' data-hydro-click-hmac="6e27233282417634bd67b72ffd9eb417d80e8683b1df666e55551cc9b8be4532" data-turbo="false" data-view-component="true" href="/opencad">
    opencad
</a>
    /
    <a class="text-bold wb-break-word" data-hydro-click='{"event_type":"explore.click", "payload":{"click_context":"REPOSITORY_CARD", "click_target":"REPOSITORY", "click_visual_representation":"REPOSITORY_NAME_HEADING", "actor_id":null, "record_id":1049088, "originating_url":"https://github.com/topics/3d", "user_id":null}}' data-hydro-click-hmac="ce459e10b38eff918a7732ee23229e2547b096565812cfa6a9fb3a60b47ed1bd" data-turbo="false" data-view-component="true" href="/opencad/opencad">
    opencad
</a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
<a aria-label="Sponsor @opencad" class="btn btn-sm mr-2" data-hydro-click='{"event_type":"sponsors.button_click", "payload":{"button":"TOPIC_PAGE_SPONSOR", "sponsorable_login":"opencad", "originating_url":"https://github.com/topics/3d", "user_id":null}}' data-hydro-click-hmac="2b657148c785e90a2719a0ca485b6b0068cfee31e98fcaa846b864b5ff216ea2" data-view-component="true" href="/sponsors/opencad">
<svg aria-hidden="true" class="octicon octicon-heart icon-sponsor mr-1 v-align-middle color-fg-sponsors anim-pulse-in" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
```

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<path d="M4.25 2.5c-1.336 0-2.75 1.164-2.75 3 0 2.15 1.58 4.144 3.365 5.682A20.565 20.565 0 008 13.393a20.561 20.561 0 003.135-2.211C12.92 9.644 14.5 7.65 14.5 5.5c0-1.836-1.414-3-2.75-3-1.373 0-2.609.986-3.029 2.456a.75.75 0 01-1.442 0C6.859 3.486 5.623 2.5 4.25 2.5zM8 14.25l-.345.666-.002-.001-.006-.003-.018-.01a7.643 7.643 0 01-.31-.17 22.075 22.075 0 01-3.434-2.414C2.045 10.731 0 8.35 0 5.5 0 2.836 2.086 1 4.25 1 5.797 1 7.153 1.802 8 3.02 8.847 1.802 10.203 1 11.75 1 13.914 1 16 2.836 16 5.5c0 2.85-2.045 5.231-3.885 6.818a22.08 22.08 0 01-3.744 2.584l-.018.01-.006.003h-.002L8 14.25zm0 01.345.666a.752.75 0 01-.69 0L8 14.25z" fill-rule="evenodd"></path>
</svg>
<span class="v-align-middle">Sponsor</span>
</a>
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-s btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type":"authentication.click","payload":{"location_in_page":"star button","repository_id":1049088,"auth_type":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="c6fc7ae8d3d40c71da1781f430935f1cf057bb82f13574c21d8c3012d77d77c7" data-view-component="true" href="/login?return_to=%2Fopencscad%2Fopencscad" rel="nofollow"> <svg aria-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline-block mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 .25a.75.75 0 01.673.418l1.882 3.815 4.216.612a.75.75 0 01.416 1.279l-3.046 2.977l19 4.192a.75.75 0 01-1.088.791L8 12.347l-3.766 1.98a.75.75 0 01-1.088-.791l-2.419 4.194L8 6.374a.75.75 0 01.416-1.281l4.21-.611L7.327.668A.75.75 0 018 .25zm0 2.445L6.615 5.5a.75.75 0 01-.564.41l-3.097.45 2.24 2.184a.75.75 0 01.216.664l-.528 3.084 2.769-1.456a.75.75 0 01.698 0l2.77 1.456-.53-3.084a.75.75 0 01.216-.664l2.24-2.183-3.096-.45a.75.75 0 01-.564-.41L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
Star
</span> <span aria-label="4948 users starred this repository" class="Counter js-social-count" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-singular-suffix="user starred this repository" data-turbo-replace="true" data-view-component="true" id="repo-stars-counter-star" title="4,948">4.9k</span>
</a> <button aria-label="You must be signed in to add this repository to a list" class="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="button"> <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.427 7.427l3.396 3.396a.25.25 0 00.354 0l3.396-3.396A.25.25 0 0011.396 7.427H4.427a.25.25 0 00-.177.427z"></path>
</svg>
</button></div>
</div>
</div>
</div>
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
<a aria-current="true" class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representation":"CODE_TAB","actor_id":null,"record_id":1049088,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="bb35ba548abd83377340531e9cf592c2fa67788d781c5bd8384263dc345dac3c" data-turbo="false" data-view-component="true" href="/opencscad/opencscad" id="code-tab-1049088">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 8.13l7.2 3.72a.75.75 0 011.06 1.06L4.7 8.53a.75.75 0 010-1.06l4.25-4.25zm6.56 0a.75.75 0 010-1.06 1.06L13.94 8.13l7.2 3.72a.75.75 0 010 1.06 1.06l4.25-4.25a.75.75 0 000-1.06l-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code
</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_ISSUES","click_visual_representation":"ISSUES_TAB","actor_id":null,"record_id":1049088,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="d8bf02878f1ec9ff046c
```

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3132ecfa44a32ed0fad58948a0dcacelb9472df417b0" data-turbo="false" data-view-component="true" href="/opencad/opencad/issues" id="issues-tab-1049088">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 000 3z"></path><path d="M8 0a8 8 0 100 16A8 8 0 008 0zM1.5 8a6.5 6.5 0 1113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_PULL_REQUESTS","click_visual_representation":"PULL_REQUESTS_TAB","actor_id":null,"record_id":1049088,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="c0d90f251802c3f05a7d520d7b1ba0a9ca2974fc8a6a5a669cff913717265474" data-turbo="false" data-view-component="true" href="/opencad/opencad/pulls" id="pull-requests-tab-1049088">
<svg aria-hidden="true" class="octicon octicon-git-pull-request color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M7.177 3.073L9.573.677A2.25 2.25 0 0110 .854v4.792a2.25 2.25 0 01-.427 1.777L7.177 3.427a2.25 2.25 0 010-.354zM3.75 2.5a2.25 2.25 0 100 4.5zM5.25 2.5a2.25 2.25 0 100 4.5zM7.5 2.5a2.25 2.25 0 100 4.5zM9.75 2.5a2.25 2.25 0 100 4.5zM11.5 2.5a2.25 2.25 0 100 4.5zM13.25 2.5a2.25 2.25 0 100 4.5zM15 2.5a2.25 2.25 0 100 4.5zM1.5 10.25a2.25 2.25 0 100 4.5zM3.75 10.25a2.25 2.25 0 100 4.5zM5.25 10.25a2.25 2.25 0 100 4.5zM7.5 10.25a2.25 2.25 0 100 4.5zM9.75 10.25a2.25 2.25 0 100 4.5zM11.5 10.25a2.25 2.25 0 100 4.5zM13.25 10.25a2.25 2.25 0 100 4.5zM15 10.25a2.25 2.25 0 100 4.5z" fill-rule="evenodd"></path>
</svg> Pull requests

</a></li>
</ul>
</nav>
<div class="color-bg-default rounded-bottom-2">
<div class="px-3 pt-3">
<p class="color-fg-muted mb-0"><div>OpenSCAD - The Programmers Solid 3D CAD Modeller </div></p>
</div>
<div class="d-flex flex-wrap border-bottom color-border-muted px-3 pt-2 pb-2">
<a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":198,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="4401c780d23c889b9c76f45497f970453541d4a81d69592220d29292a9c84fe3" data-view-component="true" href="/topics/windows" title="Topic: windows">
    windows
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":199,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="9b644d70c43b89e8bc8a0d9e3150642416ee52488f65c561ec0ee031e02eb366" data-view-component="true" href="/topics/macos" title="Topic: macos">
    macos
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":200,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="bafae3445ec7531a94b91fa467812f2418f9bfe23ec640e316c25bf4621e00e5" data-view-component="true" href="/topics/linux" title="Topic: linux">
    linux
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":658,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="839a6eeb2274c8da68dbc0d261e541da47bfcd92930932df94162f9346b88b" data-view-component="true" href="/topics/c-plus-plus" title="Topic: c-plus-plus">
    c-plus-plus
</a><a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visu
```

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s://github.com/topics/3d", "user_id":null}}' data-hydro-click-hmac="adc813d832197f96443bc
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engl" title="Topic: opengl">
    opengl
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s://github.com/topics/3d", "user_id":null}}' data-hydro-click-hmac="691cb5fc0c666b3ae9f83
7f3ffa5a8a00d7a3869d614d8ce579d766d9c521aff" data-view-component="true" href="/topics/qt
5" title="Topic: qt5">
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    c-plus-plus-14
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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b218bb086cd2e9b02c3341e0c105335df9d9ce80263" data-view-component="true" href="/topics/op
enscad" title="Topic: openscad">
    openscad
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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ps://github.com/topics/3d", "user_id":null}}' data-hydro-click-hmac="4537651ce91580bfec20
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    3d-printing
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c965cb487150f6316888b370986da8f3c036fd4cd028" data-view-component="true" href="/topics/3
d-graphics" title="Topic: 3d-graphics">
    3d-graphics
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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d-models" title="Topic: 3d-models">
    3d-models
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ps://github.com/topics/3d", "user_id":null}}' data-hydro-click-hmac="96f12ac6896d30b6f17b
29c55e5b6b739033bdcad41a0005d0caba7a1208e96e" data-view-component="true" href="/topics/d
xf-files" title="Topic: dxf-files">
    dxf-files
</a> </div>
<div class="p-3">
<ul class="d-flex f6 list-style-none color-fg-muted">
<li class="mr-4">
    Updated
```



```
</relative-time>
</li>
<li class="mr-4">
<span class="f6 my-1 ml-0">
<span class="repo-language-color" style="background-color: #f34b7d"></span>
<span itemprop="programmingLanguage">C++</span>
</span>
</li>
</ul>
</div>
</div>
</article>
<article class="border rounded color-shadow-small color-bg-subtle my-4">
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
<span style="margin-top:2px">
<svg aria-hidden="true" class="octicon octicon-repo color-fg-muted mr-2" data-view-compo
nent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.7
5.75 0 110-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5
v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.4.2
11.45-1.087a.25.25 0 01.3 0L8.6 15.7a.25.25 0 00.4-.2v-3.25a.25.25 0 00-.25-.25h-3.5a.2
5.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
</span>
<h3 class="f3 color-fg-muted text-normal lh-condensed">
<a data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITOR
Y_CARD","click_target":"OWNER","click_visual_representation":"REPOSITORY_OWNER_HEADIN
G","actor_id":null,"record_id":43156133,"originating_url":"https://github.com/topics/3
d","user_id":null}}' data-hydro-click-hmac="3fd24e8e9c72aec7e179a9e25c170d3622bfb447cd08b
47aeaeed5c12de9f4198" data-turbo="false" data-view-component="true" href="/tensorspace-t
eam">
tensorspace-team
</a>
/
<a class="text-bold wb-break-word" data-hydro-click='{"event_type":"explore.cl
ick","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_vis
ual_representation":"REPOSITORY_NAME_HEADING","actor_id":null,"record_id":141901715,"ori
ginating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="a5
7e8303ce8aceff7bbb2ca5398ea4286a0e0a67af0a921472f4b4b26fe0ce1" data-turbo="false" data-
view-component="true" href="/tensorspace-team/tensorspace">
tensorspace
</a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-
s btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type":"authentica
tion.click","payload":{"location_in_page":"star button","repository_id":141901715,"auth_
type":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-h
ydro-click-hmac="4956ce771aae43360dc8abd11ddef3fb2d27c9f7f028ec75be2ec94d6dcae1" data-
view-component="true" href="/login?return_to=%2Ftensorspace-team%2Ftensorspace" rel="nof
ollow"> <svg aria-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline
-block mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" wi
dth="16">
<path d="M8 .25a.75.75 0 01.673.418l1.882 3.815 4.21.612a.75.75 0 01.416 1.279l-3.046 2.
97.719 4.192a.75.75 0 01-1.088.791L8 12.347l-3.766 1.98a.75.75 0 01-1.088-.791.72-4.194
L.818 6.374a.75.75 0 01.416-1.281.4.21-.611L7.327.668A.75.75 0 018 .25zm0 2.445L6.615 5.5
a.75.75 0 01-.564.411-3.097.45 2.24 2.184a.75.75 0 01.216.6641-.528 3.084 2.769-1.456a.7
5.75 0 01.698 012.77 1.456-.53-3.084a.75.75 0 01.216-.66412.24-2.183-3.096-.45a.75.75 0
01-.564-.41L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
Star
</span> <span aria-label="4700 users starred this repository" class="Counter js-social-c
ount" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-s
```

```
ingular-suffix="user starred this repository" data-turbo-replace="true" data-view-component="true" id="repo-stars-counter-star">4,700</span>
</a> <button aria-label="You must be signed in to add this repository to a list" class="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="button"> <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.427 7.427l3.396 3.396a.25.25 0 00.354 0l3.396-3.396A.25.25 0 0011.396 7H4.604a.25.25 0 00-.177.427z"></path>
</svg>
</button></div>
</div>
</div>
</div>
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
<a aria-current="true" class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representation":"CODE_TAB","actor_id":null,"record_id":141901715,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="543f2b48b6584bc710493553bfca7bdbb241dcc507f0a43e74a9d4b3ee253bde" data-turbo="false" data-view-component="true" href="/tensorflow/tensorflow" id="code-tab-141901715">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 8.13.72 3.72a.75.75 0 11-1.06 1.06L.47 8.53a.75.75 0 010-1.06l4.25-4.25zm6.56 0a.75.75 0 10-1.06 1.06L13.94 8.13.72 3.72a.75.75 0 101.06 1.06l4.25-4.25a.75.75 0 00-1.06-1.06l-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_ISSUES","click_visual_representation":"ISSUES_TAB","actor_id":null,"record_id":141901715,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="2fd6050d9ae5ba338c9de336d3ee130b0c23034edb5ff2c4dd2aadb5ca4623c5" data-turbo="false" data-view-component="true" href="/tensorflow/tensorflow/issues" id="issues-tab-141901715">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 00 3z"></path><path d="M8 0a8 8 0 100 16A8 8 0 008 0zM1.5 8a6.5 6.5 0 113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_PULL_REQUESTS","click_visual_representation":"PULL_REQUESTS_TAB","actor_id":null,"record_id":141901715,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="2ae5b95774c4dad426a0b462e30174907f113eb8a96c89d66656c45b5d1751ac" data-turbo="false" data-view-component="true" href="/tensorflow/tensorflow/pulls" id="pull-requests-tab-141901715">
<svg aria-hidden="true" class="octicon octicon-git-pull-request color-fg-muted" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M7.177 3.073L9.573.677A.25.25 0 0110 .854v4.792a.25.25 0 01-.427.177L7.177 3.427a.25.25 0 010-.354zM3.75 2.5a.75.75 0 100 1.5.75.75 0 00-1.5zm-2.25.75a2.25 2.25 0 113 2.122v5.256a2.251 2.251 0 11-1.5 0V5.372A2.25 2.25 0 011.5 3.25zM11 2.5h-1V4h1a1 1 0 011 1v5.628a2.251 2.251 0 010 1.5V5A2.5 2.5 0 0011 2.5zm1 10.25a.75.75 0 111.5 0 01-1.5 0zM3.75 12a.75.75 0 100 1.5.75.75 0 00-1.5z" fill-rule="evenodd"></path>
</svg> Pull requests

</a></li>
</ul>
```

```
</nav>
<div class="color-bg-default rounded-bottom-2">
<div class="px-3 pt-3">
<p class="color-fg-muted mb-0"><div>Neural network 3D visualization framework, build interactive and intuitive model in browsers, support pre-trained deep learning models from TensorFlow, Keras, TensorFlow.js </div></p>
</div>
<div class="d-flex flex-wrap border-bottom color-border-muted px-3 pt-2 pb-2">
<a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":22,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="f92442ca5e589828fa0e854454c4c415a6046073fa231f7cb0d8921b05c07409" data-view-component="true" href="/topics/visualization" title="Topic: visualization">
    visualization
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":2120,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="7ac60336afb502388a7b4d9d01d780620c0532c7cb9a549e5ef23f06607aa3b8" data-view-component="true" href="/topics/threejs" title="Topic: threejs">
    threejs
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":2169,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="87e01227589b9a4953e509a62a1245ff1aca4b0d1416cd9a99b6f65234f45a0a" data-view-component="true" href="/topics/machine-learning" title="Topic: machine-learning">
    machine-learning
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":9290,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="735b29635b1a14277f4581d12d5896e0cbad5884237701cb474bc2820c5456c5" data-view-component="true" href="/topics/deep-learning" title="Topic: deep-learning">
    deep-learning
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":12734,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="63144f67077dc0cac95bc3346b7de02d50281c436875849bbe515c923be99270" data-view-component="true" href="/topics/tensorflow" title="Topic: tensorflow">
    tensorflow
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":17705,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="cb3d6f0245beb7508483cfef671a495437e3b64fb6b2fab3f747ffa3aeaf2499" data-view-component="true" href="/topics/keras" title="Topic: keras">
    keras
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":238400,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="028a08f740516273aa7f05a2f5db3c450593017549ffa99920f497664d796dbe" data-view-component="true" href="/topics/3d" title="Topic: 3d">
    3d
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":519436,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="a092728df673819db4afe34150c6b04ce4c74c973a672ea95265alea4e5c058" data-view-component="true" href="/topics/neural-network" title="Topic: neural-network">
    neural-network
</a><a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visu
```

```
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    tfjs
</a> </div>
<div class="p-3">
<ul class="d-flex f6 list-style-none color-fg-muted">
<li class="mr-4">
    Updated
    <relative-time class="no-wrap" datetime="2022-07-25T23:32:25Z">Jul 25, 2022
</relative-time>
</li>
<li class="mr-4">
<span class="f6 my-1 ml-0">
<span class="repo-language-color" style="background-color: #f1e05a"></span>
<span itemprop="programmingLanguage">JavaScript</span>
</span>
</li>
</ul>
</div>
</div>
</article>
<article class="border rounded color-shadow-small color-bg-subtle my-4">
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
<span style="margin-top:2px">
<svg aria-hidden="true" class="octicon octicon-repo color-fg-muted mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.75.75 0 01-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 01-1h8zM5 12.25v3.25a.25.25 0 00.42 11.45-1.087a.25.25 0 01.3 0L8.6 15.7a.25.25 0 00.4-.2v-3.25a.25.25 0 00-.25-.25h-3.5a.25.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
</span>
<h3 class="f3 color-fg-muted text-normal lh-condensed">
<a data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"OWNER","click_visual_representation":"REPOSITORY_OWNER_HEADING","actor_id":null,"record_id":393515,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="c3bf27c338bea41a20ec22010a10d077bdc14c5edf8a9d3c14f464c1a18d4c24" data-turbo="false" data-view-component="true" href="/jagenjo">
    jagenjo
</a>
    <a class="text-bold wb-break-word" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representation":"REPOSITORY_NAME_HEADING","actor_id":null,"record_id":40006776,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="f35c57e030fa0d745719a2f7ebb0d63d8025f9adf5beb0f674db3a4fc159026a" data-turbo="false" data-view-component="true" href="/jagenjo/webglstudio.js">
    webglstudio.js
</a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-s btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type":"authentication.click","payload":{"location_in_page":"star button","repository_id":40006776,"auth_type":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="7dc499e162c5b23695043978c42effb992717b9f1f71bf04b4394b25e89ab583" data-view-component="true" href="/login?return_to=%2Fjagenjo%2Fwebglstudio.js" rel="nofollow">
    <svg aria-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline-block mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 .25a.75.75 0 01.673.418l1.882 3.815 4.21.612a.75.75 0 01.416 1.279l-3.046 2.
```

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97.719 4.192a.75.75 0 01-1.088.791L8 12.3471-3.766 1.98a.75.75 0 01-1.088-.791.72-4.194
L.818 6.374a.75.75 0 01.416-1.2814.21-.611L7.327.668A.75.75 0 018 .25zm0 2.445L6.615 5.5
a.75.75 0 01-.564.411-3.097.45 2.24 2.184a.75.75 0 01.216.6641-.528 3.084 2.769-1.456a.7
5.75 0 01.698 012.77 1.456-.53-3.084a.75.75 0 01.216-.66412.24-2.183-3.096-.45a.75.75 0
01-.564-.41L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
    Star
</span> <span aria-label="4694 users starred this repository" class="Counter js-social-c
ount" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-s
ingular-suffix="user starred this repository" data-turbo-replace="true" data-view-compon
ent="true" id="repo-stars-counter-star" title="4,694">4.7k</span>
</a> <button aria-label="You must be signed in to add this repository to a list" class
="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="bu
tton"> <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component
="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.427 7.427l3.396 3.396a.25.25 0 00.354 0l3.396-3.396A.25.25 0 0011.396 7H4.60
4a.25.25 0 00-.177.427z"></path>
</svg>
</button></div>
</div>
</div>
</div>
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
<a aria-current="true" class="tabnav-tab f6 px-2 py-1" data-hydro-click='{ "event_typ
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RY", "click_visual_representation": "CODE_TAB", "actor_id": null, "record_id": 40006776, "origi
nating_url": "https://github.com/topics/3d", "user_id": null } }' data-hydro-click-hmac="f321
f680c52321935a805d675178ac4fb7f429b5a3fb15cdea4e6955c0938bd9" data-turbo="false" data-vi
ew-component="true" href="/jagenjo/webglstudio.js" id="code-tab-40006776">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-componen
t="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 8l3.72 3.72a.75.75 0 011.06 1.06L4.7 8.53
a.75.75 0 010-1.06l4.25-4.25zm6.56 0a.75.75 0 010-1.06 1.06L13.94 8l-3.72 3.72a.75.75 0 1
01.06 1.06l4.25-4.25a.75.75 0 000-1.06l-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code
</a></li>
<li class="d-inline-flex" data-view-component="true">
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_representation": "ISSUES_TAB", "actor_id": null, "record_id": 40006776, "originating_url": "ht
tps://github.com/topics/3d", "user_id": null } }' data-hydro-click-hmac="434afa7085e1334ab52
edc98bd4a94ea52e45d9b9e827b9953af80796726d98b" data-turbo="false" data-view-component="t
rue" href="/jagenjo/webglstudio.js/issues" id="issues-tab-40006776">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-co
mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 00 3z"></path><path d="M8 0a8 8 0 100 16A8 8
0 008 0zM1.5 8a6.5 6.5 0 1113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues
</li>
</li>
<li class="d-inline-flex" data-view-component="true">
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oad": { "click_context": "REPOSITORY_CARD", "click_target": "REPOSITORY_PULL_REQUESTS", "click
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ating_url": "https://github.com/topics/3d", "user_id": null } }' data-hydro-click-hmac="516e5
1bcd836082d420ccc511b9f2416d4120961249cb29f4c68a2103602668" data-turbo="false" data-vie
w-component="true" href="/jagenjo/webglstudio.js/pulls" id="pull-requests-tab-40006776">
<svg aria-hidden="true" class="octicon octicon-git-pull-request color-fg-muted" data-vie
w-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M7.177 3.073L9.573.677A.25.25 0 0110 .854v4.792a.25.25 0 01-.427.177L7.177 3.42
7a.25.25 0 010-.354zM3.75 2.5a.75.75 0 100 1.5.75.75 0 000-1.5zm-2.25.75a2.25 2.25 0 113
```

```
2.122v5.256a2.251 2.251 0 11-1.5 0V5.372A2.25 2.25 0 011.5 3.25zM11 2.5h-1V4h1a1 1 0 01
1 1v5.628a2.251 2.251 0 101.5 0V5A2.5 2.5 0 0011 2.5zm1 10.25a.75.75 0 111.5 0 .75.75 0
01-1.5 0zM3.75 12a.75.75 0 100 1.5.75.75 0 000-1.5z" fill-rule="evenodd"></path>
</svg> Pull requests

</a></li>
</ul>
</nav>
<div class="color-bg-default rounded-bottom-2">
<div class="px-3 pt-3">
<p class="color-fg-muted mb-0"><div>A full open source 3D graphics editor in the browse
r, with scene editor, coding pad, graph editor, virtual file system, and many features m
ore.</div></p>
</div>
<div class="d-flex flex-wrap border-bottom color-border-muted px-3 pt-2 pb-2">
<a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.cli
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presentation":"TOPIC_TAG","actor_id":null,"record_id":197,"originating_url":"https://git
hub.com/topics/3d","user_id":null}}' data-hydro-click-hmac="1ff323f6520d19d01de7e87ed94f
1c14286d5c277d69011fdb463909f9b8d28" data-view-component="true" href="/topics/editor" t
itle="Topic: editor">
    editor
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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al_representation":"TOPIC_TAG","actor_id":null,"record_id":2119,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="d2e607f9d7b25ee5a5f68
ce176febce6c2f1236e5bf9ca64fdb5da5a01a19767" data-view-component="true" href="/topics/we
bgl" title="Topic: webgl">
    webgl
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="713b91119201bf0ba3810
268d6c51302839f93cc633e66c4148461b70cb0fa5d" data-view-component="true" href="/topics/sh
aders" title="Topic: shaders">
    shaders
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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al_representation":"TOPIC_TAG","actor_id":null,"record_id":13080,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="517f6d4da5ceclee4dfaf
e3eb3aa0f5dd7287c4404569367259665f587636917" data-view-component="true" href="/topics/re
ndering" title="Topic: rendering">
    rendering
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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al_representation":"TOPIC_TAG","actor_id":null,"record_id":39330,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="316a0b805899160a1916e
88e15b45d069e75cc9629b41696654ee0bf5373cf6f" data-view-component="true" href="/topics/we
bapp" title="Topic: webapp">
    webapp
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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al_representation":"TOPIC_TAG","actor_id":null,"record_id":60841,"originating_url":"http
s://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="b25a52d204d990deae5ca
15a0568105a71434ae80a50fa278bd62b320d10f944" data-view-component="true" href="/topics/gr
aph-editor" title="Topic: graph-editor">
    graph-editor
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
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al_representation":"TOPIC_TAG","actor_id":null,"record_id":118767,"originating_url":"htt
ps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="5e2d5e1385fd03c1b570
e413dff8d242204aaa7bf746dfb2a8aec4ab79e0f70b" data-view-component="true" href="/topics/w
ebtool" title="Topic: webtool">
    webtool
</a><a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explor
```

```
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    scene-graph
</a> <a class="topic-tag topic-tag-link f6 mb-2" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"TOPIC","click_visual_representation":"TOPIC_TAG","actor_id":null,"record_id":238400,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="028a08f740516273aa7f05a2f5db3c450593017549ffa99920f497664d796dbe" data-view-component="true" href="/topics/3d" title="Topic: 3d">
    3d
</a> </div>
<div class="p-3">
<ul class="d-flex f6 list-style-none color-fg-muted">
<li class="mr-4">
    Updated
    <relative-time class="no-wrap" datetime="2020-08-03T13:01:21Z">Aug 3, 2020</relative-time>
</li>
<li class="mr-4">
<span class="f6 my-1 ml-0">
<span class="repo-language-color" style="background-color: #f1e05a"></span>
<span itemprop="programmingLanguage">JavaScript</span>
</span>
</li>
</ul>
</div>
</div>
</article>
<article class="border rounded color-shadow-small color-bg-subtle my-4">
<div class="px-3">
<div class="d-flex flex-justify-between my-3">
<div class="d-flex flex-auto">
<span style="margin-top:2px">
<svg aria-hidden="true" class="octicon octicon-repo color-fg-muted mr-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M2 2.5A2.5 2.5 0 014.5 0h8.75a.75.75 0 01.75.75v12.5a.75.75 0 01-.75.75h-2.5a.75.75 0 110-1.5h1.75v-2h-8a1 1 0 00-.714 1.7.75.75 0 01-1.072 1.05A2.495 2.495 0 012 11.5v-9zm10.5-1V9h-8c-.356 0-.694.074-1 .208V2.5a1 1 0 011-1h8zM5 12.25v3.25a.25.25 0 00.4.25.25 0 00-.25-.25h-3.5a.25.25 0 00-.25.25z" fill-rule="evenodd"></path>
</svg>
</span>
<h3 class="f3 color-fg-muted text-normal lh-condensed">
<a data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"OWNER","click_visual_representation":"REPOSITORY_OWNER_HEADER","actor_id":null,"record_id":17000803,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="22b23cef9044043c11b17037d9ae62d342ff83aec1fe01fb3deb33b088b8956c" data-turbo="false" data-view-component="true" href="/YadiraF">
    YadiraF
</a>
    <a class="text-bold wb-break-word" data-hydro-click='{"event_type":"explore.click","payload":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY","click_visual_representation":"REPOSITORY_NAME_HEADING","actor_id":null,"record_id":126008734,"originating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="4d633272ee3575f2e51f2a3ab9e56ebf7be354ec3dadcd0d1bf246d2f2c811049" data-turbo="false" data-view-component="true" href="/YadiraF/PRNet">
    PRNet
</a> </h3>
</div>
<div class="d-flex flex-items-center ml-3">
<div class="BtnGroup d-flex" data-view-component="true">
<a aria-label="You must be signed in to star a repository" class="tooltipped tooltipped-s btn-sm btn BtnGroup-item color-bg-default" data-hydro-click='{"event_type":"authenticat
```

```
tion.click","payload":{"location_in_page":"star button","repository_id":126008734,"auth_
type":"LOG_IN","originating_url":"https://github.com/topics/3d","user_id":null}}' data-h
ydro-click-hmac="93715c4988652d7017be4bad768bae01c75d1c4205ff97a34a5b37a2c8f14bec" data-
view-component="true" href="/login?return_to=%2FYadiraF%2FPRNet" rel="nofollow"> <svg ar
ia-hidden="true" class="octicon octicon-star v-align-text-bottom d-inline-block mr-2" da
ta-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 .25a.75.75 0 01.673.418l1.882 3.815 4.21.612a.75.75 0 01.416 1.279l-3.046 2.
97.719 4.192a.75.75 0 01-1.088.791L8 12.347l-3.766 1.98a.75.75 0 01-1.088-.791.72-4.194
L.818 6.374a.75.75 0 01.416-1.281.4.21-.611L7.327.668A.75.75 0 018 .25zm0 2.445L6.615 5.5
a.75.75 0 01-.564.411-3.097.45 2.24 2.184a.75.75 0 01.216.664l-.528 3.084 2.769-1.456a.7
5.75 0 01.698 0.12.77 1.456-.53-3.084a.75.75 0 01.216-.664l2.24-2.183-3.096-.45a.75.75 0
01-.564-.411L8 2.694v.001z" fill-rule="evenodd"></path>
</svg><span class="d-inline" data-view-component="true">
    Star
</span> <span aria-label="4673 users starred this repository" class="Counter js-social-c
ount" data-pjax-replace="true" data-plural-suffix="users starred this repository" data-s
ingular-suffix="user starred this repository" data-turbo-replace="true" data-view-compon
ent="true" id="repo-stars-counter-star" title="4,673">4.7k</span>
</a> <button aria-label="You must be signed in to add this repository to a list" class
="btn-sm btn BtnGroup-item px-2" data-view-component="true" disabled="disabled" type="bu
tton"> <svg aria-hidden="true" class="octicon octicon-triangle-down" data-view-component
="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.427 7.427l3.396 3.396a.25.25 0 00.354 0l3.396-3.396A.25.25 0 0011.396 7H4.60
4a.25.25 0 00-.177.427z"></path>
</svg>
</button></div>
</div>
</div>
</div>
<nav aria-label="Repository menu" class="tabnav px-3 mb-0" data-view-component="true">
<ul class="tabnav-tabs" data-view-component="true">
<li class="d-inline-flex" data-view-component="true">
<a aria-current="true" class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_typ
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RY","click_visual_representation":"CODE_TAB","actor_id":null,"record_id":126008734,"orig
inating_url":"https://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="dae
86fc0a15b14d45a0881183a0d2ab8c0f6a331e65be610d9b36df95735556e" data-turbo="false" data-v
iew-component="true" href="/YadiraF/PRNet" id="code-tab-126008734">
<svg aria-hidden="true" class="octicon octicon-code color-fg-default" data-view-componen
t="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M4.72 3.22a.75.75 0 011.06 1.06L2.06 8.13.72 3.72a.75.75 0 01-1.06 1.06L.47 8.53
a.75.75 0 010-1.06l4.25-4.25zm6.56 0a.75.75 0 010-1.06 1.06L13.94 8.1-3.72 3.72a.75.75 0 1
01.06 1.06l4.25-4.25a.75.75 0 000-1.06l-4.25-4.25z" fill-rule="evenodd"></path>
</svg> Code

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payl
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_representation":"ISSUES_TAB","actor_id":null,"record_id":126008734,"originating_url":"h
ttps://github.com/topics/3d","user_id":null}}' data-hydro-click-hmac="5dd12242367f232f69
d14be8ce42f9b6100a4fd3aa562d252b43f603716440a7" data-turbo="false" data-view-component
="true" href="/YadiraF/PRNet/issues" id="issues-tab-126008734">
<svg aria-hidden="true" class="octicon octicon-issue-opened color-fg-muted" data-view-co
mponent="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8 9.5a1.5 1.5 0 100-3 1.5 1.5 0 00 3z"></path><path d="M8 0a8 8 0 100 16A8 8
0 008 0zM1.5 8a6.5 6.5 0 1113 0 6.5 6.5 0 01-13 0z" fill-rule="evenodd"></path>
</svg> Issues

</a></li>
<li class="d-inline-flex" data-view-component="true">
<a class="tabnav-tab f6 px-2 py-1" data-hydro-click='{"event_type":"explore.click","payl
oad":{"click_context":"REPOSITORY_CARD","click_target":"REPOSITORY_PULL_REQUESTS","click
_visual_representation":"PULL_REQUESTS_TAB","actor_id":null,"record_id":126008734,"origi
```


[Pull requests](#)

Joint 3D Face Reconstruction and Dense Alignment with Position Map Regression Network (ECCV 2018)

[swap](#)

swap

[face](#)

face

[alignment](#)

alignment

[reconstruction](#)

reconstruction

[3d](#)

3d

Updated

Jul 25, 2022

```
<span class="f6 my-1 ml-0">
<span class="repo-language-color" style="background-color: #3572A5"></span>
<span itemprop="programmingLanguage">Python</span>
</span>
</li>
</ul>
</div>
</div>
</article>
<!-- '` --><!-- </textarea></xmp> --><form accept-charset="UTF-8" action="https://github.com/topics/3d" class="ajax-pagination-form js-ajax-pagination" data-turbo="false" method="get">
<input name="page" type="hidden" value="2"/>
<button class="ajax-pagination-btn btn btn-outline color-border-default f6 mt-0 width-full" data-disable-with="Loading more..." type="submit">
  Load more...
</button>
</form>
</div>
<div class="col-md-4 col-lg-3">
<dl class="my-4">
<dt class="d-none">
  Wikipedia
</dt>
<dd class="mb-1">
<svg aria-hidden="true" class="octicon octicon-link color-fg-muted mr-1" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M7.775 3.275a.75.75 0 001.06 1.06l1.25-1.25a2 2 0 112.83 2.83l-2.5 2.5a2 2 0 01-2.83 0 .75.75 0 00-1.06 1.06 3.5 3.5 0 004.95 0l2.5-2.5a3.5 3.5 0 00-4.95-4.95l-1.25 1.25zm-4.69 9.64a2 2 0 010-2.83l2.5-2.5a2 2 0 012.83 0 .75.75 0 001.06-1.06 3.5 3.5 0 00-4.95 0l-2.5 2.5a3.5 3.5 0 004.95 4.95l1.25-1.25a.75.75 0 00-1.06-1.06l-1.25 1.25a2 2 0 01-2.83 0z" fill-rule="evenodd"></path>
</svg>
<a data-ga-click="Explore, go to Wikipedia entry, location:topic page" href="https://en.wikipedia.org/wiki/3D_modeling">
<span class="css-truncate css-truncate-target" title="en.wikipedia.org/wiki/3D_modeling">
  Wikipedia
</span>
</a>
</dd>
</dl>
</div>
</div>
</div>
</div>
</main>
</div>
<footer class="footer width-full container-lg p-responsive">
<h2 class="sr-only">Footer</h2>
<div class="position-relative d-flex flex-items-center pb-2 f6 color-fg-muted border-top color-border-muted flex-column-reverse flex-lg-row flex-wrap flex-lg-nowrap mt-6 pt-6">
<div class="list-style-none d-flex flex-wrap col-0 col-lg-2 flex-justify-start flex-lg-justify-between mb-2 mb-lg-0">
<div class="mt-2 mt-lg-0 d-flex flex-items-center">
<a aria-label="Homepage" class="footer-octicon mr-2" href="https://github.com" title="GitHub">
<svg aria-hidden="true" class="octicon octicon-mark-github" data-view-component="true" height="24" version="1.1" viewBox="0 0 16 16" width="24">
<path d="M8 0C3.58 0 0 3.58 0 8c0 3.54 2.29 6.53 5.47 7.59.4.07.55-.17.55-.38 0-.19-.01-.82-.01-1.49-2.01-3.7-2.53-.49-2.69-.94-.09-.23-.48-.94-.82-1.13-.28-.15-.68-.52-.01-.5 3.63-.01 1.08.58 1.23.82.72 1.21 1.87.87 2.33.66.07-.52.28-.87.51-1.07-1.78-.2-3.64-.89-3.64-3.95 0-.87.31-1.59.82-2.15-.08-.2-.36-1.02.08-2.12 0 0 .67-.21 2.28-.64-.18 1.32-.27 2-.27.68 0 1.36.09 2 .27 1.53-1.04 2.2-.82 2.2-.82.44 1.16 1.92.08 2.12.51.56.82 1.27.82 2.15 0 3.07-1.87 3.75-3.65 3.95.29.25.54.73.54 1.48 0 1.07-.01 1.93-.01 2.2 0 .21.15.46.55.38A8.013 8.013 0 0016 8c0-4.42-3.58-8-8-8z" fill-rule="evenodd"></path>
```

```
</svg>
</a> <span>
    © 2022 GitHub, Inc.
</span>
</div>
</div>
<nav aria-label="footer" class="col-12 col-lg-8">
<h3 class="sr-only" id="sr-footer-heading">Footer navigation</h3>
<ul aria-labelledby="sr-footer-heading" class="list-style-none d-flex flex-wrap col-12 flex-justify-center flex-lg-justify-between mb-2 mb-lg-0">
<li class="mr-3 mr-lg-0"><a data-analytics-event='{ "category": "Footer", "action": "go to terms", "label": "text:terms" }' href="https://docs.github.com/en/github/site-policy/github-terms-of-service">Terms</a></li>
<li class="mr-3 mr-lg-0"><a data-analytics-event='{ "category": "Footer", "action": "go to privacy", "label": "text:privacy" }' href="https://docs.github.com/en/github/site-policy/github-privacy-statement">Privacy</a></li>
<li class="mr-3 mr-lg-0"><a data-analytics-event='{ "category": "Footer", "action": "go to security", "label": "text:security" }' href="https://github.com/security">Security</a></li>
<li class="mr-3 mr-lg-0"><a data-analytics-event='{ "category": "Footer", "action": "go to status", "label": "text:status" }' href="https://www.githubstatus.com/">Status</a></li>
<li class="mr-3 mr-lg-0"><a data-ga-click="Footer, go to help, text:Docs" href="https://docs.github.com">Docs</a></li>
<li class="mr-3 mr-lg-0"><a data-analytics-event='{ "category": "Footer", "action": "go to contact", "label": "text:contact" }' href="https://support.github.com?tags=dotcom-footer">Contact GitHub</a></li>
<li class="mr-3 mr-lg-0"><a data-analytics-event='{ "category": "Footer", "action": "go to Pricing", "label": "text:Pricing" }' href="https://github.com/pricing">Pricing</a></li>
<li class="mr-3 mr-lg-0"><a data-analytics-event='{ "category": "Footer", "action": "go to api", "label": "text:api" }' href="https://docs.github.com">API</a></li>
<li class="mr-3 mr-lg-0"><a data-analytics-event='{ "category": "Footer", "action": "go to training", "label": "text:training" }' href="https://services.github.com">Training</a></li>
<li class="mr-3 mr-lg-0"><a data-analytics-event='{ "category": "Footer", "action": "go to blog", "label": "text:blog" }' href="https://github.blog">Blog</a></li>
<li><a data-ga-click="Footer, go to about, text:about" href="https://github.com/about">About</a></li>
</ul>
</nav>
</div>
<div class="d-flex flex-justify-center pb-6">
<span class="f6 color-fg-muted"></span>
</div>
</footer>
<div class="ajax-error-message flash flash-error" hidden="" id="ajax-error-message">
<svg aria-hidden="true" class="octicon octicon-alert" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8.22 1.754a.25.25 0 00-.44 0L1.698 13.132a.25.25 0 00.22.368h12.164a.25.25 0 00.22-.368L8.22 1.754zm-1.763-.707c.659-1.234 2.427-1.234 3.086 0l6.082 11.378A1.75 1.75 0 0114.082 15H1.918a1.75 1.75 0 01-1.543-2.575L6.457 1.047zM9 11a1 1 0 11-2 0 1 1 0 012 0zm-.25-5.25a.75.75 0 00-1.5 0v2.5a.75.75 0 001.5 0v-2.5z" fill-rule="evenodd"></path>
</svg>
<button aria-label="Dismiss error" class="flash-close js-ajax-error-dismiss" type="button">
<svg aria-hidden="true" class="octicon octicon-x" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M3.72 3.72a.75.75 0 011.06 0L8 6.9413.22-3.22a.75.75 0 111.06 1.06L9.06 8.13.22-3.22a.75.75 0 11-1.06 1.06L8 9.061-3.22 3.22a.75.75 0 011.06-1.06z" fill-rule="evenodd"></path>
</svg>
</button>
    You can't perform that action at this time.
</div>
<div class="js-stale-session-flash flash flash-warn flash-banner" hidden="">
<svg aria-hidden="true" class="octicon octicon-alert" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M8.22 1.754a.25.25 0 00-.44 0L1.698 13.132a.25.25 0 00.22.368h12.164a.25.25 0 00.22-.368L8.22 1.754zm-1.763-.707c.659-1.234 2.427-1.234 3.086 0l6.082 11.378A1.75 1.75
```

```

0 0114.082 15H1.918a1.75 1.75 0 01-1.543-2.575L6.457 1.047zM9 11a1 1 0 11-2 0 1 1 0 012
0zm-.25-5.25a.75.75 0 00-1.5 0v2.5a.75.75 0 001.5 0v-2.5z" fill-rule="evenodd"></path>
</svg>
<span class="js-stale-session-flash-signed-in" hidden="">You signed in with another tab
or window. <a href="">Reload</a> to refresh your session.</span>
<span class="js-stale-session-flash-signed-out" hidden="">You signed out in another tab
or window. <a href="">Reload</a> to refresh your session.</span>
</div>
<template id="site-details-dialog">
<details class="details-reset details-overlay details-overlay-dark lh-default color-fg-d
efault hx_rsm" open="">
<summary aria-label="Close dialog" role="button"></summary>
<details-dialog class="Box Box--overlay d-flex flex-column anim-fade-in fast hx_rsm-dial
og hx_rsm-modal">
<button aria-label="Close dialog" class="Box-btn-octicon m-0 btn-octicon position-absolu
te right-0 top-0" data-close-dialog="" type="button">
<svg aria-hidden="true" class="octicon octicon-x" data-view-component="true" height="16"
version="1.1" viewBox="0 0 16 16" width="16">
<path d="M3.72 3.72a.75.75 0 011.06 1.06L8 6.94L3.22-3.22a.75.75 0 011.06 1.06L9.06 8.13L2.2
3.22a.75.75 0 01-1.06 1.06L8 9.06L3.22 3.22a.75.75 0 01-1.06 1.06L6.94 8 3.72 4.78a.7
5.75 0 010-1.06z" fill-rule="evenodd"></path>
</svg>
</button>
<div class="octocat-spinner my-6 js-details-dialog-spinner"></div>
</details-dialog>
</details>
</template>
<div class="Popover js-hovercard-content position-absolute" style="display: none; outlin
e: none;" tabindex="0">
<div class="Popover-message Popover-message--bottom-left Popover-message--large Box colo
r-shadow-large" style="width:360px;">
</div>
</div>
<template id="snippet-clipboard-copy-button">
<div class="zeroclipboard-container position-absolute right-0 top-0">
<clipboard-copy aria-label="Copy" class="ClipboardButton btn js-clipboard-copy m-2 p-0 t
ooltipped-no-delay" data-copy-feedback="Copied!" data-tooltip-direction="w">
<svg aria-hidden="true" class="octicon octicon-copy js-clipboard-copy-icon m-2" data-vie
w-component="true" height="16" version="1.1" viewBox="0 0 16 16" width="16">
<path d="M0 6.75C0 5.784 7.5 5 1.75 5h1.5a.75.75 0 010 1.5h-1.5a.25.25 0 00-.25.25v7.5c0
.138.112.25.25.25h7.5a.25.25 0 00.25-.25v-1.5a.75.75 0 011.5 0v1.5A1.75 1.75 0 019.25 1
6h-7.5A1.75 1.75 0 010 14.25v-7.5z" fill-rule="evenodd"></path><path d="M5 1.75C5 .784
5.784 0 6.75 0h7.5C15.216 0 16 .784 16 1.75v7.5A1.75 1.75 0 0114.25 11h-7.5A1.75 1.75 0
015 9.25v-7.5zm1.75-.25a.25.25 0 00-.25.25v7.5c0 .138.112.25.25h7.5a.25.25 0 00.25-.
25v-7.5a.25.25 0 00-.25-.25h-7.5z" fill-rule="evenodd"></path>
</svg>
<svg aria-hidden="true" class="octicon octicon-check js-clipboard-check-icon color-fg-su
ccess d-none m-2" data-view-component="true" height="16" version="1.1" viewBox="0 0 16 1
6" width="16">
<path d="M13.78 4.22a.75.75 0 010 1.06L7.25 7.25a.75.75 0 01-1.06 1.06L2.22 9.28a.75.75 0
011.06 1.06L6 10.94L6.72-6.72a.75.75 0 011.06 0z" fill-rule="evenodd"></path>
</svg>
</clipboard-copy>
</div>
</template>
</body>
</html>

```

get_repo_info(h3_tag,star_tags) function gives all the repos information of that topic

parse_star_count(star_tags.text.strip()) is a helper function which return the star count of any repo

In [73]: **def** parse_star_count(stars_str):

```

stars_str=stars_str.strip()
if stars_str[-1]=='k':
    return int(float(stars_str[:-1]) * 1000)
return int(stars_str)

```

```

In [74]: def get_repo_info(h3_tag,star_tags):
base_url='https://github.com'
# return all the req. info about a repo.
a_tags2=h3_tag.find_all('a')
username = a_tags2[0].text.strip()
repo_name = a_tags2[1].text.strip()
repo_url=base_url + a_tags2[1]['href']
stars = parse_star_count(star_tags.text.strip())
return username ,repo_name,stars,repo_url

```

In []:

get_topic_repos(topics_doc) function gives all the repos of that particular topic

```

In [75]: def get_topic_repos(topics_doc):
# get all h3 tags containing repo title ,repo URL and Username
h3_selection_class='f3 color-fg-muted text-normal lh-condensed'
repo_tags=topics_doc.find_all('h3',{'class': h3_selection_class})
#Get STar tags
star_tags=topics_doc.find_all('span', {'class': 'Counter js-social-count'})

# topic_repo_dict

topic_repos_dict={
    'username':[],
    'repo_name':[],
    'stars':[],
    'repo_url':[]
}

#Get repo info
for i in range (len(repo_tags)):
    repo_info=get_repo_info(repo_tags[i],star_tags[i])
    topic_repos_dict['username'].append(repo_info[0])
    topic_repos_dict['repo_name'].append(repo_info[1])
    topic_repos_dict['stars'].append(repo_info[2])
    topic_repos_dict['repo_url'].append(repo_info[3])

return pd.DataFrame(topic_repos_dict)

```

scrape_topic(topic_url,path) will scrape all the topics

```

In [76]: def scrape_topic(topic_url,path):
if os.path.exists(path):
    print("The file {} already exists.Skipping...".format(path))
    return
topic_df=get_topic_repos(get_topic_page(topic_url))
topic_df.to_csv(path ,index=None)

```

In []:

Putting it all together

- We have a function to get the list of topics
- we have a function to create a CSV file for scraped repositories from a topics page
- Let's create a function to put them together

```
In [77]: def scrape_topics_repos():
    print('Scraping list of topics')
    topics_df=scrape_topics()
    #create folder for python
    os.makedirs('data', exist_ok=True)
    for index,row in topics_df.iterrows():
        print('Scraping top repositories for {}'.format(row['title']))
        scrape_topic(row['url'], 'data/{}.csv'.format(row['title']))
```

Let's run it to scrape the top repositories for the all the topics on the first page of <https://github.com/topics>

```
In [78]: scrape_topics_repos()

Scraping list of topics
Scraping top repositories for "3D"
Scraping top repositories for "Ajax"
Scraping top repositories for "Algorithm"
Scraping top repositories for "Amp"
Scraping top repositories for "Android"
Scraping top repositories for "Angular"
Scraping top repositories for "Ansible"
Scraping top repositories for "API"
Scraping top repositories for "Arduino"
Scraping top repositories for "ASP.NET"
Scraping top repositories for "Atom"
Scraping top repositories for "Awesome Lists"
Scraping top repositories for "Amazon Web Services"
Scraping top repositories for "Azure"
Scraping top repositories for "Babel"
Scraping top repositories for "Bash"
Scraping top repositories for "Bitcoin"
Scraping top repositories for "Bootstrap"
Scraping top repositories for "Bot"
Scraping top repositories for "C"
Scraping top repositories for "Chrome"
Scraping top repositories for "Chrome extension"
Scraping top repositories for "Command line interface"
Scraping top repositories for "Clojure"
Scraping top repositories for "Code quality"
Scraping top repositories for "Code review"
Scraping top repositories for "Compiler"
Scraping top repositories for "Continuous integration"
Scraping top repositories for "COVID-19"
Scraping top repositories for "C++"
```

We can check that the CSVs were created properly

```
In [79]: # read and display a CSV using Pandas
```

Example

```
In [80]: pd.read_csv('data/Android.csv')
```

```
Out[80]:
```

	username	repo_name	stars	repo_url
0	flutter	flutter	144000	https://github.com/flutter/flutter
1	justjavac	free-programming-books-zh_CN	95200	https://github.com/justjavac/free-programming-...

2	Genymobile	scrcpy	69500	https://github.com/Genymobile/scrcpy
3	Hack-with-Github	Awesome-Hacking	55100	https://github.com/Hack-with-Github/Awesome-Ha...
4	google	material-design-icons	46400	https://github.com/google/material-design-icons
5	wasabeef	awesome-android-ui	43600	https://github.com/wasabeef/awesome-android-ui
6	square	okhttp	42700	https://github.com/square/okhttp
7	Solido	awesome-flutter	42300	https://github.com/Solido/awesome-flutter
8	android	architecture-samples	41400	https://github.com/android/architecture-samples
9	square	retrofit	40400	https://github.com/square/retrofit
10	dcloudio	uni-app	37000	https://github.com/dcloudio/uni-app
11	fastlane	fastlane	35700	https://github.com/fastlane/fastlane
12	PhilJay	MPAndroidChart	35500	https://github.com/PhilJay/MPAndroidChart
13	airbnb	lottie-android	33100	https://github.com/airbnb/lottie-android
14	bumptech	glide	32900	https://github.com/bumptech/glide
15	shadowsocks	shadowsocks-android	32800	https://github.com/shadowsocks/shadowsocks-and...
16	laurent22	joplin	31700	https://github.com/laurent22/joplin
17	skylot	jadx	31400	https://github.com/skylot/jadx
18	Blankj	AndroidUtilCode	31300	https://github.com/Blankj/AndroidUtilCode
19	xitu	gold-miner	31100	https://github.com/xitu/gold-miner

In []:

In [1]: `import jovian`

In [2]: `jovian.commit()`

```
[jovian] Updating notebook "jatinkhanulia/scraping-github-topics-repositories" on http
s://jovian.ai
[jovian] Committed successfully! https://jovian.ai/jatinkhanulia/scraping-github-topics-
repositories
Out[2]: 'https://jovian.ai/jatinkhanulia/scraping-github-topics-repositories'
```

In []:

In []:

References and Future Work

Summary

- Scrape the list of topics from Github.
- Get the top 25 repositories from a topic page.
- Putting it all together in one single function.

References to links that I found useful

- <https://github.com/topics>
- <https://requests.readthedocs.io/en/latest/>
- <https://www.crummy.com/software/BeautifulSoup/bs4/doc/>

Ideas for future work

- As Space is currently the most unexplored intity , I want to collect analyze the currently explored data and findings and conclude results which will help us to dealt more deeply into space,and hopefully enlighten some unknown findings.

```
In [4]: jovian.commit()
```

```
[jovian] Updating notebook "jatinkhanulia/scraping-github-topics-repositories" on http
s://jovian.ai
[jovian] Committed successfully! https://jovian.ai/jatinkhanulia/scraping-github-topics-
repositories
```

```
Out[4]: 'https://jovian.ai/jatinkhanulia/scraping-github-topics-repositories'
```

```
In [ ]:
```

```
In [ ]:
```

```
In [ ]:
```