

Non-Research Tips for Information Science Researchers (Summer 2024)

May 1, 2024

Week 9: GitHub in depth

<https://non-research-tips.github.io/2024>



Yusuke Matsui
(UTokyo)

Schedule

Date (2024)	Contents	Presented by
Week 1, Apr 10	Introduction. Review of fundamental concepts	Yusuke, Koya, Yuki, Jun
Week 2, Apr 17	Equations and pseudo-codes	Yusuke Matsui
Week 3, Apr 24	Presentation	Koya Narumi
Week 4, May 1	Tables and plots	Yusuke Matsui
Week 5, May 8	Figures	Koya Narumi
Week 6, May 22	Videos	Koya Narumi
Week 7, May 29	Invited Talk 1	Dr. Yoshiaki Bando (AIST)
Week 8, June 5	Invited Talk 2	Prof. Katie Seaborn (Tokyo Tech)
Week 9, June 12	GitHub in depth	Yusuke Matsui
Week 10, June 19	Automation of research and research dissemination (Web, Cloud, CI/CD)	Jun Kato
Week 11, June 26	Research community	Jun Kato
Week 12, July 3	3DCG illustrations	Yuki Koyama
Week 13, July 10	Final presentations	-





Q1: Do you have a **GitHub** account?



Q2: Do you think you are good at using **GitHub**'s features?

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Hmm... GitHub is a service for **hosting a repository**?
I back up my source code using GitHub...

Q2: Do you think you are good at using **GitHub**'s features?



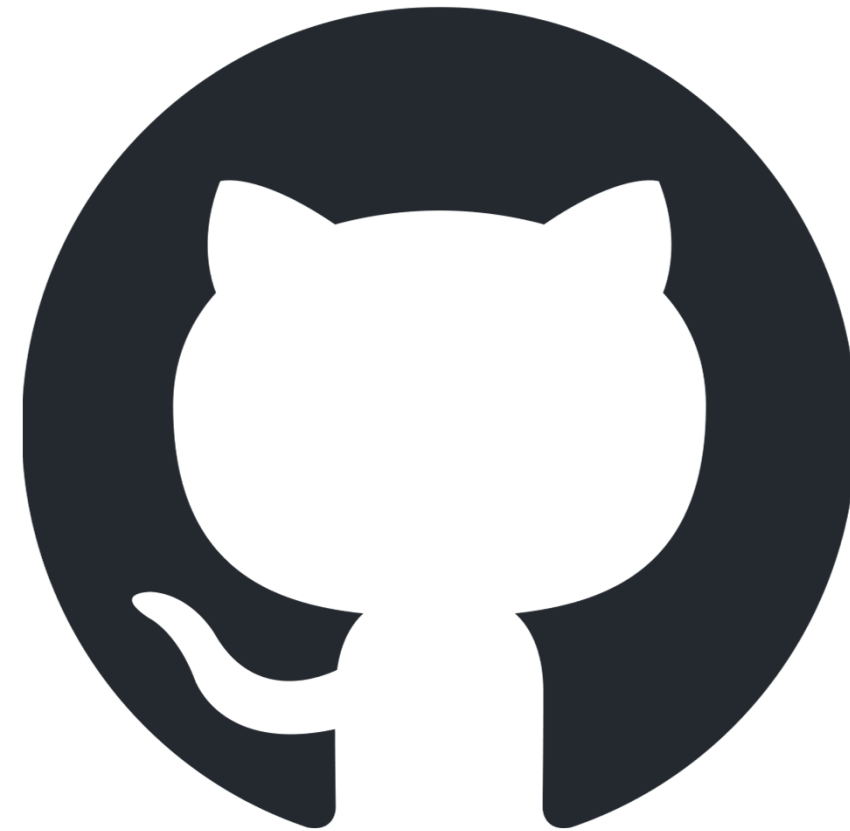
Hmm... GitHub is a service for **hosting a repository**?
I back up my source code using GitHub...

GitHub is **not just a repository hosting service.**

Understanding GitHub deeply will enhance your research productivity.



- History and basics
- Issue
- Advanced markdown
- Actions
- Pages
- Codespaces
- Project
- CLI
- Copilot



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GitHub is...

- (1) a Git repository hosting service (like Bitbucket and GitLab).
- (2) SNS.
 - ✓ Public profile, follow, stars, contribution calendar, etc.
 - ✓ PRs for public repository = social activities.
 - ✓ Mentioning (e.g., @matsui528) and referring (e.g., #13) are central concepts of GitHub.
- (3) a platform for team coding.
 - ✓ This is the main feature of GitHub, but I don't talk.
- (4) a platform that continuously rolls out **experimental services** to improve the software engineering experience (today's topics)

GitHub is...

➤ (1)

➤ (2)



➤ (3)



➤ (4)

Overview Repositories 107 Projects Packages **Stars 105**

Yusuke Matsui
matsui528
Lecturer (Assistant Professor)

Edit profile

258 followers · 0 following

The University of Tokyo
Tokyo
yusukematsui.me

Achievements

Pinned

- rii** Public: Fast and memory-efficient ANN with a subset-search functionality. C++ 153 stars, 21 forks.
- nanopq** Public: Pure python implementation of product quantization for nearest neighbor search. Python 316 stars, 43 forks.
- DwangoMediaVillage/pqkmeans** Public: Fast and memory-efficient clustering. Jupyter Notebook 256 stars, 44 forks.
- sis** Public: Simple image search engine. Python 737 stars, 242 forks.
- scs** Public: Simple image search engine by a text query using CLIP. Python 15 stars, 1 fork.
- faiss_tips** Public: Some useful tips for faiss. Shell 550 stars, 46 forks.

921 contributions in the last year

	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
2023	█	█	█	█	█	█	█	█	█	█	█	█
2022	█	█	█	█	█	█	█	█	█	█	█	█
2021	█	█	█	█	█	█	█	█	█	█	█	█
2020	█	█	█	█	█	█	█	█	█	█	█	█

)).

'e

ices

to improve the software engineering experience (today's topics)

GitHub is

➤ (1) a

➤ (2) SI

✓ Pl

✓ Pf

✓ M

CE

➤ (3) a

✓ Tr

➤ (4) a

to improve the software engineering experience (today's topics)

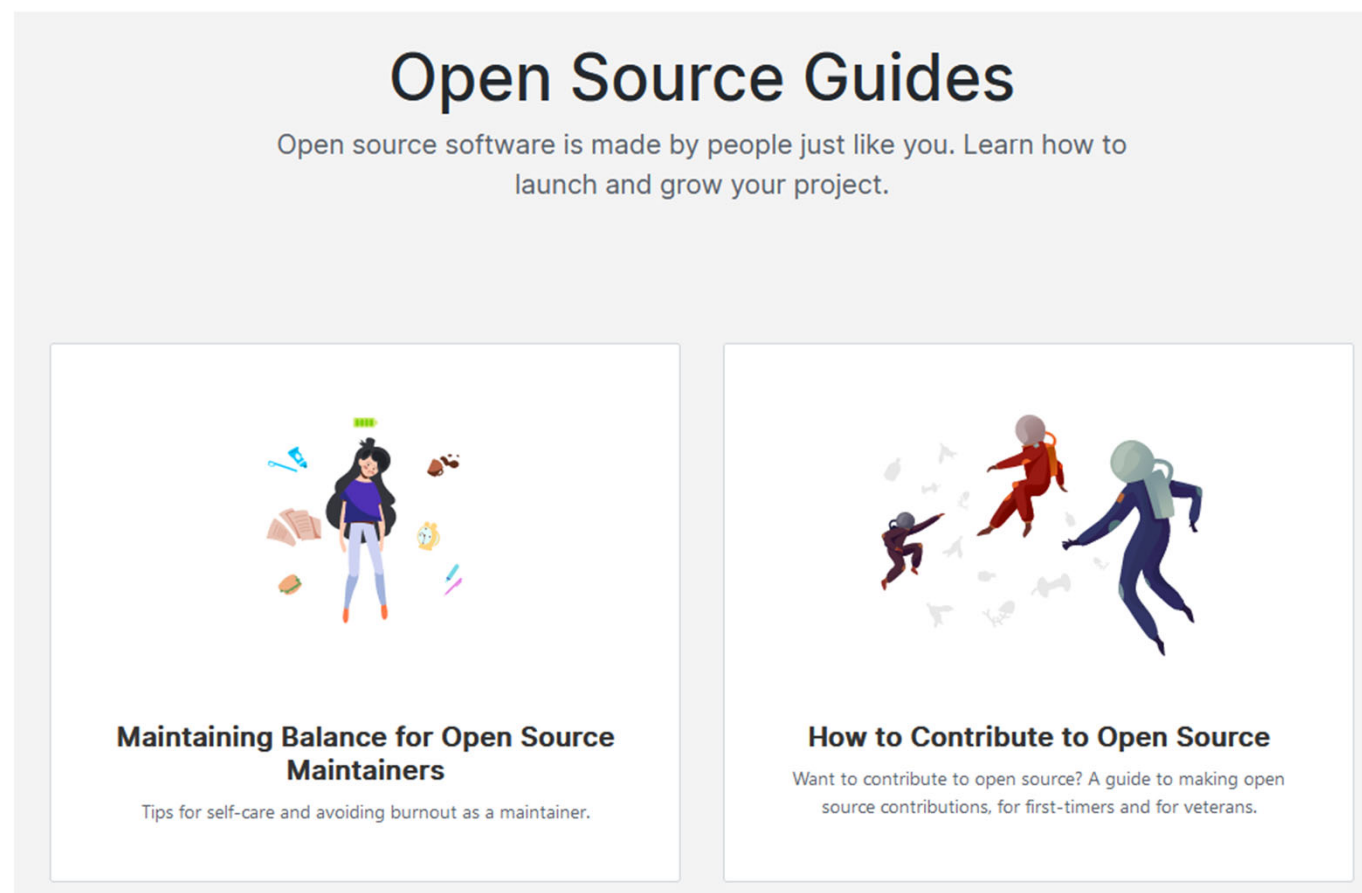
The screenshot shows a GitHub pull request review thread. At the top, a user with a rabbit avatar (matsui528) reviewed on Dec 29, 2021. A comment from matsui528 says: "This is awesome! Thank you for your PR. Can you add an explanation of the arguments here?" Below the comment is a code diff snippet for `nanopq/nanopq/opq.py`, Line 133 in `9e83366`, showing the text `133 Args:`. Below the diff is a commit message: "add parametric_init arg to docstring" by matsui528. A comment from calvinmccarter on Jan 3, 2022, says "@matsui528 - done!". At the bottom, matsui528 merged commit 259842a into `matsui528:main` on Jan 3, 2022. A "Revert" button is visible next to the merge message.

GitHub is...

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Open-source software (OSS)

- GitHub is originally (has been?) the place for **open-source** projects.
- Before GitHub, distributing source code had a more "one-way" nature.
- It was not easy for new users to discuss with developers.



Very simple guideline for OSS by GitHub
<https://opensource.guide/>

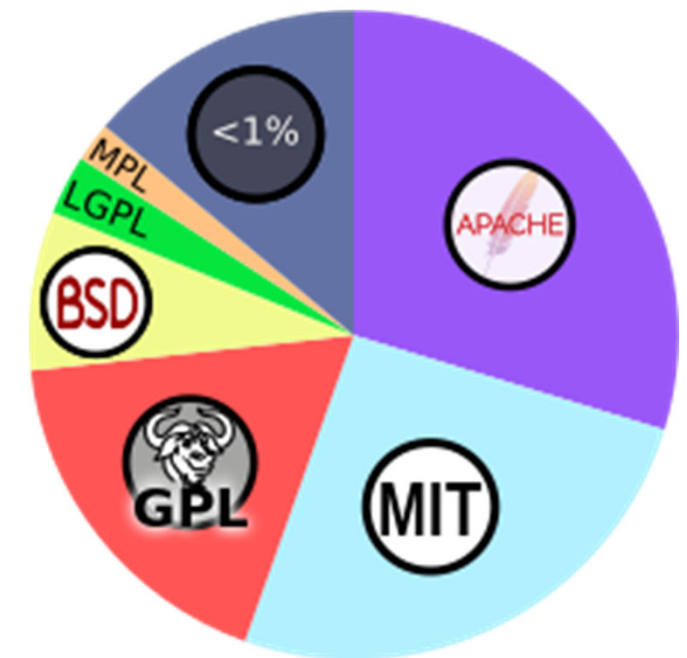


History, classification,
problems, magnetization,
of OSS

Nadia Eghbal, "Working in Public: The Making and Maintenance of Open Source Software", Stripe Press, 2020.

Open-source license

- *“Open-source licenses are software licenses that allow content to be used, modified, and shared.”* From [1]
 - ✓ OSS license itself is a big topic and I don't cover in this lecture.
- You need to know:
 - ✓ When you use open-source codes, you must understand its license.
 - ✓ When you decide to make your codes open-source, you need to decide a proper OSS license.
- In AI-related area, remember the following terms:
 - ✓ Source codes: OSS licenses such as MIT, GPL, ...
 - ✓ Images etc: Creative-commons (CC) license (CC is not OSS, but you need to know it, too)



nanopq Public

Unpin Unwatch 4 Fork 43 Star 316

main 1 Branch 4 Tags

Go to file Add file Code

About Pure python implementation of product quantization for nearest neighbor search

nearest-neighbor-search data-compression approximate-nearest-neighbor-search product-quantization

MIT license

Activity 316 stars 4 watching 43 forks

Releases 4 v0.2.1 Latest on Oct 27, 2023 + 3 releases

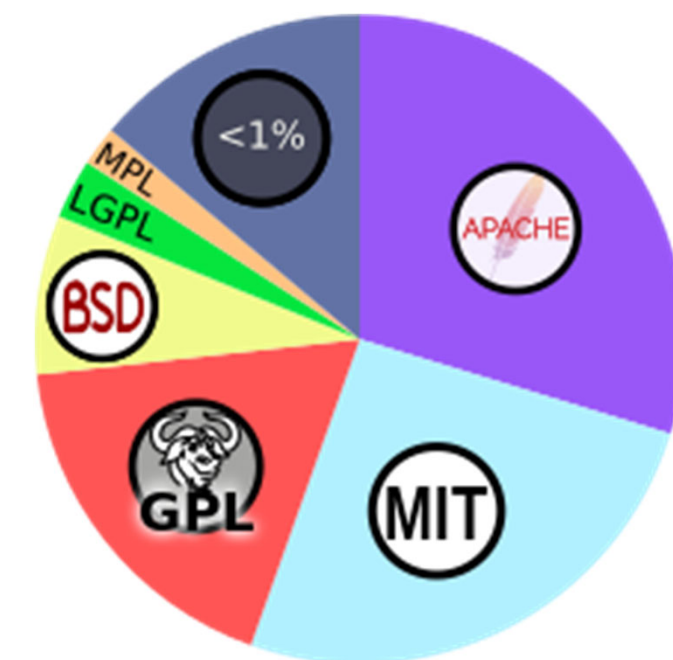
Packages No packages published Publish your first package

26c227f · 8 months ago	151 Commits
.github/workflows	publish only when published 8 months ago
docs	build read-the-docs 8 months ago
nanopq	0.2.1 8 months ago
tests	linting 9 months ago
.gitignore	travis and pytest 6 years ago
.readthedocs.yaml	forgot to add 8 months ago
LICENSE	Initial commit 6 years ago
MANIFEST.in	initial codes for nanopq 6 years ago
Makefile	linting by pysen 3 years ago
README.md	Try meaningless update to see what happens for publishing 8 months ago
pyproject.toml	updated pysen version 9 months ago
setup.py	single- to double-quotation by linting 3 years ago

README MIT license

content to be used,
his lecture.

stand its license.



- ✓ source codes: OSS licenses such as MIT, GPL, ...
- ✓ Images etc: Creative-commons (CC) license (CC is not OSS, but you need to know it, too)

[1] https://en.wikipedia.org/wiki/Open-source_license

main 1 Branch 4 Tags

- matsui528 Merge pull request #37 from matsui528/readthedocs
- .github/workflows publish
- docs build re
- nanopq 0.2.1
- tests linting
- .gitignore travis ai
- readthedocs.yml forgot t
- LICENSE** Initial c
- MANIFEST.in initial c
- Makefile linting t
- README.md Try mea
- pyproject.toml update
- setup.py single-

nanopq / LICENSE

matsui528/nanopq is licensed under the MIT License

A short and simple permissive license with conditions only requiring preservation of copyright and license notices. Licensed works, modifications, and larger works may be distributed under different terms and without source code.

This is not legal advice. [Learn more about repository licenses](#)

Permissions	Limitations
✓ Commercial use	✗ Liability
✓ Modification	✗ Warranty
✓ Distribution	
✓ Private use	

Yusuke Matsui Initial commit

Code Blame 21 lines (17 loc) · 1.04 KB

```
1 MIT License
2
3 Copyright (c) 2018 Yusuke Matsui
4
5 Permission is hereby granted, free of charge, to any person obtaining a copy
6 of this software and associated documentation files (the "Software"), to deal
7 in the Software without restriction, including without limitation the rights
8 to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
9 copies of the Software, and to permit persons to whom the Software is
10 furnished to do so, subject to the following conditions:
11
12 The above copyright notice and this permission notice shall be included
13 copies or substantial portions of the Software.
14
15 THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
16 IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
17 FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
18 AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
19 LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING
20 OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS
21 IN THE SOFTWARE.
```

GitHub automatically generates the license for your project.

- ✓ source codes: (
- ✓ Images etc: Cr (CC is not OSS, but you need to know it, too)

Acquisition by Microsoft

- MS acquired GitHub in 2018. At that time, MS was considered the opposite of OSS (MS is now biggest supporter of OSS, though).
- Many thought that GitHub would end after being acquired by MS, but so far it has been doing well.
 - ✓ e.g., almost free actions for everyone... by Azure!

<https://bitbucket.org/blog/10-reasons-teams-switching-github-bitbucket-microsoft-acquisition>

Bitbucket

10 reasons why teams are switching from GitHub to Bitbucket after Microsoft acquisition

June 04, 2018 | 6 min read



Claire Maynard

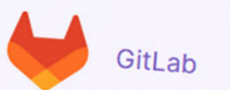


<https://about.gitlab.com/blog/2018/06/03/microsoft-acquires-github/>

Published on: June 3, 2018 4 min read

Congratulations GitHub on the acquisition by Microsoft

The acquisition of GitHub by Microsoft is validation of the growing influence of software developers in the world.



GitLab

open source

news

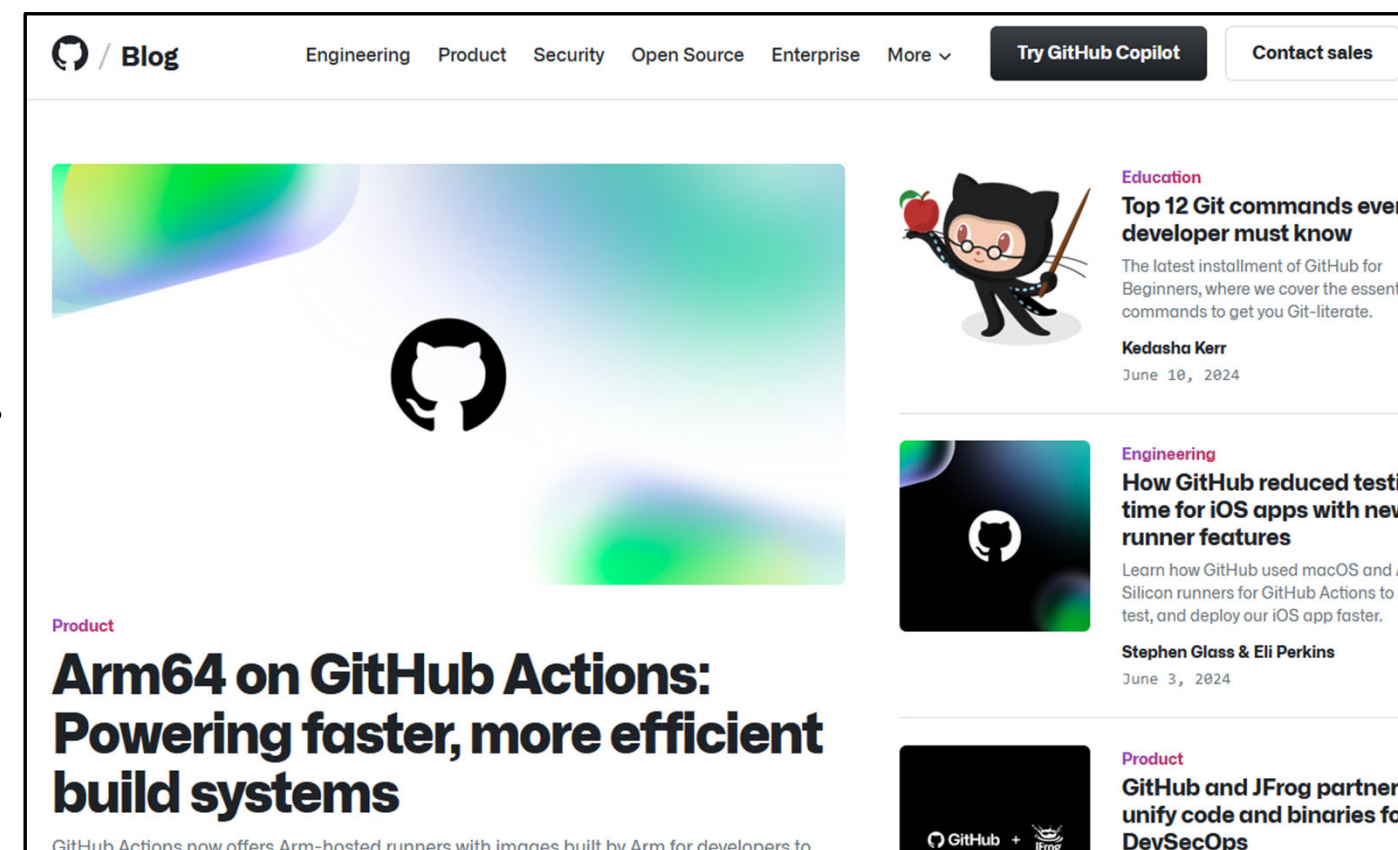
gi



Current GitHub

- So far, GitHub is releasing interesting services ever day.
- If you want to become a good SWE, it might be a good idea to start by learning about the various services GitHub offers.
- You can gain insight into the **foundation** of the most modern software stacks.
- GitHub features are also very useful for advancing your **research activities**.

<https://github.blog/>

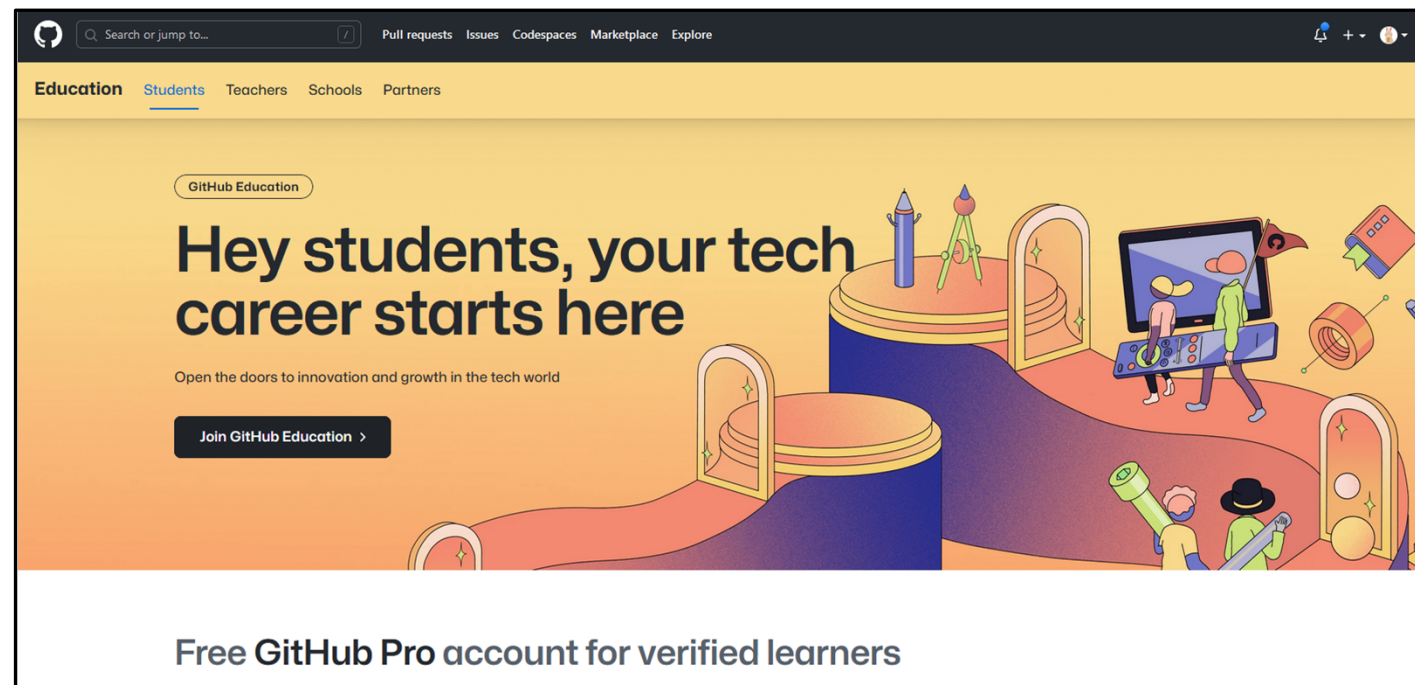


! Be careful !

- About data:
 - ✓ Although GitHub is very useful, please use it according to the **terms** and **lab rules**!
 - ✓ For example, if you're handling secret medical data by your boss's collaborators, you may not be allowed to send any data to GitHub.
 - ✓ Ask your professors if you have any concerns.
- About human factors:
 - ✓ GitHub is SNS... meaning that you may be **attacked**.
 - ✓ Like any other SNS, always behave in a manner that respects others.

Student benefit (GitHub education) 🙌 🙌 🙌

- With your university email, you can obtain GitHub features equivalent to **paid plans**, e.g., pages and wikis for secret repos.
 - ✓ With this, all features I talk today are almost free.
- No side effects. You should apply now.
 - ✓ If you go PhD and keep in academia, you can keep using the benefits! 🎓




<https://github.com/edu/students>

- History and basics
- **Issue**
- Advanced markdown
- Actions
- Pages
- Codespaces
- Project
- CLI
- Copilot



Issue

- Very simple (but visually beautiful) bulletin board.
 - ✓ No threads 
 - ✓ Each issue has a unique ID (i.e., anyone can refer it later)
 - ✓ Each post in each issue has a unique ID (i.e., anyone can refer it later)
 - ✓ Per repository (everything is repository-centric).
 - ✓ Place for communication.
- Can be used for any purposes.
 - ✓ Questions, bug reports, feature requests, discussion, etc.
- The **simplest**, but the **most powerful feature** by GitHub.
- Advanced usage: trigger/outputs for CI/CD.

Issue

The screenshot shows a GitHub issue page for the repository 'matsui528 / nanopq'. The issue title is 'Number of codewords for quantization #20', with the ID '#20' circled in red and labeled 'Unique ID'. The issue is marked as 'Closed' and was opened by 'samanemami' on July 22, 2022. The issue description asks: 'How can we determine the ideal value for the K_s parameter?'. Two comments are visible: one from 'samanemami' on July 22, 2022, and one from 'matsui528' on August 6, 2022, who is the owner of the issue. The owner's comment provides a short answer ($K_s=256$) and a long answer explaining the relationship between M and K_s . The right sidebar shows settings for assignees, labels, projects, milestones, and notifications. A callout box points to the comment text with the text 'It's clear who said what'. Another callout box points to the right sidebar with the text 'Simple, one-directional bulletin board'.

matsui528 / nanopq

Issues 3

Number of codewords for quantization #20

Unique ID

Closed samanemami opened this issue on Jul 22, 2022 · 2 comments

samanemami commented on Jul 22, 2022

How can we determine the ideal value for the K_s parameter?

matsui528 commented on Aug 6, 2022

Short answer: $K_s=256$.

Long answer:
There are two hyperparameters: M and K_s . The best practice is to fix $K_s=256$ and change M . If you need more precise encoding...
For example, if you have 100-dim vectors, you can first try $M=4$ with $K_s=256$. Each code will take $M * \log_2(K_s) = 4 * 8 = 32$ bits. If that is not satisfactory, you can try $M=5$ with $K_s=256$, resulting in $5 * 8 = 40$ bits.

for K_s : $K_s=2**8$ (uchar8), $K_s=2**16$ (uchar16), and $K_s=2**32$ (uchar32).

In advanced literature in an academic field, one can use $K_s \neq 256$, e.g., https://openaccess.thecvf.com/content_cvpr_2018/html/Douze_Link_and_Code_CVPR_2018_paper.html. But in a real-world use case, I can suggest that $K_s=256$ always works the best.

Assignees: No one—assign yourself

Labels: None yet

Projects: None yet

Milestone: No milestone

Unsubscribe

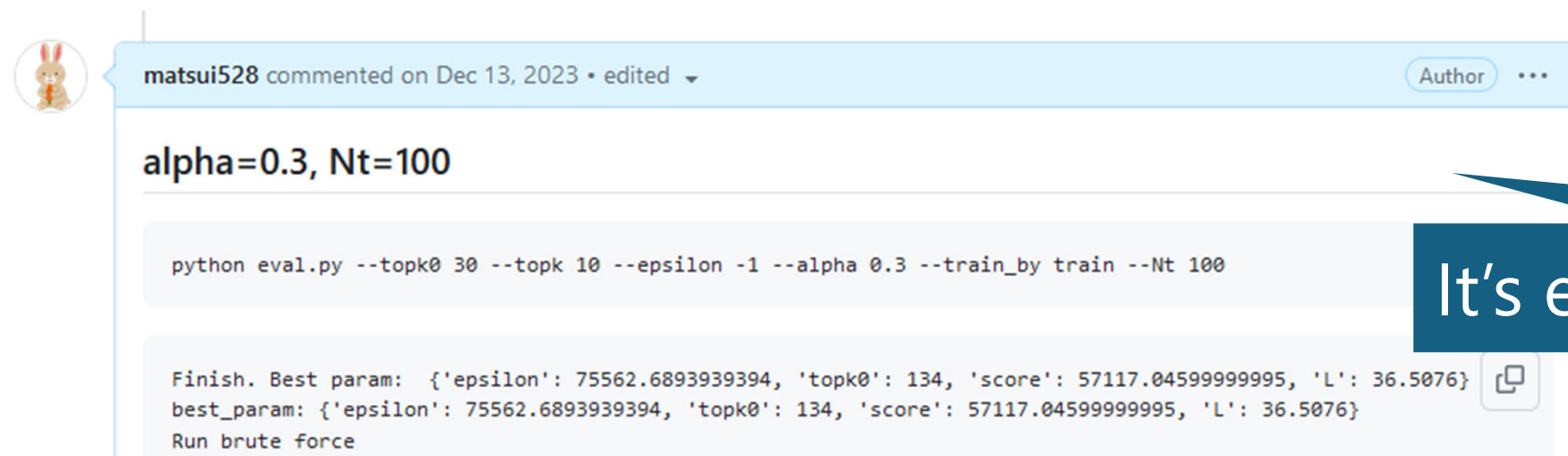
You're receiving notifications because you're watching this repository.

It's clear who said what

Simple, one-directional bulletin board

Issue

- When you post issues, please be very polite! 🧑
 - ✓ There are a lot of rude issues, like “implement this feature ASAP” or “this is a bug, fix it” without even reading the reference.
 - ✓ Such issues make developers angry.
- Issue is a **record** of discussion, and you can refer it **years later**.
 - ✓ Internal records (e.g., .docx files in your computer) **must** disappear. But issues will always remain.
 - ✓ It may be a good idea to keep the record of experiments by issues.



```
alpha=0.3, Nt=100

python eval.py --topk0 30 --topk 10 --epsilon -1 --alpha 0.3 --train_by train --Nt 100

Finish. Best param: {'epsilon': 75562.6893939394, 'topk0': 134, 'score': 57117.04599999995, 'L': 36.5076}
best_param: {'epsilon': 75562.6893939394, 'topk0': 134, 'score': 57117.04599999995, 'L': 36.5076}
Run brute force
```

It's easy to share the results with others.

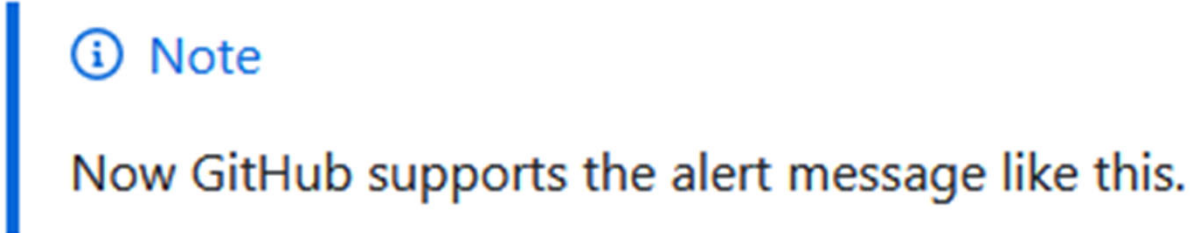
- History and basics
- Issue
- **Advanced markdown**
- Actions
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Advanced Markdown

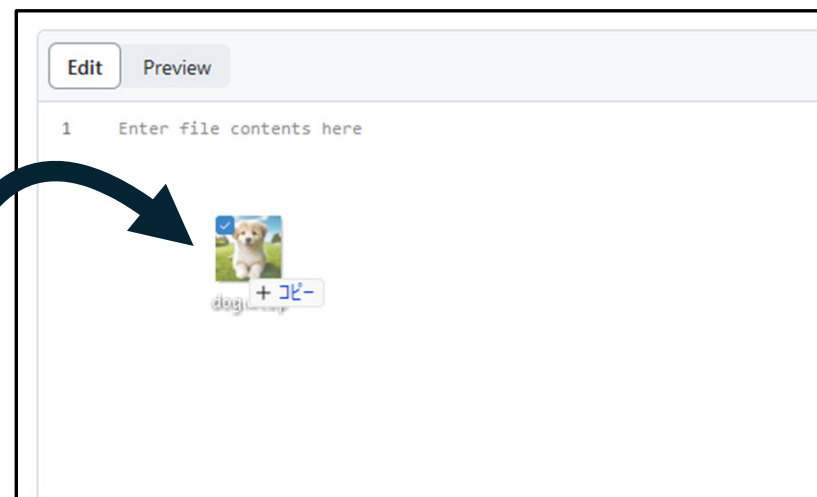
➤ You can write alerts.

```
> [!NOTE]  
> Now GitHub supports the alert message like  
this.
```



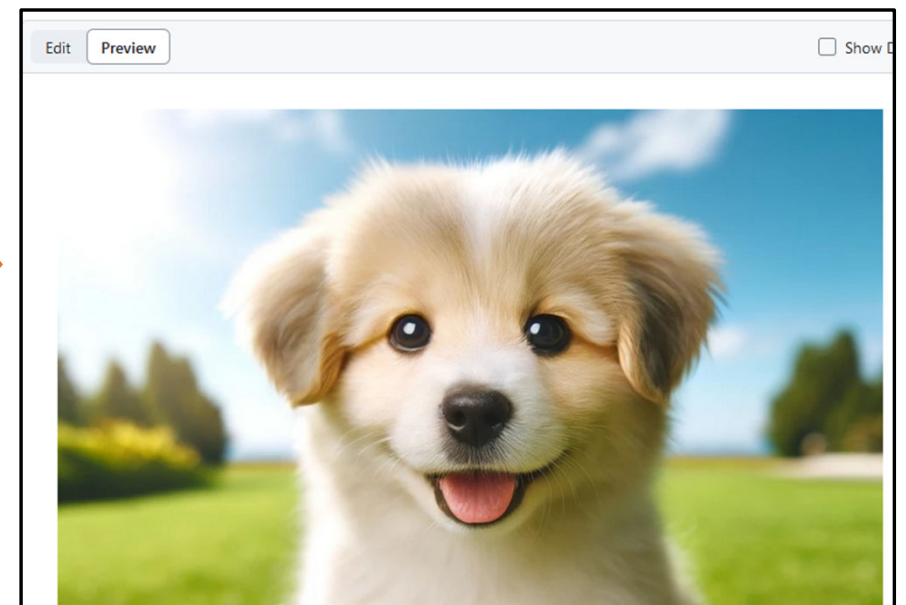
<https://github.blog/changelog/2023-12-14-new-markdown-extension-alerts-provide-distinctive-styling-for-significant-content/>

➤ You can drag-and-drop an image.



```
Edit Preview  
1 ![dog](https://github.com/non-research-tips/week9_code/assets/  
ad14b43f1e77)  
2
```

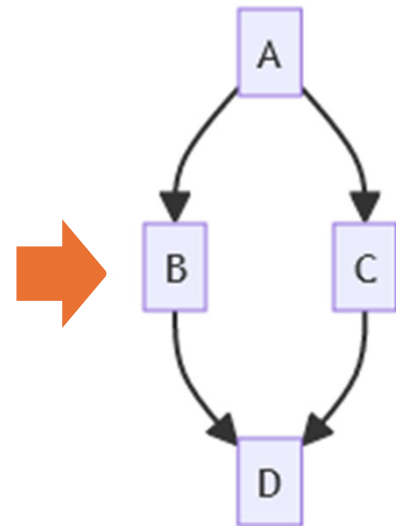
Be careful. The data is on GitHub.
You cannot fine-control it.



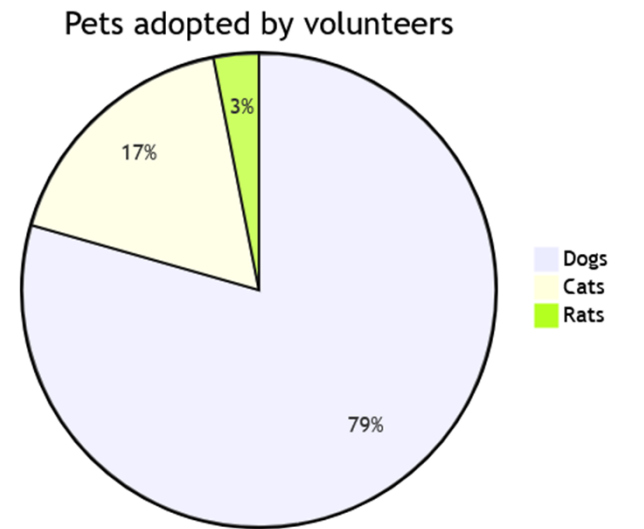
Advanced Markdown

➤ You can use Mermaid

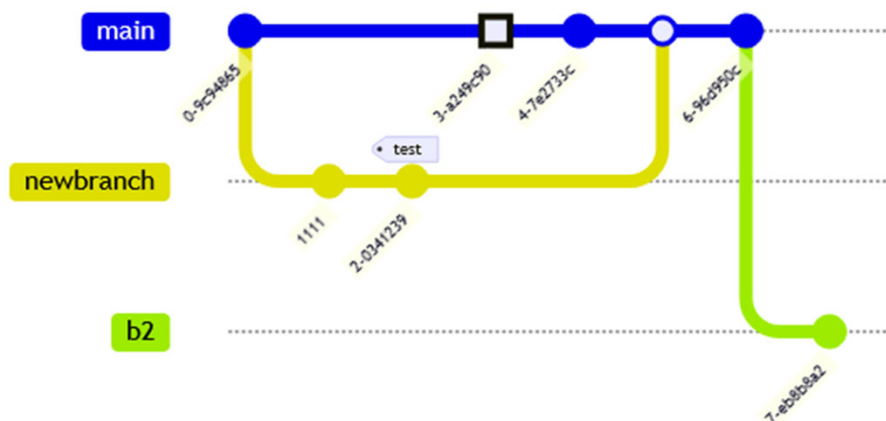
```
```mermaid
graph TD;
 A-->B;
 A-->C;
 B-->D;
 C-->D;
```
```



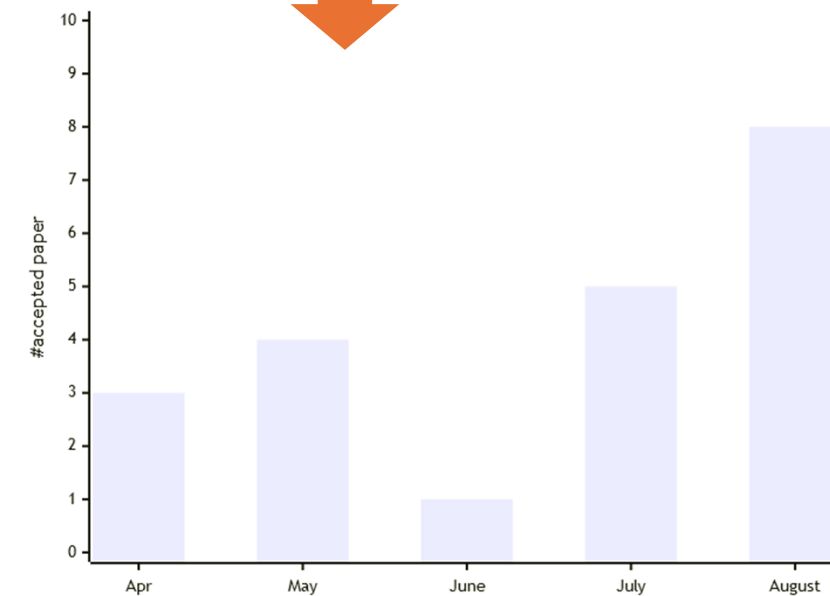
```
```mermaid
pie title Pets adopted by volunteers
 "Dogs" : 386
 "Cats" : 85
 "Rats" : 15
```
```



```
```mermaid
gitGraph:
 commit "Ashish"
 branch newbranch
 checkout newbranch
 commit id:"1111"
 commit tag:"test"
 checkout main
 commit type: HIGHLIGHT
 merge newbranch
 commit
 branch b2
 commit
```
```



```
```mermaid
xychart-beta
 x-axis [Apr, May, June, July, August]
 y-axis "#accepted paper" 0 --> 10
 bar [3, 4, 1, 5, 8]
```
```



- History and basics
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Actions

- General purpose crowd computational resources

.github/workflows/say_hello.yml

```
name: 'Simply saying hello'
```

```
on: [push]
```

Triggered by "push"

```
jobs:
```

Use ubuntu

```
  say-hello:
```

```
    runs-on: ubuntu-latest
```

```
    steps:
```

```
      - name: Check out
```

```
        uses: actions/checkout@v4
```

```
      - name: Run basic commands
```

```
        run: |
```

```
          pwd
```

```
          ls
```

```
          df
```

Let's run some commands

```
      - name: Say hello
```

```
        run: |
```

```
          echo 'Hello World!'
```

Main job

The screenshot shows the GitHub Actions interface for a workflow named 'Simply saying hello'. The workflow file 'say_hello.yml' is shown as 'Create say_hello.yml #1' with a green checkmark. The 'Jobs' section shows a job named 'say-hello' with a green checkmark. The 'Run details' section shows the workflow file and a list of steps: 'Set up job', 'Check out', 'Run basic commands', and 'Say hello'. The 'Run basic commands' step is expanded, showing a terminal output with a file system table and the command 'echo 'Hello World!''.

You see the results from the browser

Run on a cloud computer!

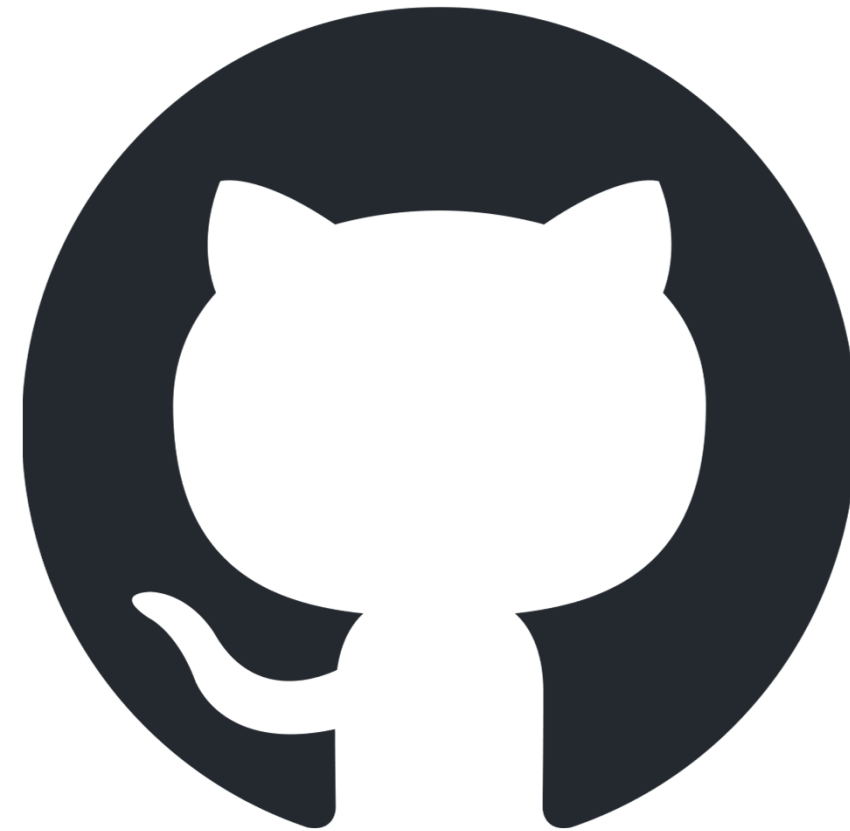
| 9 | Filesystem | 1K-blocks | Used | Available | Use% | Mounted on |
|----|------------|-----------|----------|-----------|------|----------------|
| 10 | /dev/root | 76026616 | 57178024 | 18832208 | 76% | / |
| 11 | tmpfs | 4059936 | 172 | 4059764 | 1% | /dev/shm |
| 12 | tmpfs | 1623976 | 1088 | 1622888 | 1% | /run |
| 13 | tmpfs | 5120 | 0 | 5120 | 0% | /run/lock |
| 14 | /dev/sda15 | 106832 | 6186 | 100646 | 6% | /boot/efi |
| 15 | tmpfs | 811984 | 12 | 811972 | 1% | /run/user/1001 |

Actions

- Triggered by various signals, e.g., pushing, closing an issue, manual click.
- **Free** for public repositories! (Thank you, MS.... 🪟)
- You can use your own computers (**self-hosted runner**).
- There are **infinite possibilities**. You can do various things by combining GitHub actions with other services.
- Jun Kato will explain a lot in Week 10 (Automation of research and research dissemination (Web, Cloud, CI/CD))

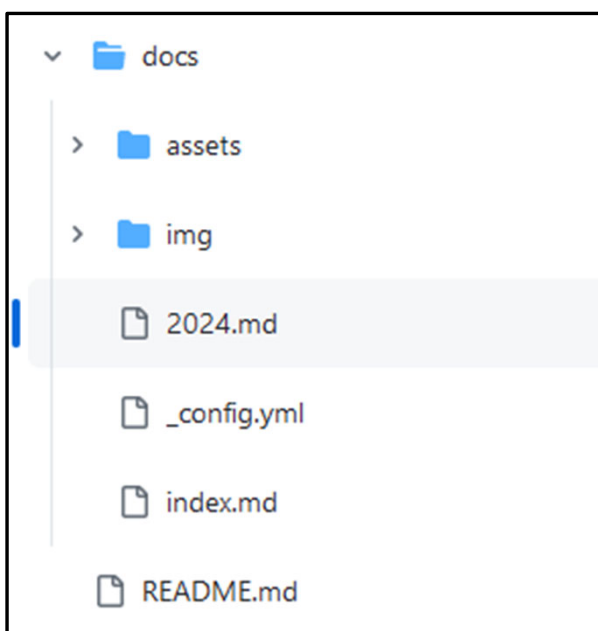


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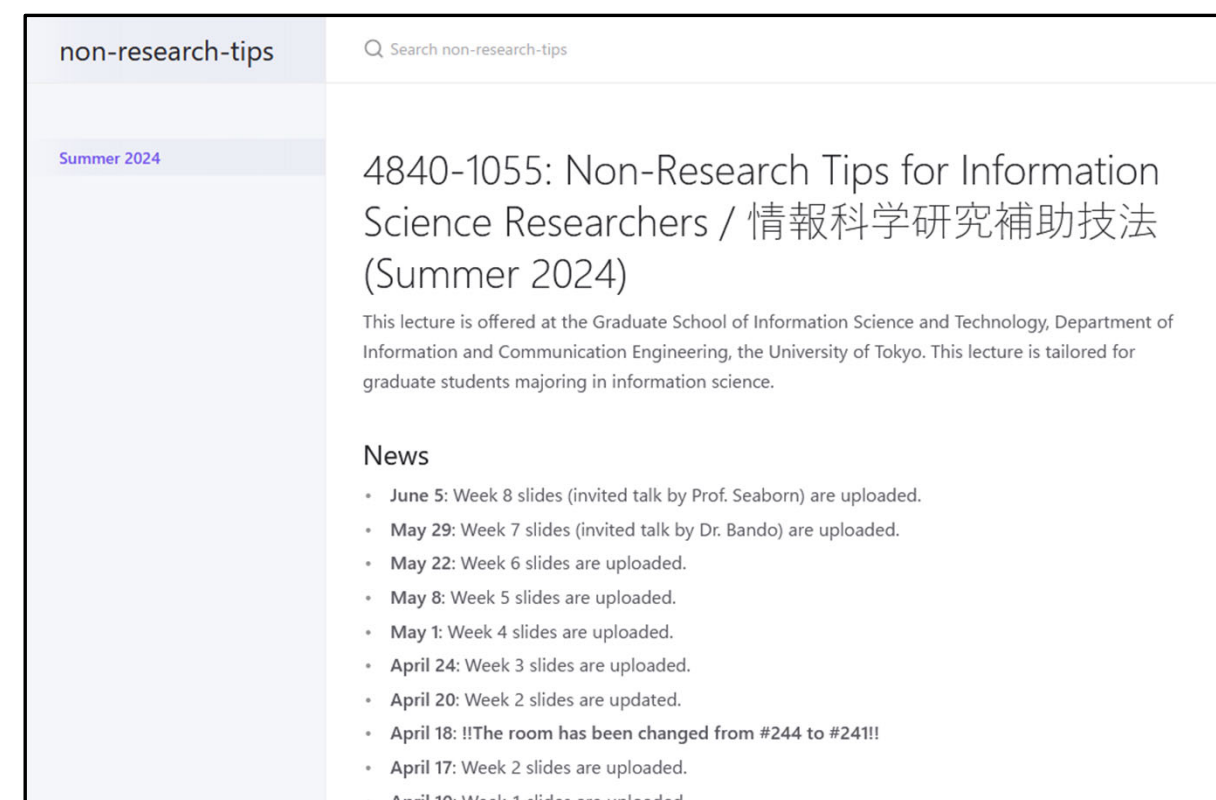


Pages

- Free website! <https://XXXX.github.io/>
- You can just upload markdown/html to the repository
- No settings for a domain, physical servers, etc. 🤖

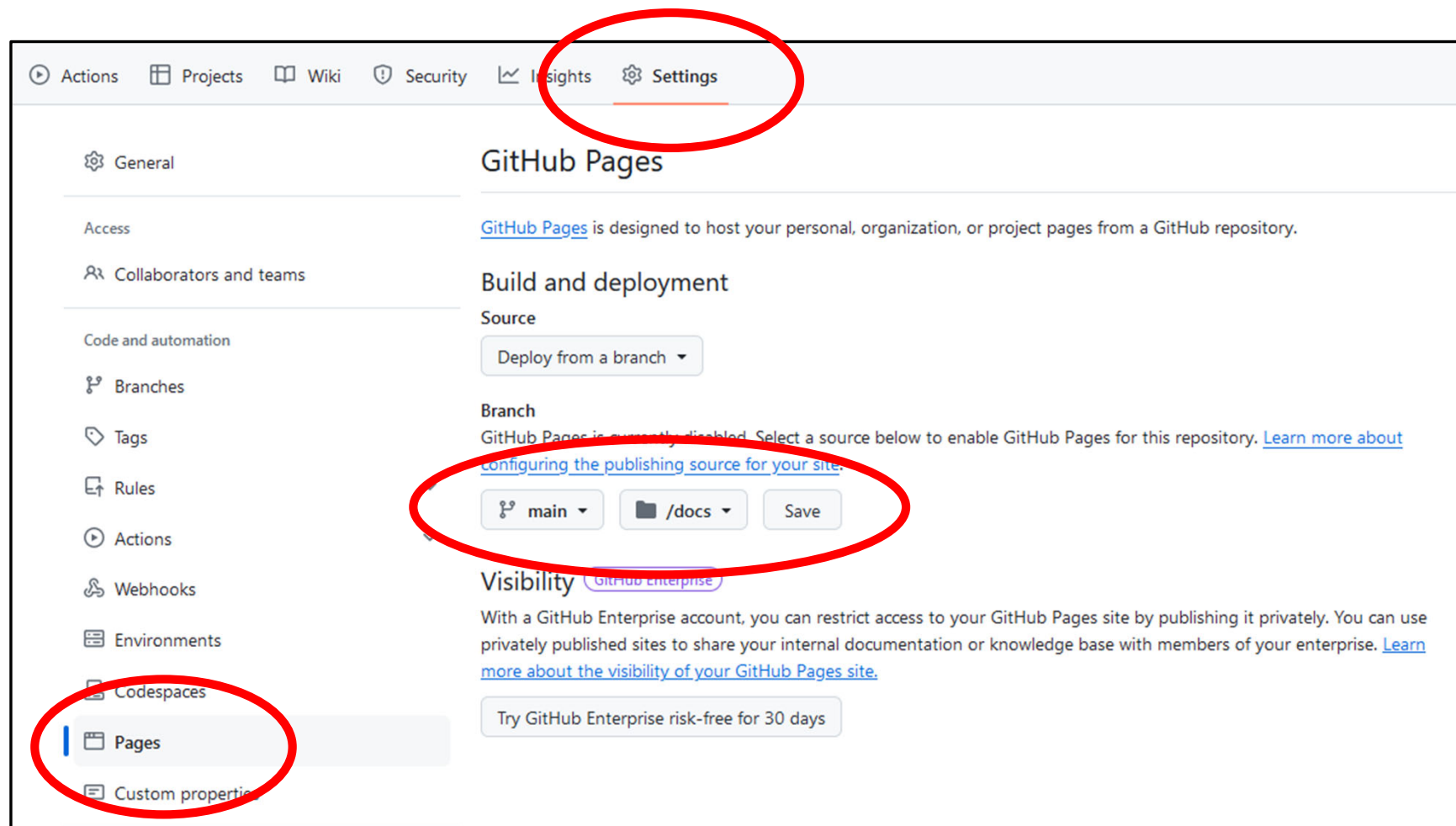


```
---  
layout: page  
title: Summer 2024  
---  
  
# 4840-1055: Non-Research Tips for Information  
Science Researchers / 情報科学研究補助技法 (Summer  
2024)  
This lecture is offered at the Graduate School of  
Information Science and Technology, Department of  
Information and Communication Engineering, the  
University of Tokyo. This lecture is tailored for  
graduate students majoring in information science.  
  
## News  
- **June 5**: Week 8 slides (invited talk by Prof.  
Seaborn) are uploaded.  
- **May 29**: Week 7 slides (invited talk by Dr.  
Bando) are uploaded.  
- **May 22**: Week 6 slides are uploaded.  
- **May 8**: Week 5 slides are uploaded.
```



Pages: (case 1) simple markdown

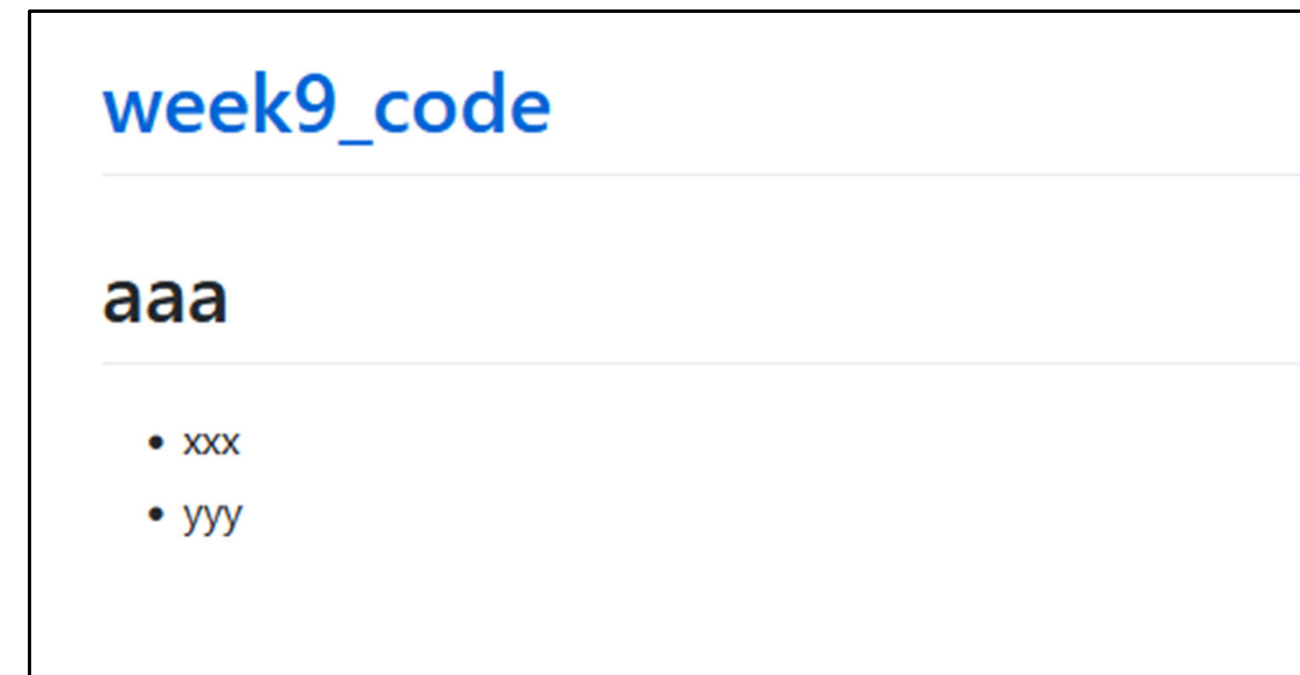
- Put `xxx.md` in `/docs` That's it!
- Configure by `/docs/_config.yml`, e.g., changing the theme.



`docs/hoge.yml`

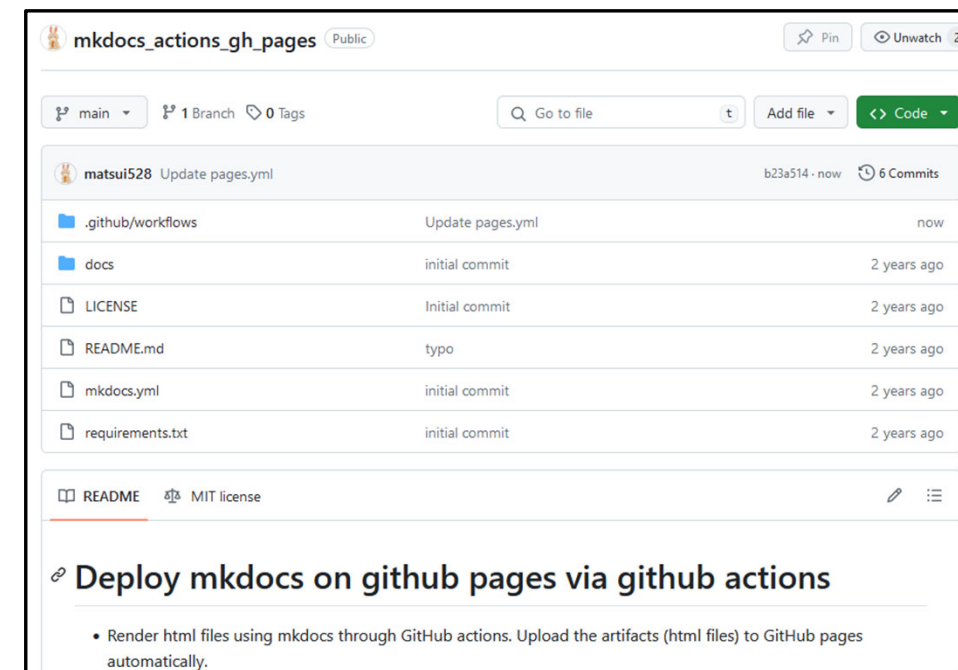
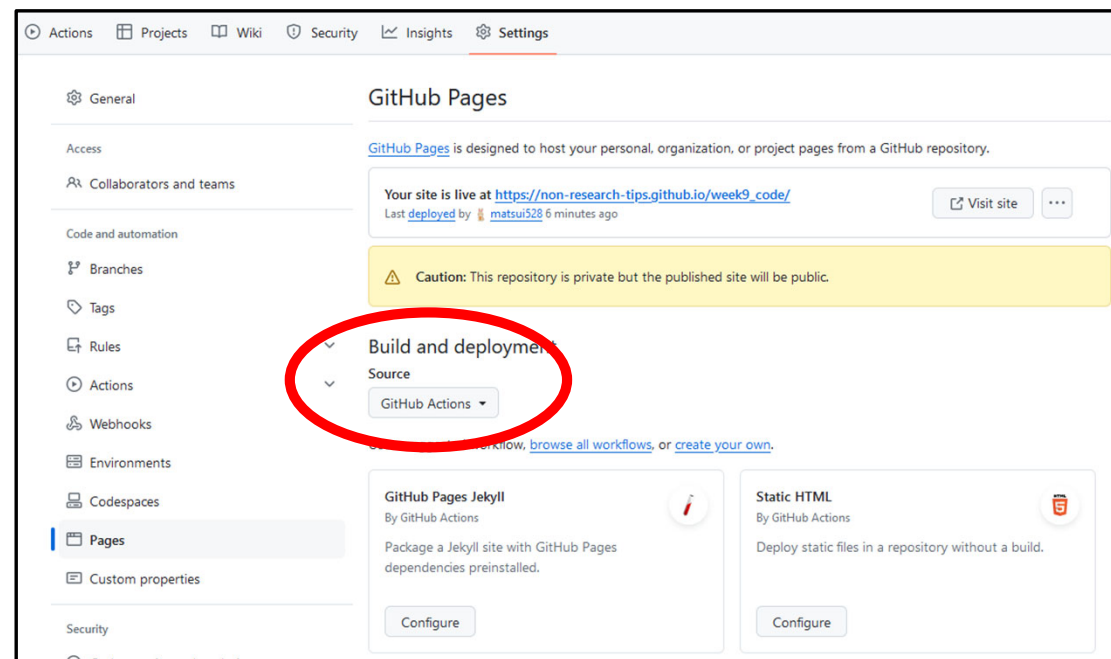
```
# aaa
- xxx
- yyy
```

`https://non-research-tips.github.io/week9_code/hoge`



Pages: (case 2) build by actions

- (1) Generate html files by actions (2) upload them by actions
- For example,
 - ✓ The repository contains markdown files only.
 - ✓ In action, convert markdowns to htmls by running mkdocs.
 - ✓ In action, upload the generate html files.
 - ✓ **No need to git-manage the generated html files.**



Pages: misc

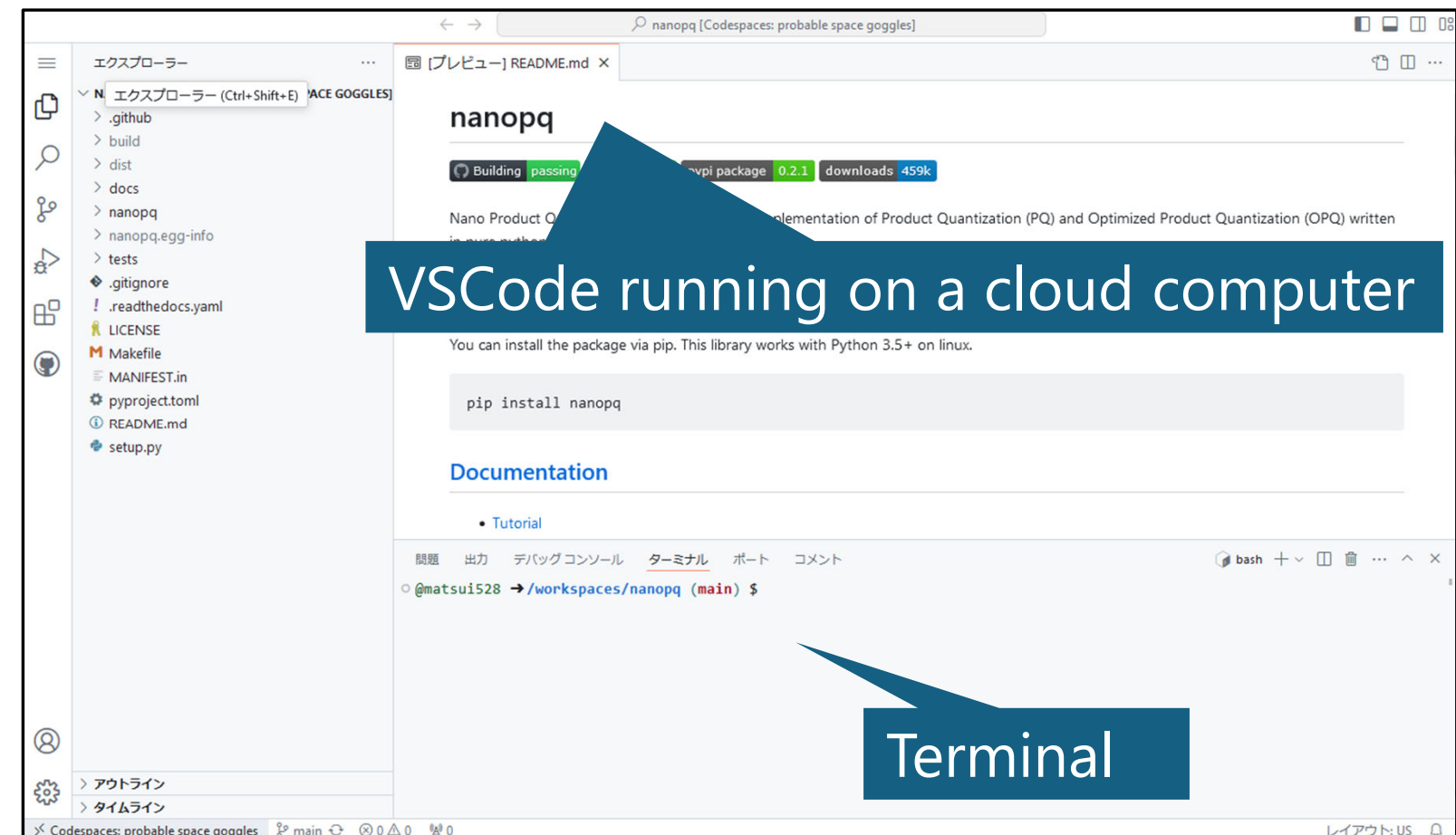
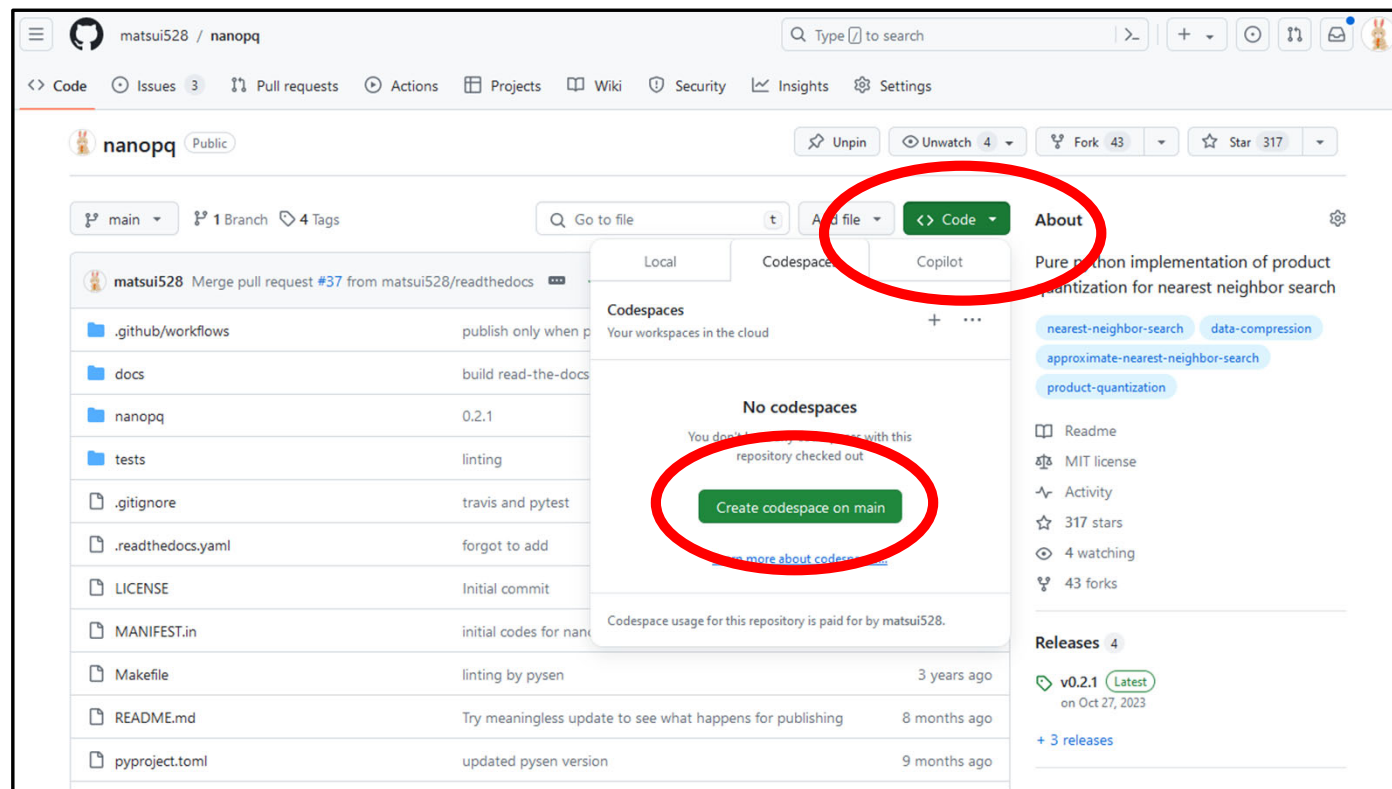
- You can directly manage html files if you want.
- Using a special branch (typically, gh-pages) is possible, but may be a bit old style (now, no need to do so).
- You can host **reference** of your project as well (readthedocs)
- As a researcher, you can use GitHub pages by
 - ✓ Creating your website. If you're a PhD student, do it now 🙌
 - ✓ Creating a project page for your paper.

- History and basics
- Issue
- Advanced markdown
- Actions
- Pages
- **Codespaces**
- Project
- CLI
- Copilot



Codespaces

- Disposable VSCode. Running on a cloud computer.
Accessing via a browser.
- Incredibly useful; you can prepare an **isolated environment** easily.
- You can test other's code on codespace.
- When you release your research code, make sure it runs on codespace.

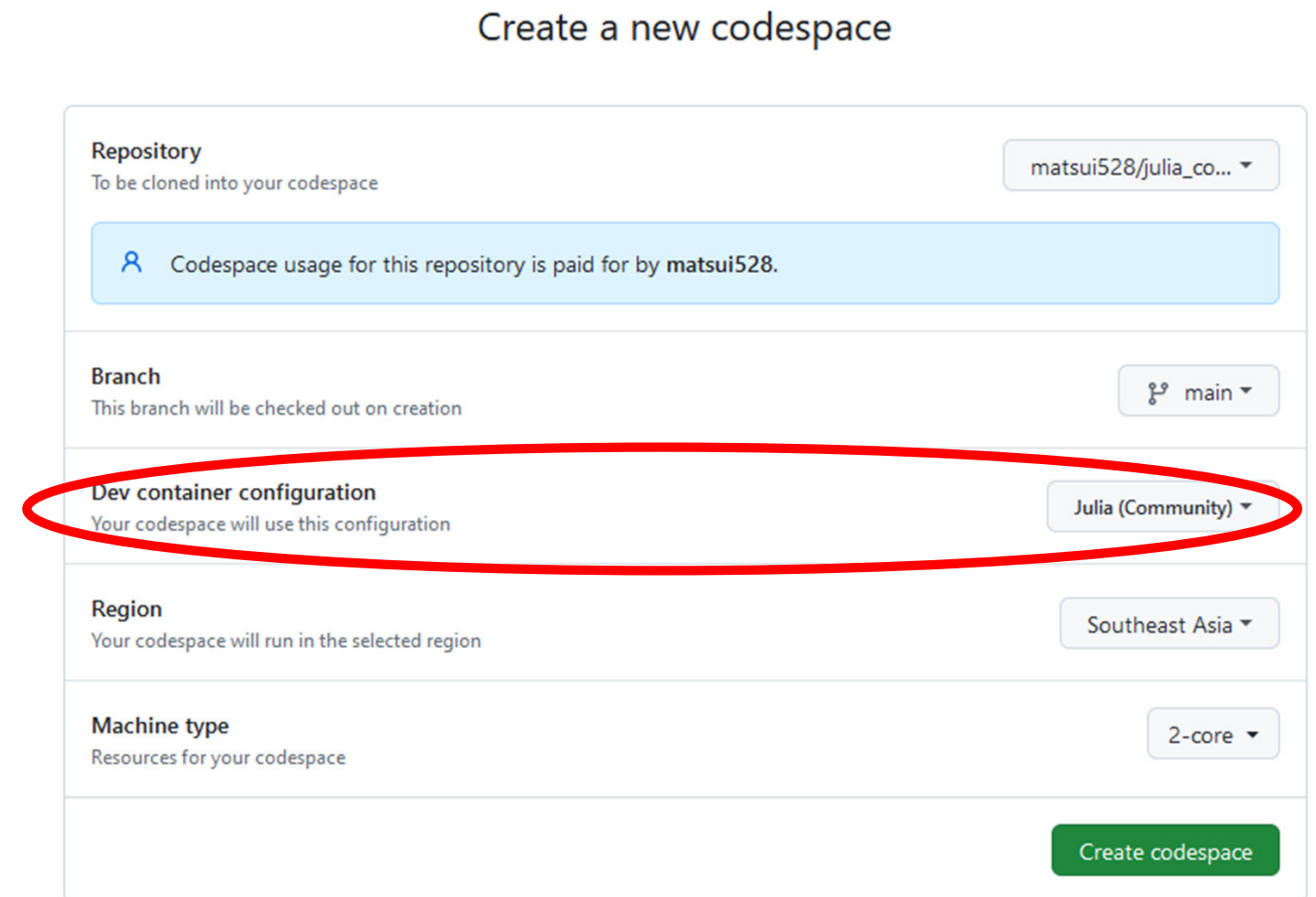


Codespaces

- You can configure the codespace by **devcontainer**
- For example, preparing a Julia environment, which is not installed in the default codespace.



```
1 // See https://github.com/julia-vscode/julia-devcontainer/blob/master/Dockerfile for image contents
2 {
3   "name": "Julia (Community)",
4   "image": "ghcr.io/julia-vscode/julia-devcontainer",
5
6   // Configure tool-specific properties.
7   "customizations": {
8     // Configure properties specific to VS Code.
9     "vscode": {
10      // Add the IDs of extensions you want installed when the container is created.
11      "extensions": [
12        "julialang.language-julia"
13      ]
14    }
15  },
16
17  "postCreateCommand": "/julia-devcontainer-scripts/postcreate.jl",
18
19  "remoteUser": "vscode"
20 }
```



Create a new codespace

Repository
To be cloned into your codespace
matsui528/julia_co...

Codespace usage for this repository is paid for by matsui528.

Branch
This branch will be checked out on creation
main

Dev container configuration
Your codespace will use this configuration
Julia (Community)

Region
Your codespace will run in the selected region
Southeast Asia

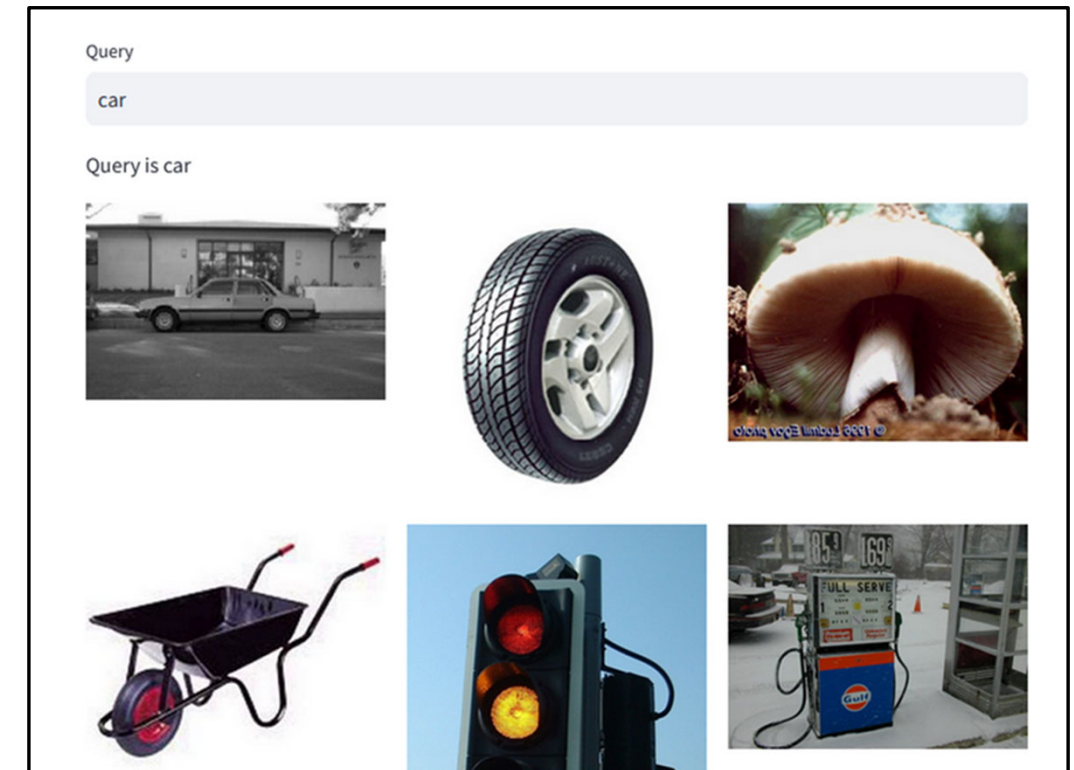
Machine type
Resources for your codespace
2-core

Create codespace

https://github.com/matsui528/julia_codespace_template

Codespaces

- You can run browser-based applications on codespace
 - ✓ i.e., codespace provides a temporal URL.
 - ✓ CLIP-based image search with streamlit <https://github.com/matsui528/scs>



- Future?: GPU codespace (paid plan)
- It will change the game...
 - ✓ Zero-infrastructure AI development
 - ✓ Coding: GPU codespace
 - ✓ Testing: GPU actions

- History and basics
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Projects

- GitHub provides a kanban (Trello) + Gantt chart

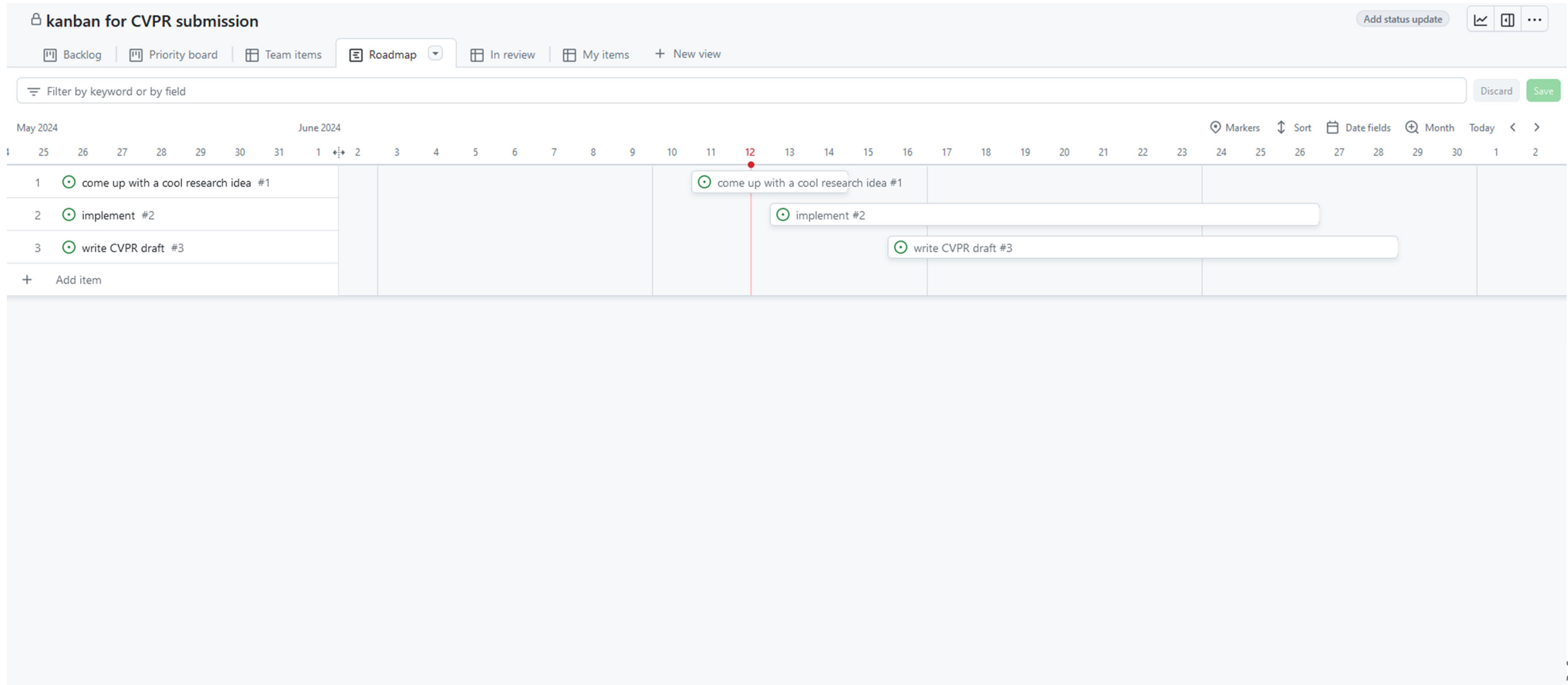
The screenshot shows a GitHub Kanban board titled "kanban for CVPR submission". The board is organized into five columns representing different stages of a task:

- Backlog** (0/5 items, Estimate: 0): "This item hasn't been started".
- Ready** (2 items, Estimate: 7): "This is ready to be picked up". It contains two items:
 - Item 1: "week9_code #2" with sub-task "implement", priority P1, estimate 3, and due date M.
 - Item 2: "week9_code #3" with sub-task "write CVPR draft", priority P1, estimate 4, and due date L.
- In progress** (1/3 items, Estimate: 3): "This is actively being worked on". It contains one item:
 - Item 1: "week9_code #1" with sub-task "come up with a cool research idea", priority P1, estimate 3, and due date S.
- In review** (0/5 items, Estimate: 0): "This item is in review".
- Done** (0 items, Estimate: 0): "This has been completed".

Each column has an "Add item" button at the bottom. The interface includes a search filter, view toggles (Backlog, Priority board, Team items, Roadmap, In review, My items), and utility buttons like "Add status update", "Discard", and "Save".

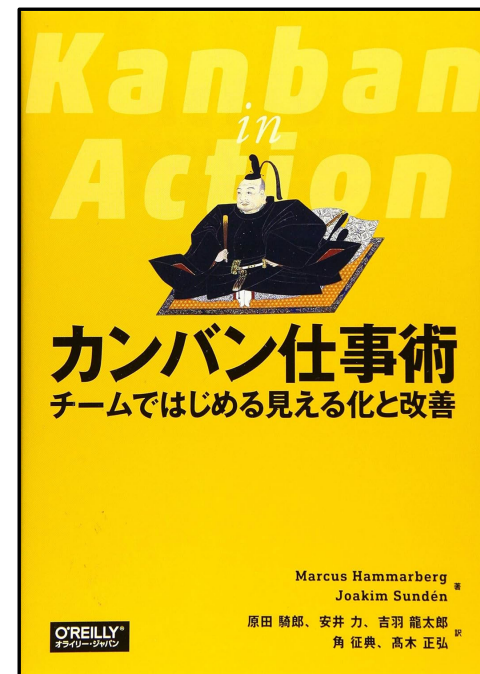
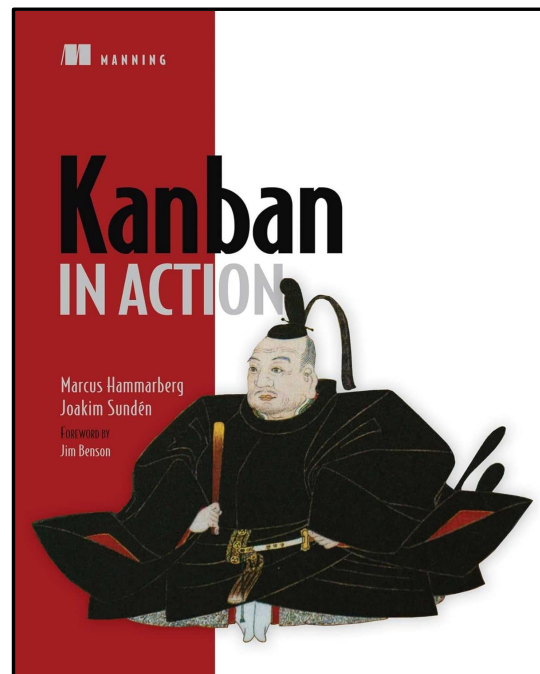
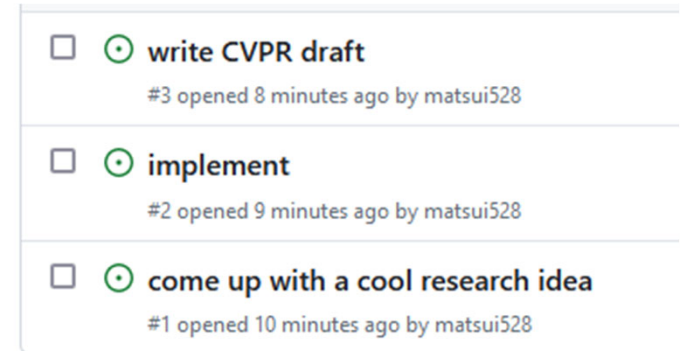
Projects

➤ GitHub provides a kanban (Trello) + Gantt chart



Projects

- Each item can associate with a corresponding issue.
- You can attach a PR as well.
- GitHub project can be useful for research project management, especially for a team project.



M. Hammarberg and J. Sundén, "Kanban in Action", Manning, 2014.

邦訳：カンバン仕事術，オライリー，2016

- History and basics
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CLI

- GitHub provides a CLI tool: gh

```
$ gh issue list

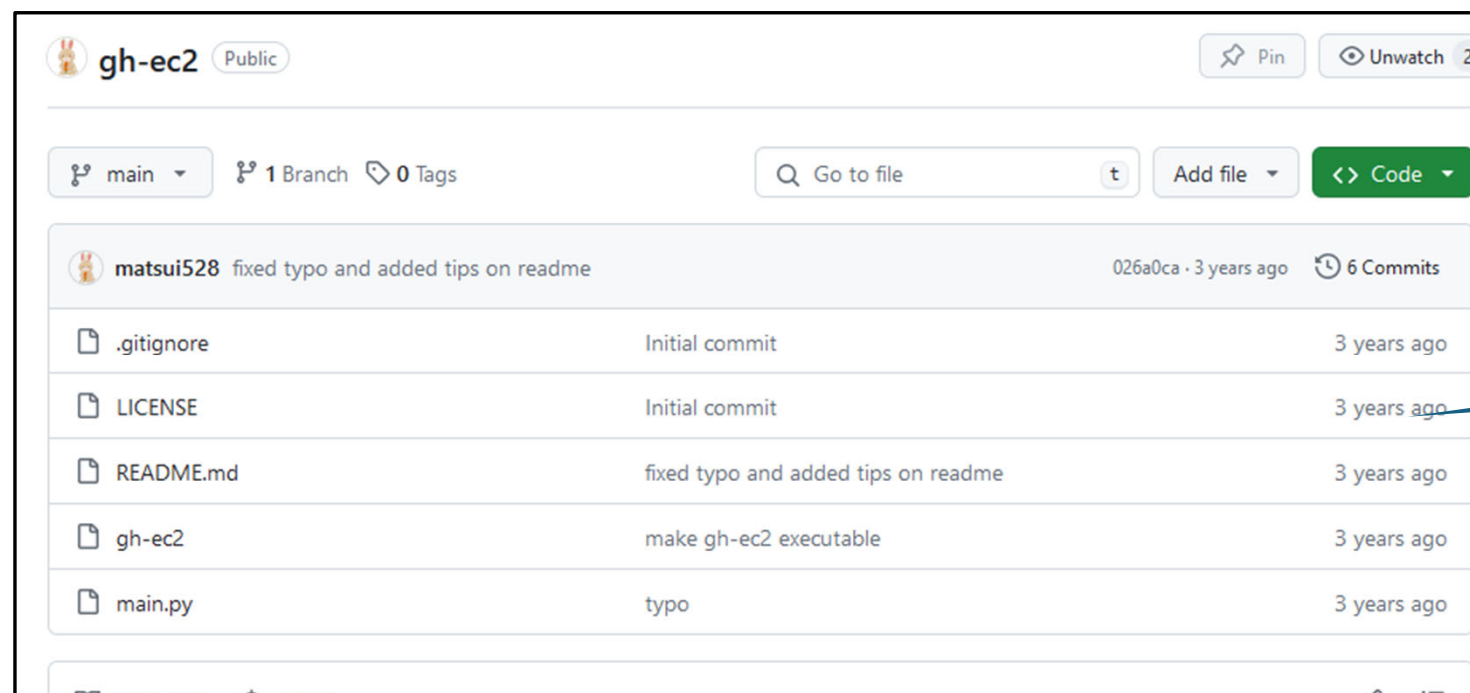
Showing 4 of 4 open issues in non-research-tips/week9_code

ID  TITLE                                LABELS  UPDATED
#4  aaa                                about 20 minutes ago
#3  write CVPR draft                    about 24 minutes ago
#2  implement                            about 25 minutes ago
#1  come up with a cool research idea    about 25 minutes ago
```

- gh can access **GitHub internal information** (e.g., to show the issues of a private repository, we need to log in GitHub)
- Sometimes very useful (e.g., if you cannot use ssh for some reasons, gh provides you a full access to GitHub resources including cloning)

CLI extension

- GitHub CLI provides a way to extend your own subcommands.
 - ✓ e.g., `$ gh hogegege`
- You can distribute your extension.
 - ✓ Create a repository. That's it.
 - ✓ Install command: `$ gh extension install matsui528/gh-ec2`
 - ✓ Then you can use it: `$ gh ec2`



I tried the CLI extension right after it was launched, so I got the critical word "ec2" 😎

<https://github.com/matsui528/gh-ec2>

CLI extension

- Providing a command line tool by CLI extension is interesting
 - ✓ You can suppose that a tool can access to the **GitHub resources**.
 - ✓ It is usually not possible if you create a tool by other ways (e.g., Python Fire)
 - ✓ Package management system is super simple. Just upload it to GitHub. One just clones it.

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GitHub Copilot

Copilot

- The era of AI-assisted coding has already arrived.
- Whether you want it or not, **you need to know what it is.**
- To use generative AI such as GitHub Copilot, first **follow the guidelines of UTokyo.**
- In particular, you need to make sure that you are allowed to use it for sensitive documents, such as class assignments.

<https://utelecon.adm.u-tokyo.ac.jp/online/topics/generative-ai>



生成AI (ChatGPT等) 関連情報

このページでは、ChatGPT等の生成AI (Generative AI) に関する情報をまとめていきます (随時更新予定)。

ガイドライン・メッセージ等

- [東京大学における生成AI利用に係るセキュリティガイドライン](#) (2024年3月12日) ※閲覧にはUTokyo Accountでのサインインが必要です
- [東京大学の学生の皆さんへ・AIツールの授業における利用について](#) (2023年5月26日付 / 2023年5月29日掲

目次

- [ガイドライン・メッセージ等](#)
- [全学構成員向けの生成AIサービス](#)

Demo

- Copilot
- Copilot Chat
- Copilot Workspace 🧐

GitHub helps your research activities:

- History and basics
- Issue -> **General purpose. Experiment log.**
- Advanced markdown -> **Visualization.**
- Actions -> **Automation.**
- Pages -> **Project webpage.**
- Codespaces -> **Test for other's and yours codes.**
- Project -> **Kanban for your project.**
- CLI -> **Fast action.**
- Copilot -> **Help everything.**

Schedule

| Date (2024) | Contents | Presented by |
|----------------------------|---|---|
| Week 1, Apr 10 | Introduction. Review of fundamental concepts | Yusuke, Koya, Yuki, Jun |
| Week 2, Apr 17 | Equations and pseudo-codes | Yusuke Matsui |
| Week 3, Apr 24 | Presentation | Koya Narumi |
| Week 4, May 1 | Tables and plots | Yusuke Matsui |
| Week 5, May 8 | Figures | Koya Narumi |
| Week 6, May 22 | Videos | Koya Narumi |
| Week 7, May 29 | Invited Talk 1 | Dr. Yoshiaki Bando (AIST) |
| Week 8, June 5 | Invited Talk 2 | Prof. Katie Seaborn (Tokyo Tech) |
| Week 9, June 12 | GitHub in depth | Yusuke Matsui |
| Week 10, June 19 | Automation of research and research dissemination (Web, Cloud, CI/CD) | Jun Kato |
| Week 11, June 26 | Research community | Jun Kato |
| Week 12, July 3 | 3DCG illustrations | Yuki Koyama |
| Week 13, July 10 | Final presentations | - |

