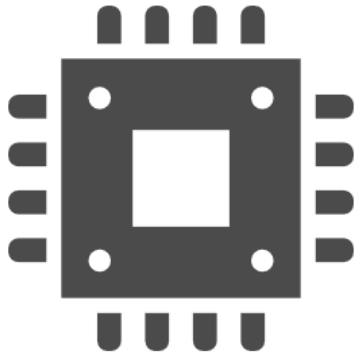
4840-1054: Media Computing in Practice (Summer 2022)



Week 2: April 13, 2022

Yusuke Matsui

Schedule

Week	Date	Content	Presenter
3	April 20, 2022	Seminar	吴 宇涵, 近藤 佑亮, 陳 星星, 荘 昊昱,
4	April 27, 2022	Seminar	武縄 瑞基, 林 洸希, 朱 国豪, 郑 书晗,
5	May 11, 2022	Seminar	塩田 悠真, 楊 博銘, GOSWAMI Nabarun, アヌバワ アヌバワ
6	May 18, 2022	Seminar	ユンセィ セィリン, 尤 書恒, YANG Chengkai, 水上 瑠夏,
7	May 25, 2022	Seminar	BAYASGALAN Amartuvshin, 本橋 優俊, LUO Erxiang,
8	June 8, 2022	Seminar	曹 永鵬, 佐藤 賢志郎, 舘野 将寿
9	June 15, 2022	Coding day👐	
10	June 22, 2022	Seminar for PR	Presenters of Week 3 and 4
11	June 29, 2022	Seminar for PR	Presenters of Week 5 and 6
12	July 6, 2022	Seminar for PR	Presenters of Week 7 and 8
13	July 13, 2022	Invited talk	

- I'll post this on the web
- Let me know if you prefer to put your GitHub account name instead of your real name.
- If you forgot to submit the survey and don't see your name above, please let me know **now.**

In summary: (1) when you present

- By 23:59 of the day before your presentation,
  - ✓ Let me know the title of the paper
  - ✓ Let me know the name of the repo (I will create one for you under https://github.com/media-comp)
  - ✓ Push your code to the repo
  - ✓ Submit your slides (pdf) to me

- You can reach me via Slack
  if you are a student of IST ICE
- If not, e-mail me matsui@hal.t.u-tokyo.ac.jp
  or DM me via twitter @utokyo_bunny

In summary: (1) when you present

- Presentation time:
  - ✓ 20 min talk + 5 min Q&A

In summary: (2) after your presentation

- If you receive a PR, review and merge/reject it.

In summary: (3) when you're not a presenter

- Listen to the presentation
- After the presentation, do the following if you like the paper
  - ✓ Run the code
  - ✓ Send PRs: Please submit at least **three Pull Requests** to different repositories

In summary: (4) presentation for PR

- Explain the PRs you have created and the PRs you have reviewed
- By 23:59 of the day before your presentation,
  - ✓ Submit your slides (pdf) to me
- 10 min talk + 1 min Q&A

- What paper should you choose?
- Fork, pull requests, review, and merge
- GitHub actions

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What paper should you choose?

- Type 1: Recent solid paper
  - ✓ E.g., *X. Chen and K. He, "Exploring Simple Siamese Representation Learning", CVPR 2021, Best paper* Honorable Mentions
  - ✓ "Best paper candidates" might be a good choice if you cannot come up with papers at all.
  - ✓ The SOTA scores itself is not very important. **The contribution (impact) to the community** is important.
  - ✓ After reading the paper, what new insights did we gain?

What paper should you choose?

- Type 1: Recent solid paper
  - ✓ You can find the official repository. Please cite it in your repository/presentation.
  - ✓ Try to implement from scratch by yourself, with:
    - ☐ Careful comments
    - ☐ Decide the level of abstraction by yourself
    - ☐ Better code base, possibly with more functionalities
    - ☐ Cool: implementation by different language
    - ☐ Cool: implementation w/ different framework (e.g., from PyTorch to JAX)
    - ☐ Cool: implementation w/o framework

What paper should you choose?

- Type 2: Classic paper with benchmark
  - ✓ E.g., *C. Tomasi and R. Manduchi, "Bilateral Filtering for Gray and Color Images", ICCV 1998*
  - ✓ You can find several good implementation (e.g., OpenCV and MATLAB)
  - ✓ Try to implement from scratch by yourself and evaluate the runtime
    - ☐ v.s. OpenCV, MATLAB
    - ☐ Your code: naïve python, Numba-optimized python, SIMD-optimized c++, Julia, …
    - ☐ with strange datasets?

- What paper should you choose?
- Fork, pull requests, review, and merge
- GitHub actions

Fork, pull requests, review, and merge

Q	Yes	Probably yes	Probably no	No
Have you ever created a Pull Request?	10	2	5	5
Have you ever reviewed a Pull Request?	6	1	8	7

① Fork

https://github.com/hoge528/simple_calc.git

```
.
├── main.c
└── README.md
```

- taro123 **Forks**
- Copy hoge528's repo on taro123's GitHub

https://github.com/taro123/simple_calc.git

```
.
├── main.c
└── README.md
```

② Update the forked repo

https://github.com/hoge528/simple_calc.git

```
.
├── main.c
└── README.md
```

https://github.com/taro123/simple_calc.git

```
.
├── main.c
├── delete.c
└── README.md
```

Pull ⬇ ⬆ Push

taro123's PC

```
.
├── main.c
├── delete.c
└── README.md
```

③ Update the original repo by Pull Requet

https://github.com/hoge528/simple_calc.git

```
.
├── main.c
├── delete.c
└── README.md
```

- **Pull request**
- "Please merge my code"

https://github.com/taro123/simple_calc.git

```
.
├── main.c
├── delete.c
└── README.md
```

taro123's PC

```
.
├── main.c
├── delete.c
└── README.md
```

Fork, pull requests, review, and merge

- Let’s try!
  1. Student X creates a repo
  2. Student Y forks it and creates a PR
  3. X reviews it and asks Y to **update it**
  4. Y updates it
  5. X merges it
  6. X and Y takes turn

X	Y
吴 宇涵	近藤 佑亮
陳 星星	荘 昊昱
武縄 瑞基	林 洸希
朱 国豪	郑 书晗
塩田 悠真	楊 博銘
GOSWAMI Nabarun	アヌバワ アヌバワ
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佐藤 賢志郎	舘野 将寿

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GitHub Actions

Q	Yes	Probably yes	Probably no	No
Do you know how to use GitHub actions?	2	4	6	10

- See the official tutorial

GitHub Actions: simple code

.github/workflows/simple.yml

```yaml
name: simple try

on: [push]

jobs:
  build:
    runs-on: ubuntu-latest

    steps:
    - uses: actions/checkout@v3
    - name: Run my funny commands
      run: |
        pwd
        ls
        echo abcdefg
        uname -a
```

GitHub Actions: several OSs

.github/workflows/os.yml

```yaml
name: several OSs

on: [push]

jobs:
  build:
    runs-on: ${{ matrix.os }}
    strategy:
      matrix:
        os: [macos-latest, ubuntu-latest, windows-latest]
    steps:
    - uses: actions/checkout@v3
    - name: Run my funny commands
      run: |
        pwd
        ls
        echo abcdefg
        uname -a
```

GitHub Actions: python

.github/workflows/python.yml

```yaml
name: simple python

on: [push]

jobs:
  build:
    runs-on: ubuntu-latest

    steps:
    - uses: actions/checkout@v3
    - uses: actions/setup-python@v3
    - name: Run some python
      run: |
        python -c "print(3+2)"
```

Next week

- Presentation by 吴 宇涵, 近藤 佑亮, 陳 星星, 荘 昊昱,