

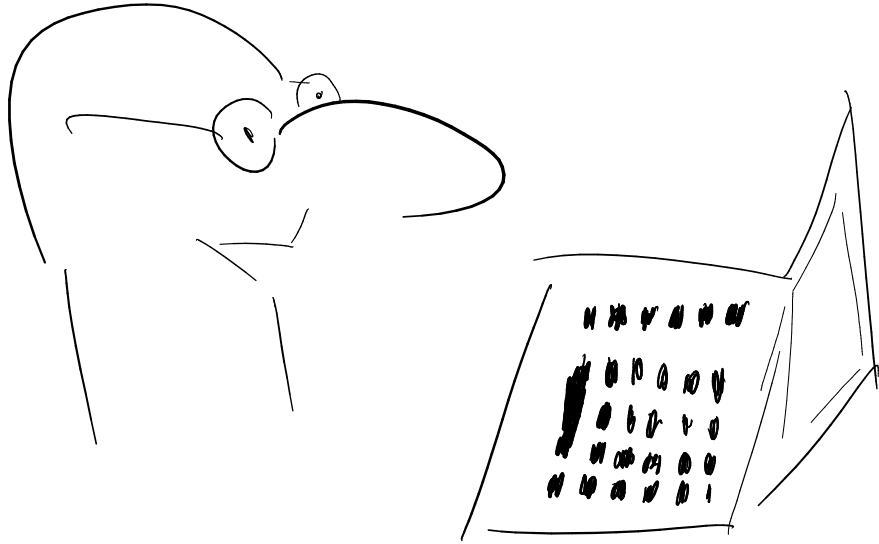
Own your C.I.  
with Nix

Théophane Hufschmitt

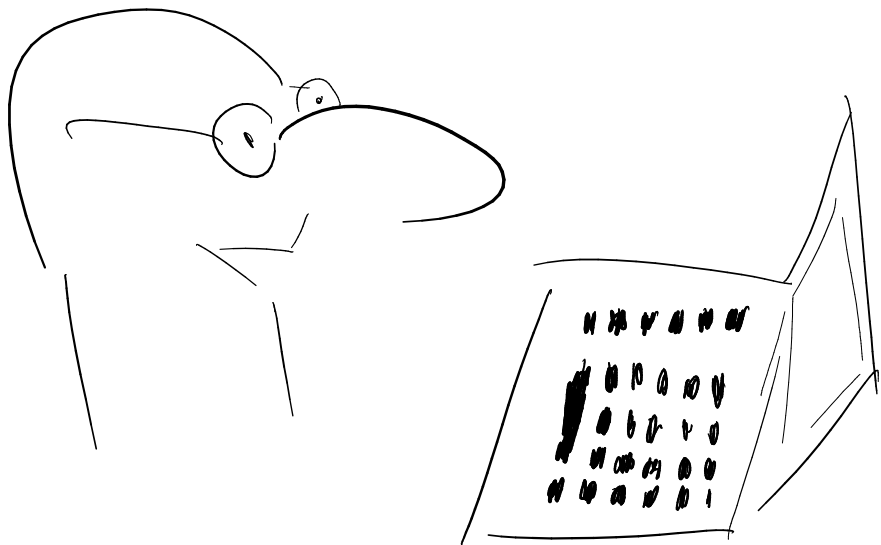


**MODUS CREATE**

Bob

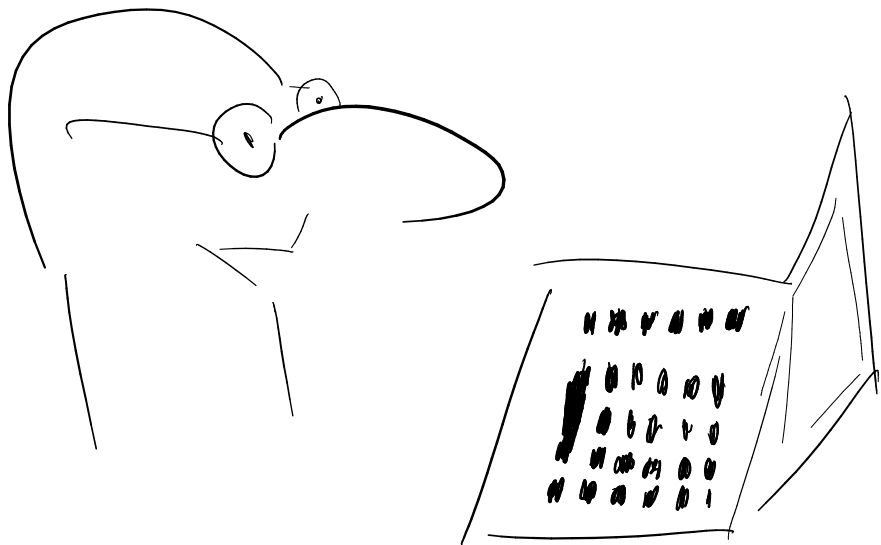


Bob

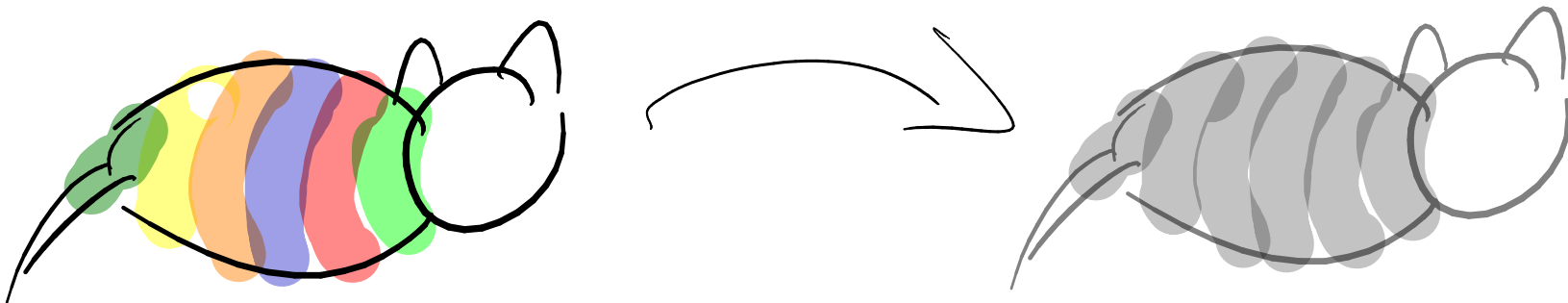


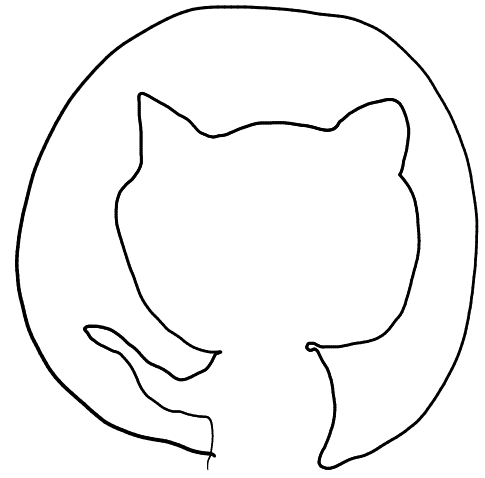
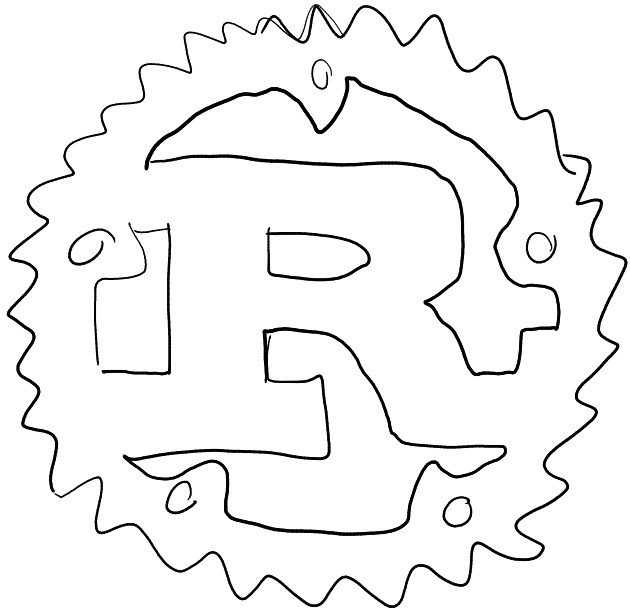
Grey Cat

Bob



Grey Cat

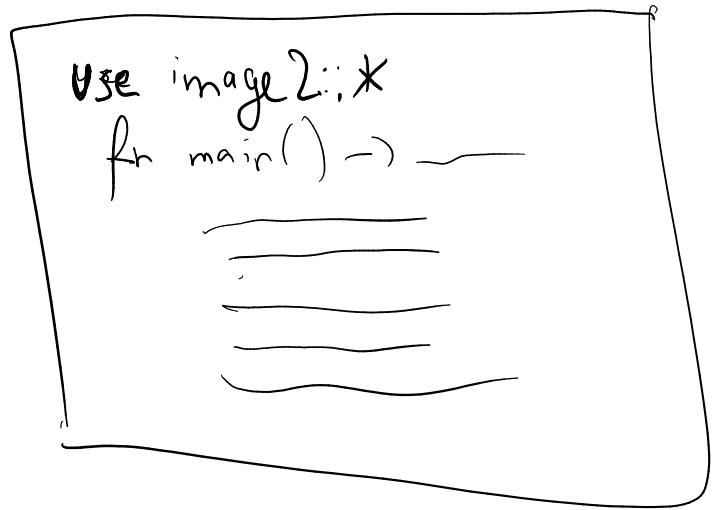




fn main() →  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

jobs:  
build:  
runs-on: ubuntu-latest  
steps:  
- \_\_\_\_\_  
- \_\_\_\_\_  
- run: cargo build

\$ cargo add image2



\$ cargo build



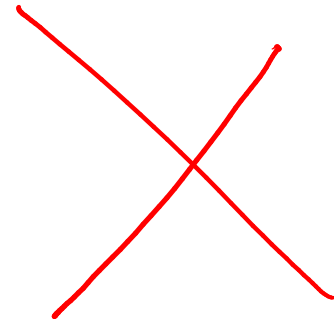
\$ cargo add image2

Use image2; \*  
fn main() -> \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\$ cargo build



```
fPIC" "-gdwarf-4" "-fno-omit-frame-pointer" "-m64" "-I" [20/9057$  
ufschmitt/.cargo/registry/src/github.com-1ecc6299db9ec823/image2-  
1.9.2" "-Wall" "-Wextra" "-std=c++14" "-w" "" "-o" "/home/thufsch  
mitt/Repos/thufschmitt/graycat/work/target/debug/build/image2-2d9  
3b912e108ec65/out/fe7b6bbc69f83bdf-cpp_closures.o" "-c" "/home/th  
ufschmitt/Repos/thufschmitt/graycat/work/target/debug/build/image  
2-2d93b912e108ec65/out/rust_cpp/cpp_closures.cpp"  
cargo:warning=src/io/oio.rs:8:14: fatal error: OpenImageIO/par  
amlist.h: No such file or directory  
  
cargo:warning=      8 | #include <OpenImageIO/paramlist.h>  
  
cargo:warning=      | ~~~~~  
  
cargo:warning=compilation terminated.  
  
exit status: 1  
[/home/thu<- 1:[tmux]* 2>"GX=0,Y=0,w=0,h=0,z=0," 11:26 30-janv.-2
```



Steps:

- 
- apt-get install libopenimageio
- 
- cargo build



steps:

-           

-           

- apt-get install

libopenimageio

-           

- cargo build



One year later

- Rust
- C libraries
- JS
- PyTorch
- Spark
- Python
- PostgreSQL
- Redis
- Postfix
- MinIO

One year later

- Rust
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ci.yml

1  
2  
3  
4  
5

A series of approximately 20 horizontal wavy lines, representing redacted content in a CI configuration file. The lines are drawn with a simple, sketchy hand-drawn style.

5219  
5220  
5221

# Ubuntu-latest workflows will use Ubuntu-22.04 #6399

🔒 Closed

🔗 4 of 10 tasks

**ddobranic** opened this issue on Oct 13, 2022 · 57 comments



**ddobranic** commented on Oct 13, 2022 • edited by mikhaikoliada ▾

Contributor ⋮

## Breaking changes

Ubuntu 22.04 is ready to be the default version for the "ubuntu-latest" label in GitHub Actions and Azure DevOps.



**spapas** mentioned this issue on Jan 27, 2023

**Tests are failing for python 3.6 on ubuntu latest** [treyhunner/django-email-log#37](#)

🔒 Closed



**claudepache** pushed a commit to [claudepache/php-doc-en](#) that referenced this issue on Jun 1, 2023



Ubuntu-latest workflows will use Ubuntu-22.04, temporary workaround ([p...](#)) ⋮



**shenxianpeng** mentioned this issue on Oct 26, 2022

**Clang-tidy/clang-format being installed clashed with system binaries** [cpp-linter/cpp-linter-action#103](#)

🔒 Closed



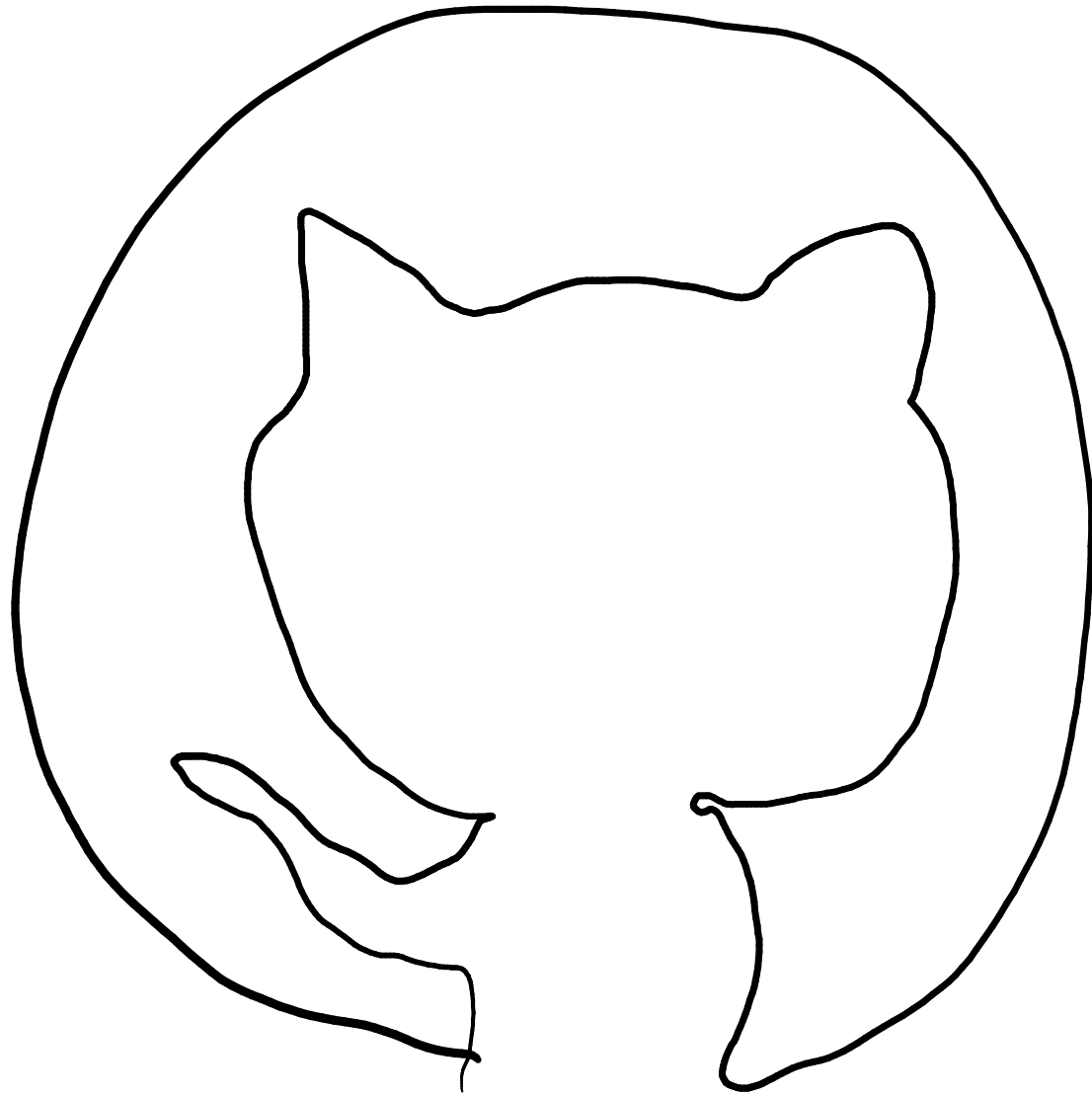
**giffels** mentioned this issue on Feb 7, 2023

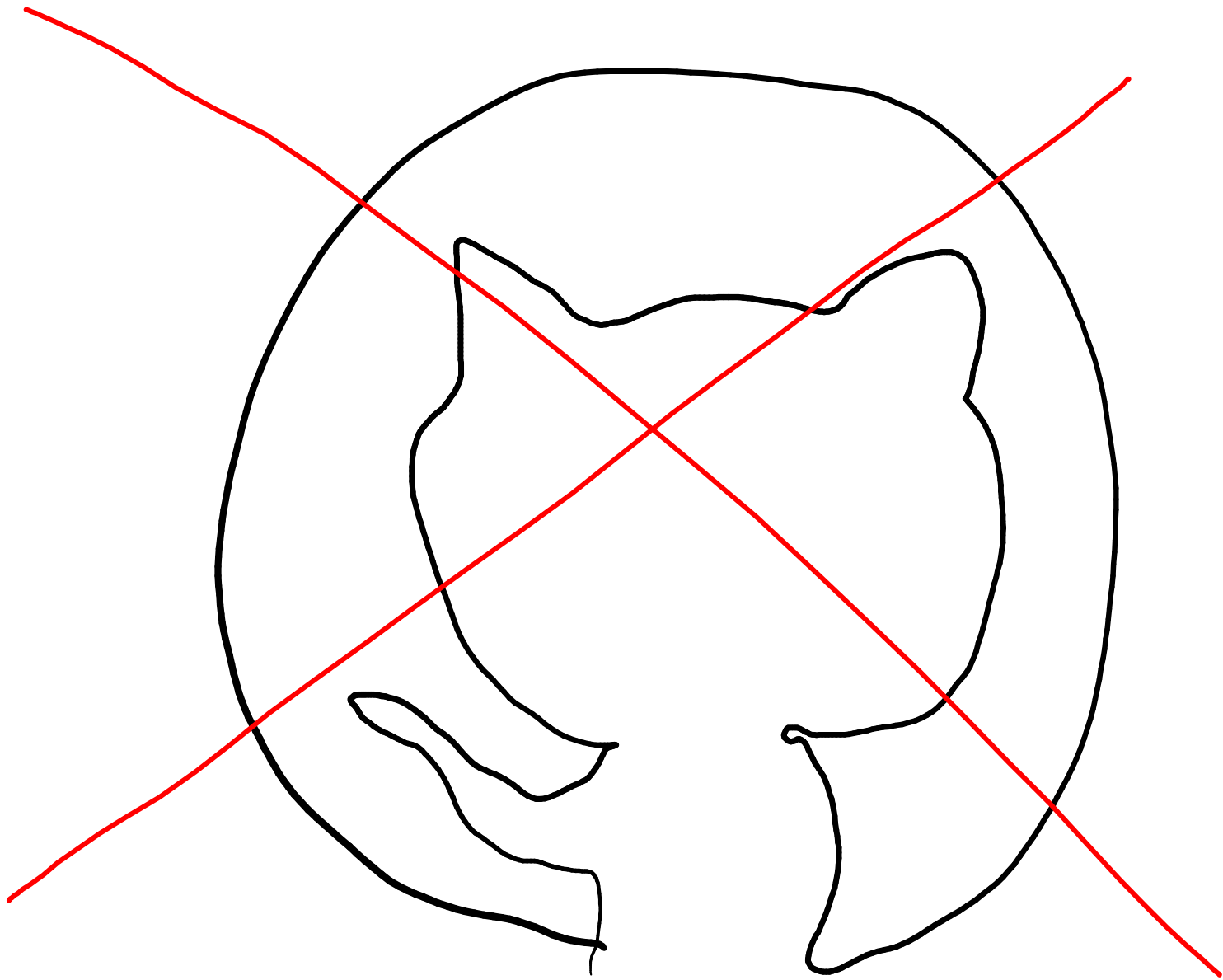
**Update deprecated GitHub actions** [MatterMiners/cobald#118](#)

🔗 Merged

**Fix GLIBC issue** [software-mansion/protostar#1371](#)

🔗 Merged



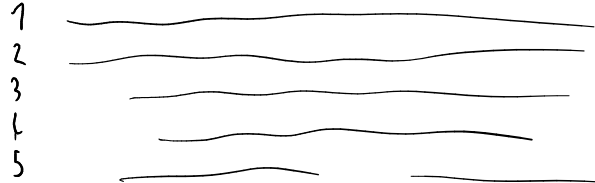




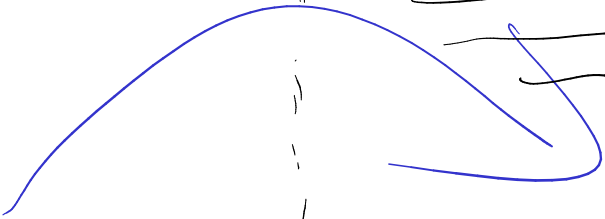
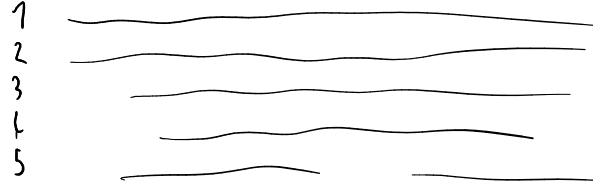
ci.yml

ci.yml another-ci.yml

1  
2  
3  
4  
5



1  
2  
3  
4  
5



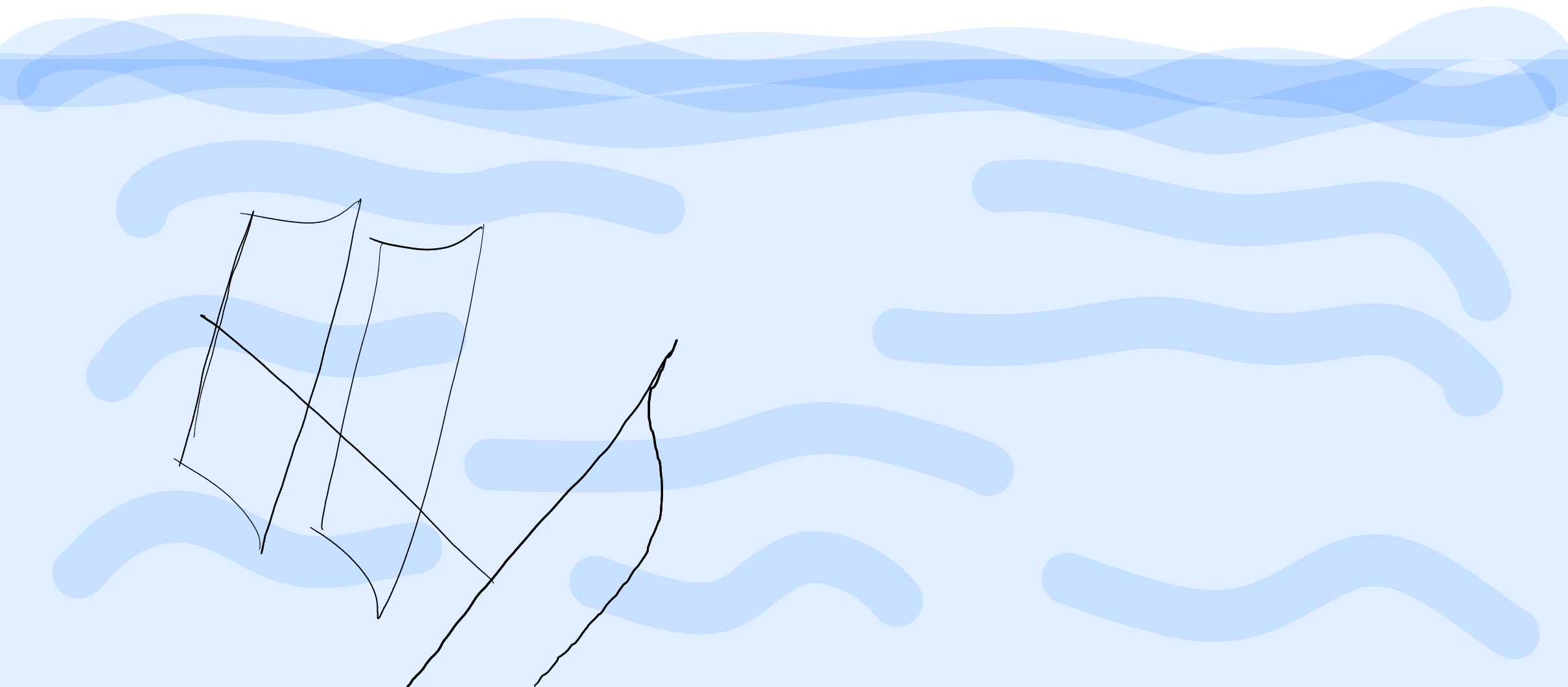
5219  
5220  
5221

5219  
5220  
5221

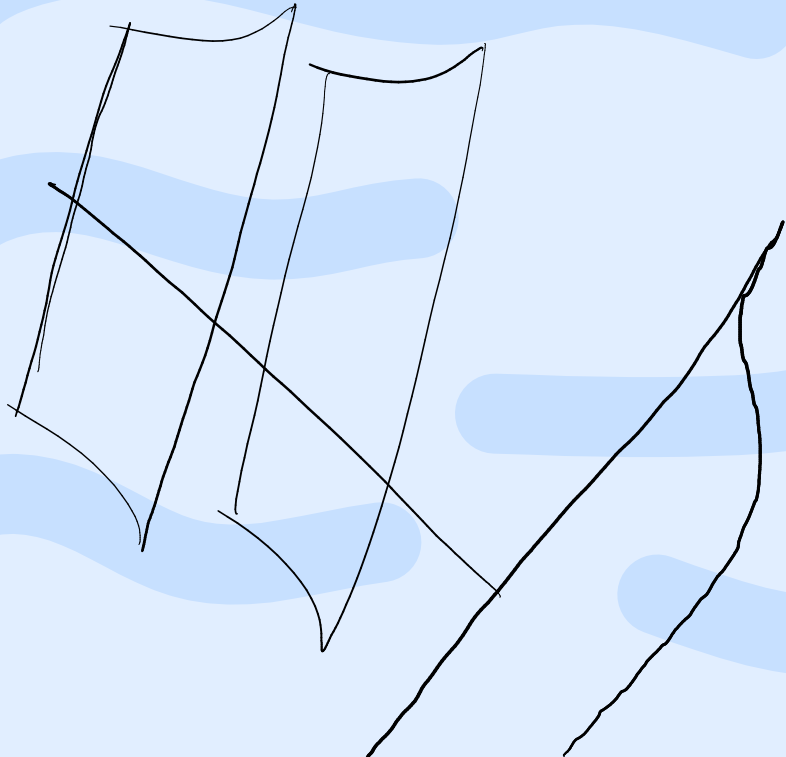
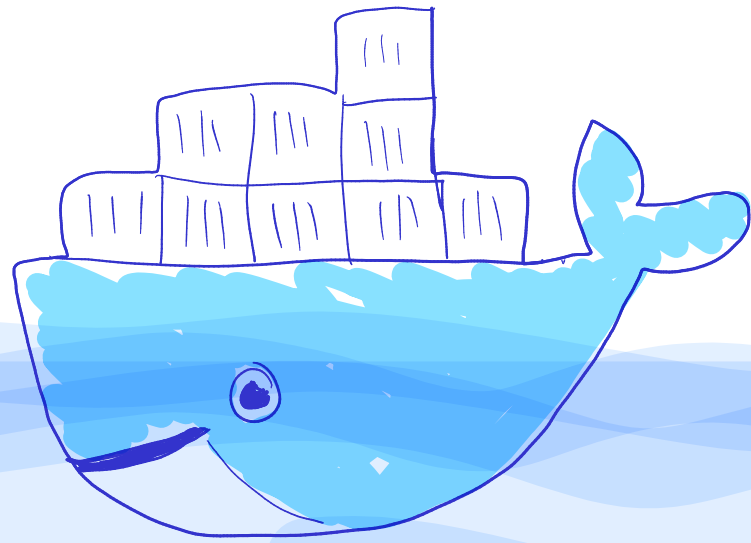




Avoiding death



Avoiding death





# Dockerfile

```
1 FROM ubuntu:23.11
```

```
2 _____  
3 _____  
4 _____  
5 _____  
_____
```

```
RUN apt-get
```

```
_____
```

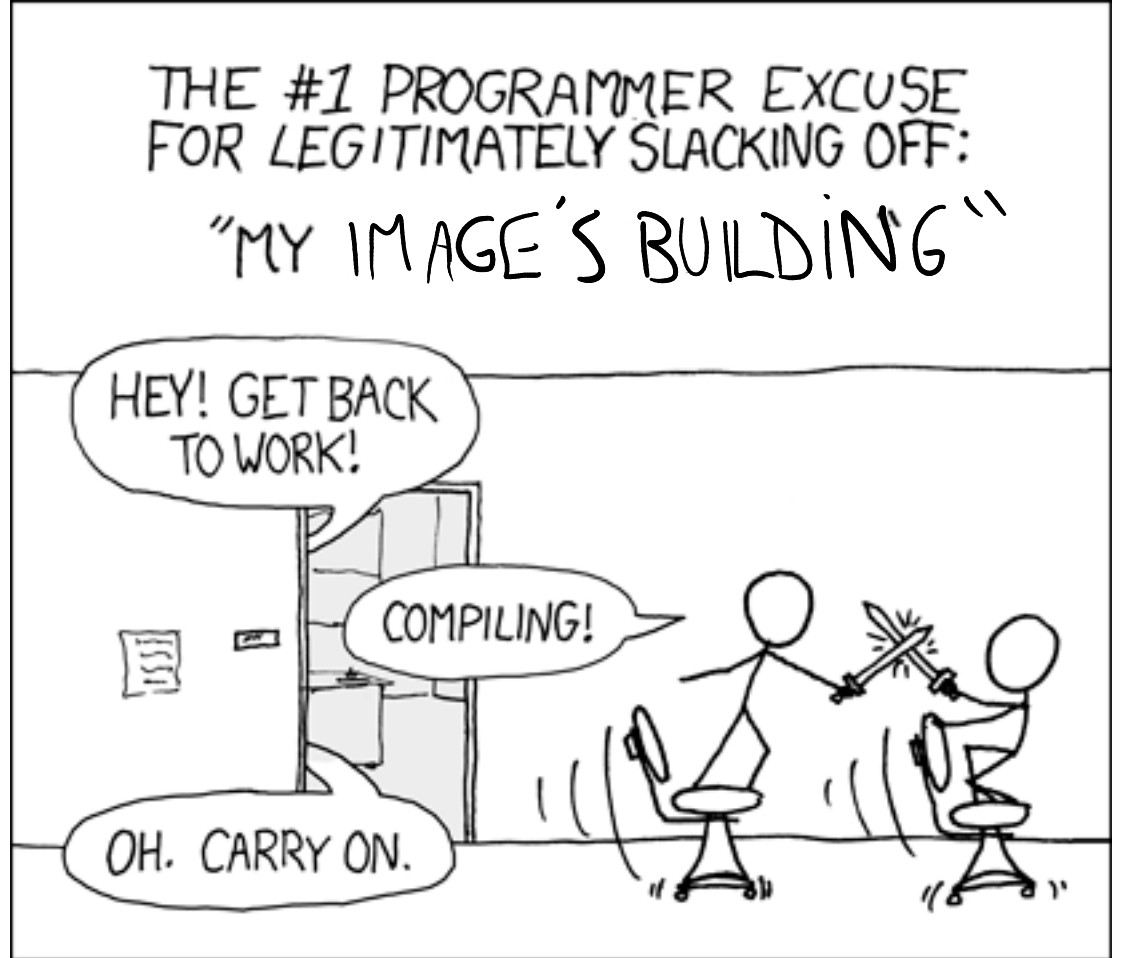
```
5219  
5220  
5221
```

THE #1 PROGRAMMER EXCUSE  
FOR LEGITIMATELY SLACKING OFF:  
"MY IMAGE'S BUILDING"

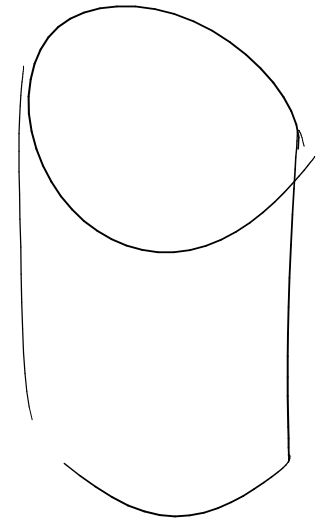
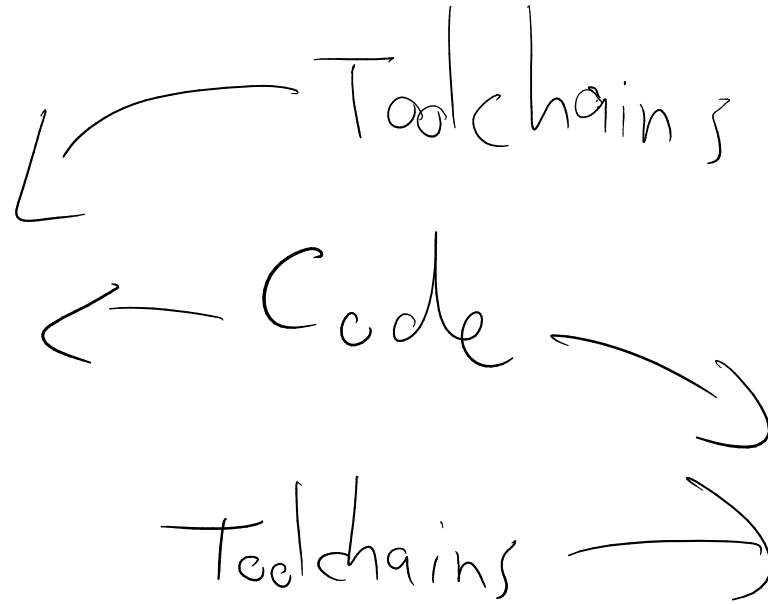
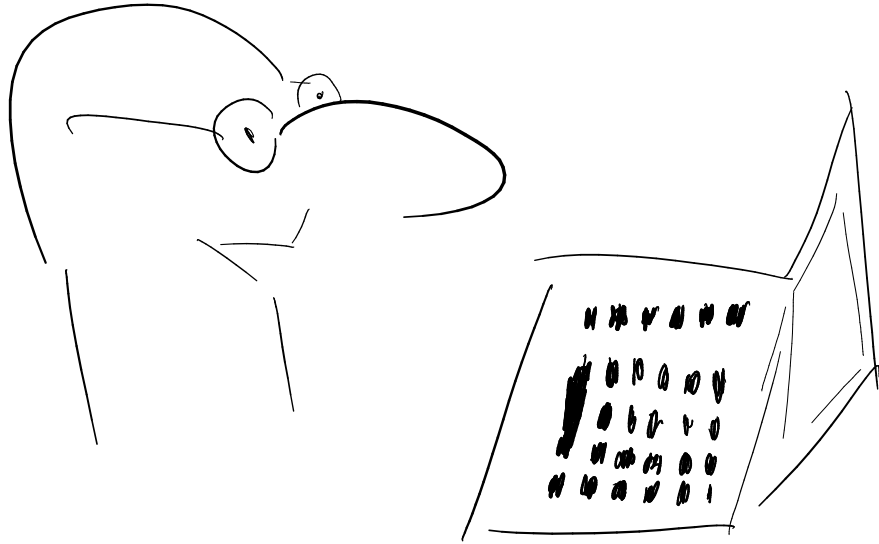
HEY! GET BACK  
TO WORK!

COMPILING!

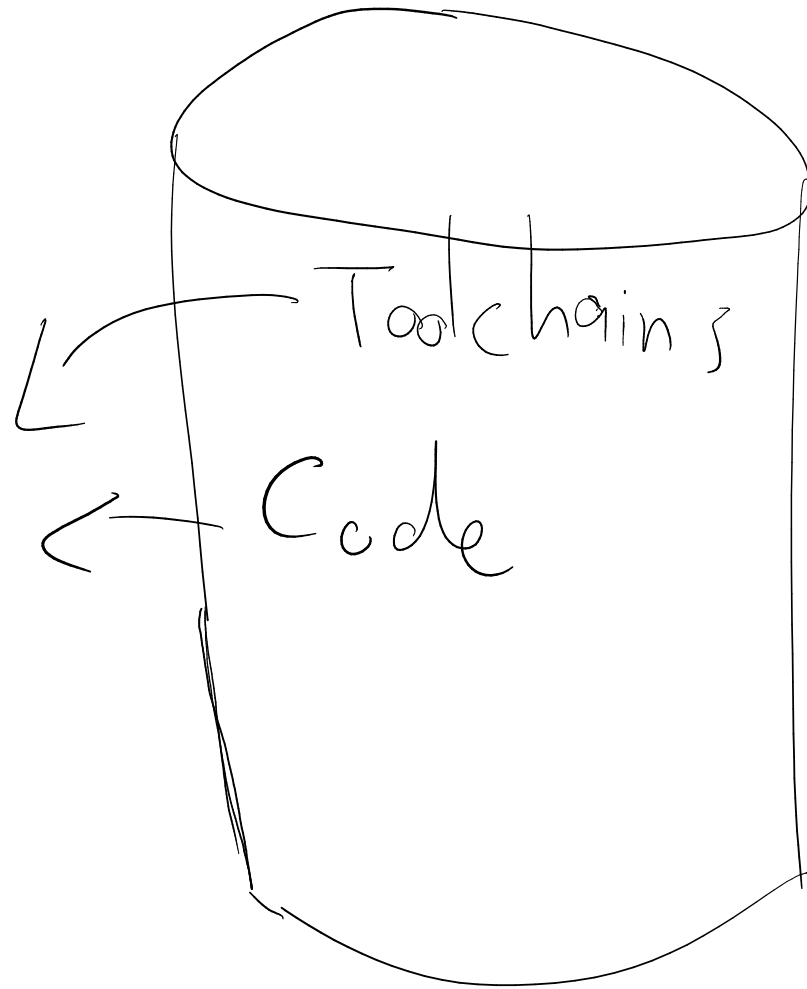
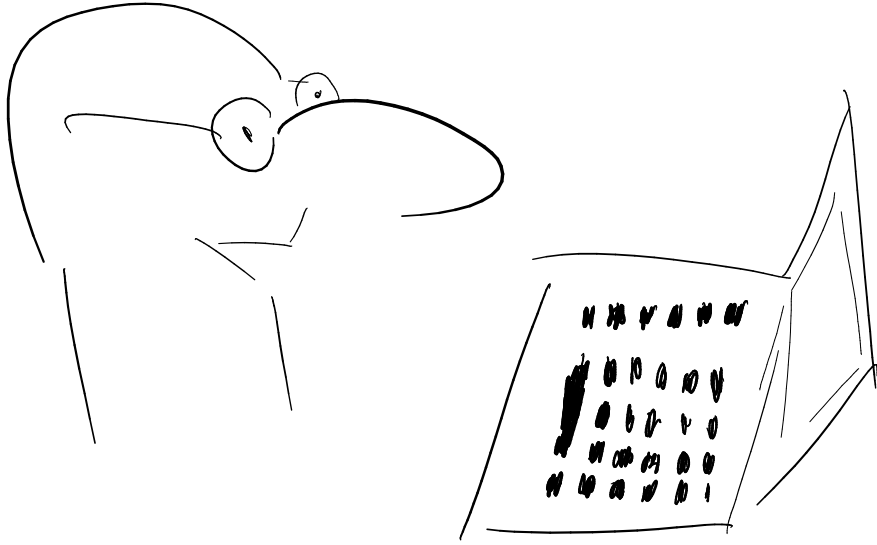
OH. CARRY ON.



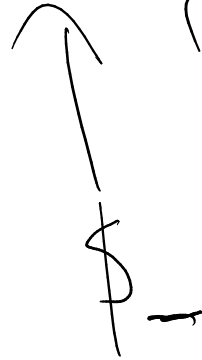
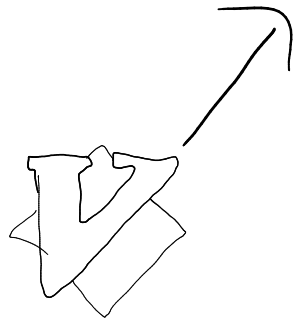
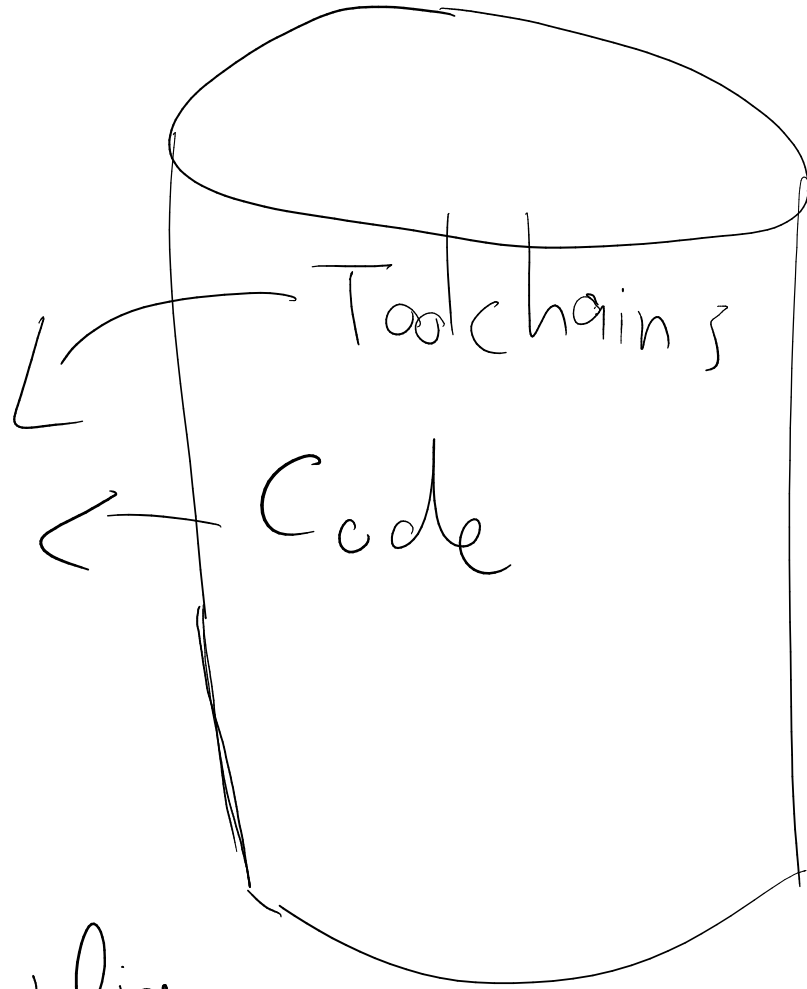
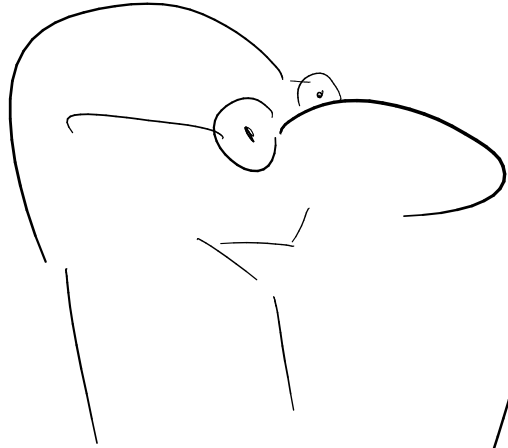
Bob



Bob



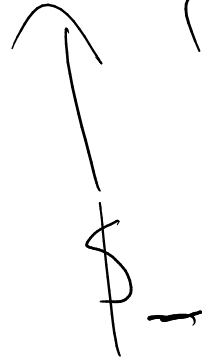
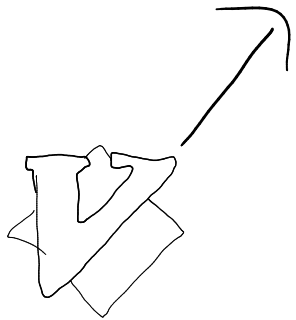
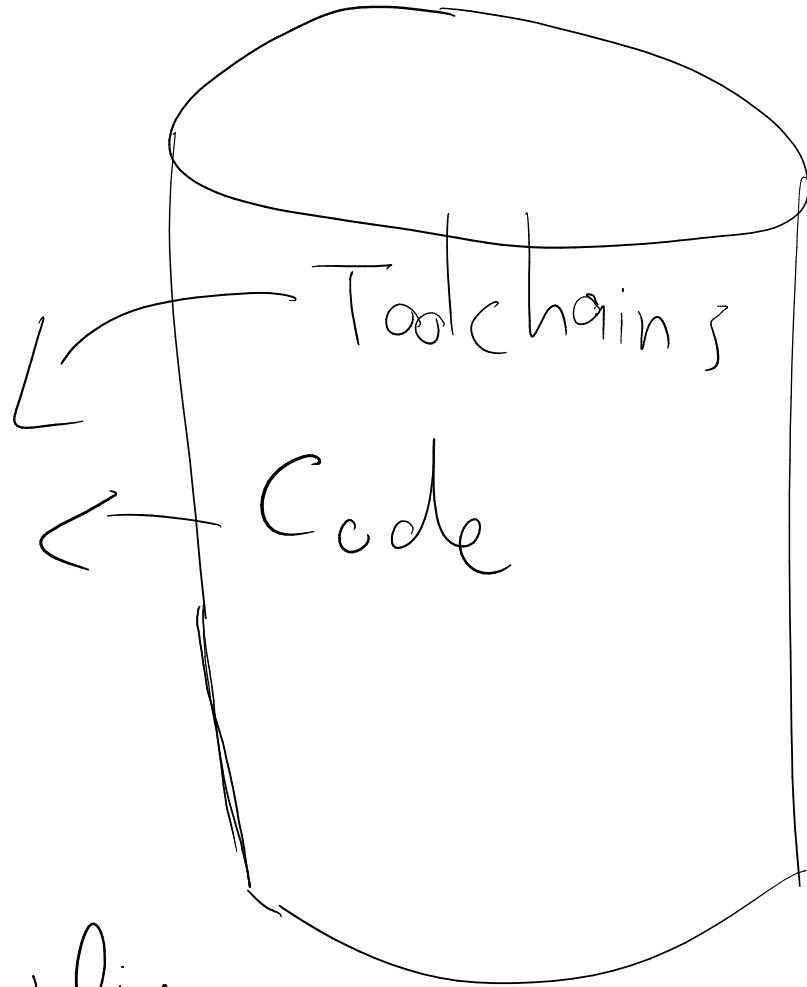
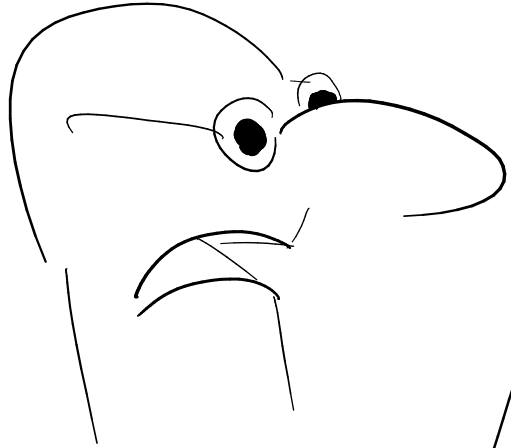
Bob



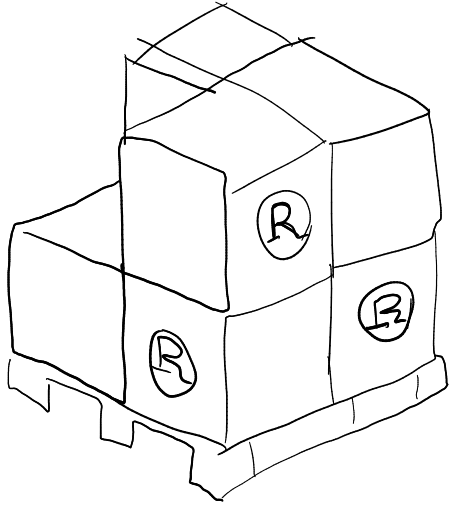
.config

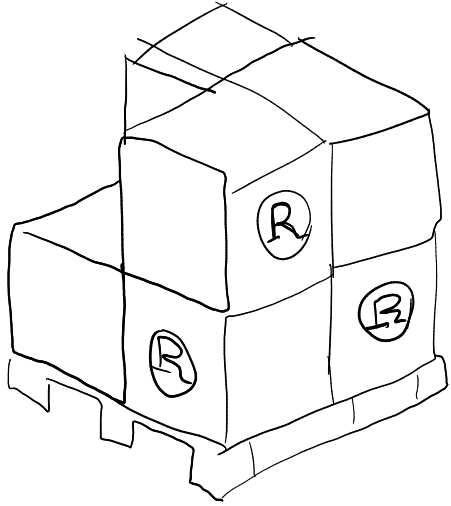


Bob

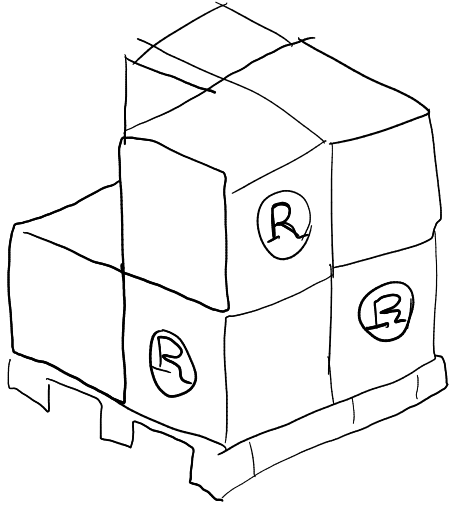


.config



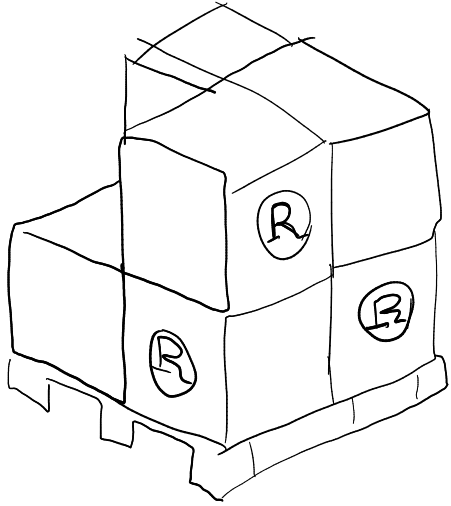


Just Works <sup>TM</sup>



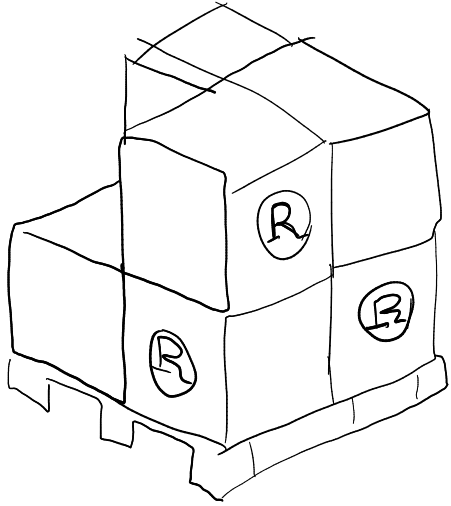
✓ Transparent

Just Works™



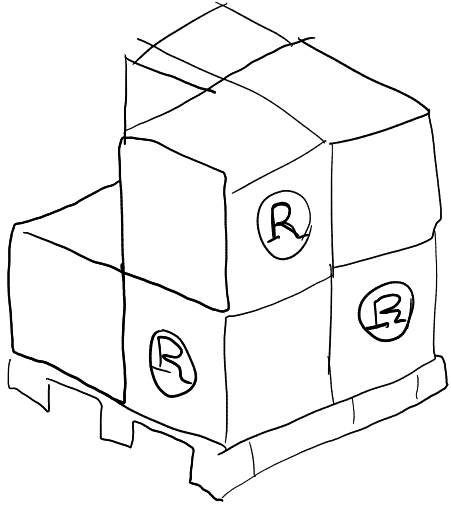
Just Works™

✓ Transparent  
✓ Declarative



Just Works <sup>TM</sup>

- ✓ Transparent
- ✓ Declarative
- ✗ Generic



Just Works™

- ✓ Transparent
- ✓ Declarative\*
- ✗ Generic

Terms and conditions  
applies



Nix





Nix

- ✓ Transparent
- ✓ Declarative\*
- ✗ Generic

Terms and conditions  
applies



Nix

- ✓ Transparent
- ✓ Declarative\*
- ✓ Generic

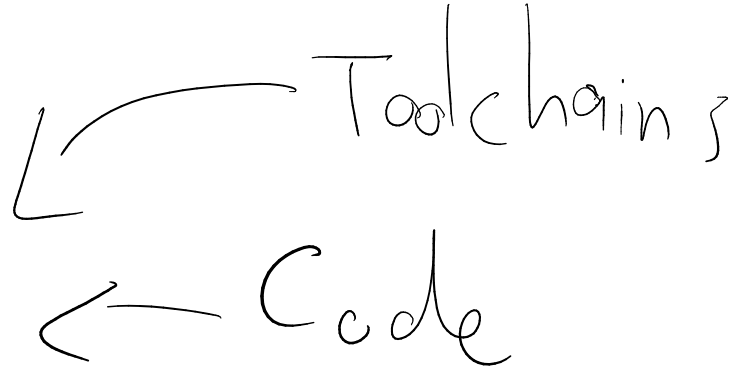
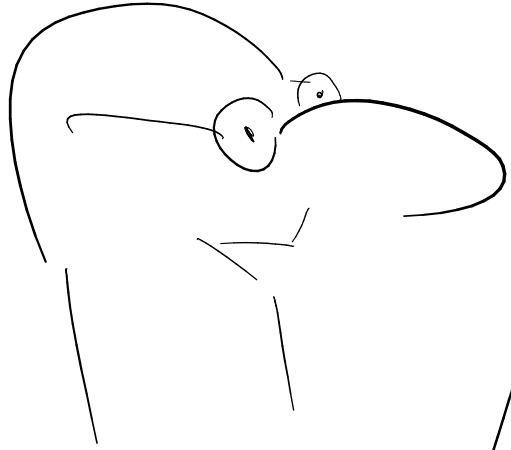
Terms and conditions  
applies



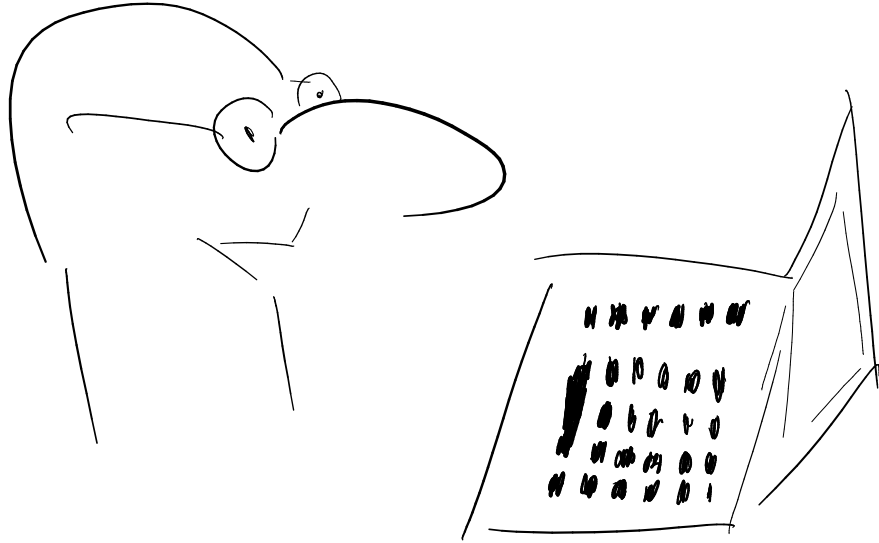
Nix

- ✓ Transparent
- ✓ Declarative
- ✓ Generic

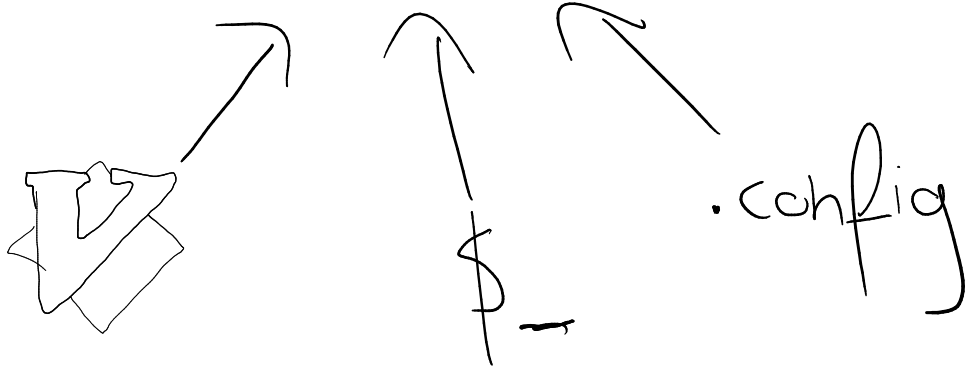
Bob



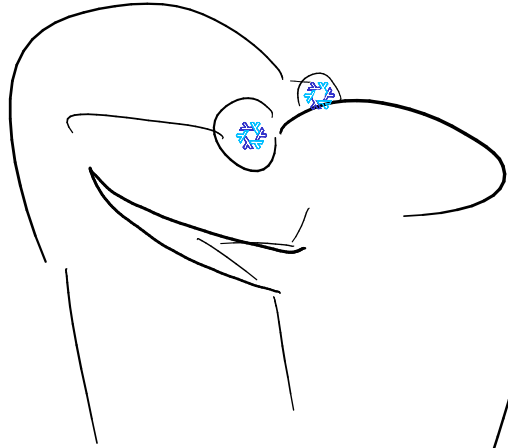
Bob



Toolchains  
Code



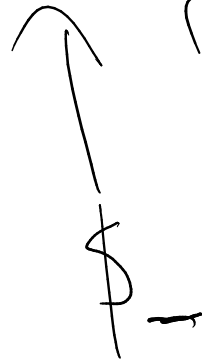
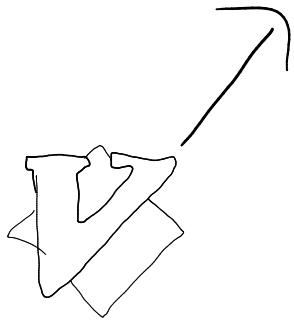
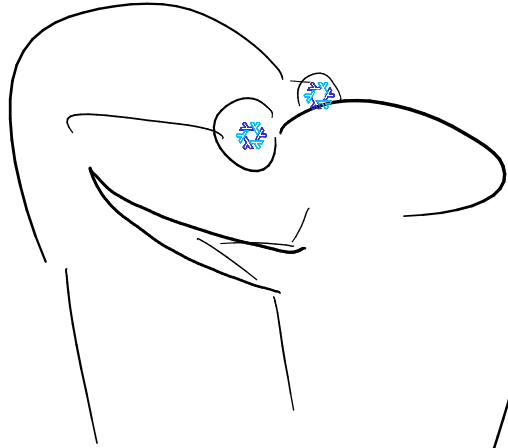
Bob



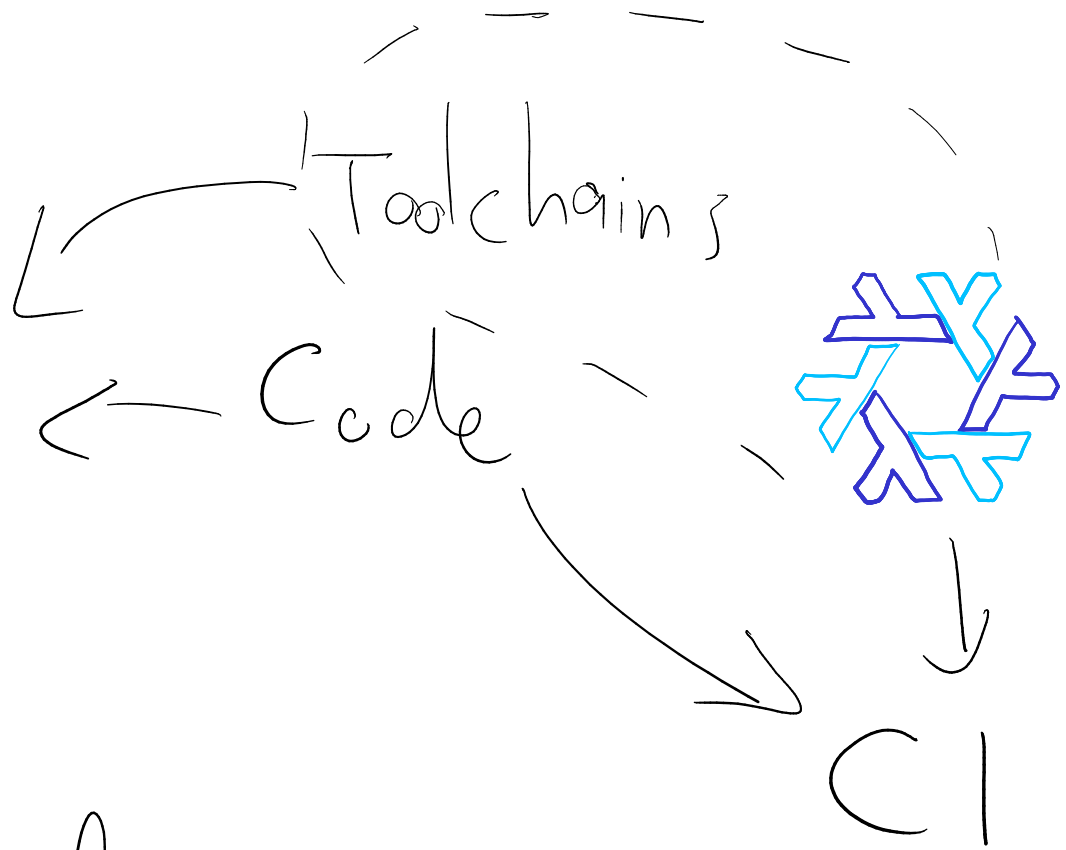
Toolchains  
Code



Bob



.config



pkgs.mkShell { ← We want a development shell

}



```
pkgs.mkShell {  
  packages = [  
    pkgs.cargo  
    pkgs.rustC  
    pkgs.openimageio  
    ...  
  ],  
}
```

← We want a development shell

← With these things available

```
let pkgs = import ./nixpkgs.nix }; in
```

← Everything pinned down

```
pkgs.mkShell {
```

← We want a development shell

```
  packages = [
```

```
    pkgs.cargo  
    pkgs.rustC  
    pkgs.openimageio  
    ...
```

← With these things available

```
  ],
```

```
}
```

\$ nix-shell

...

[nix-shell]\$

\$ nix-shell

...

[nix-shell]\$ which cargo

cargo is /nix/store/.../bin/cargo

\$ nix-shell

...

[nix-shell] \$ which cargo

cargo is /nix/store/.../bin/cargo

[nix-shell] exit

\$ which cargo

cargo not found

\$ nix-shell

...

[nix-shell]\$

\$ nix-shell

...

[nix-shell]\$ which vim  
vim is /usr/bin/vim

\$ nix-shell .

...

[nix-shell] \$ which vim  
vim is /usr/bin/vim

\$ nix-shell --pure

[nix-shell] \$ which vim  
vim not found



jobs:

build:

runs-on: ubuntu-latest

steps:

- \_\_\_\_\_

- \_\_\_\_\_

jobs:

build:

runs-on: ubuntu-latest

steps:

- \_\_\_\_\_
- \_\_\_\_\_
- uses: cachix / install-nix-action@v22

jobs:

build:

runs-on: ubuntu-latest

steps:

- \_\_\_\_\_
- \_\_\_\_\_
- uses: cachix / install-nix-action@v22
- run: nix-shell
  - pure
  - command "cargo build"

Going further



Going further

→ Better pinning



Going further

Better pinning



Building

Going further

Better pinning

OCI images

Building



Going further

OCI images

Building



Better pinning

Caching



# Going further

OCI images

Better pinning

Caching

Building

NixOS



# Going further

OCI images

Better pinning

Caching

Building

NixOS → Deployment



# Going further

OCI images

Better pinning

Caching

Building

Deployment

NixOS

Testing



\$ whoami


Théophane Huftschmitt

Nix group lead @ Modus Create OSPO

Nix maintainer & NixOS foundation board

<https://tweag.io>

<https://nixos.org>

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theophane.huftschmitt@tweag.io

[m]@theophane:huftschmitt.net

\$ whoami


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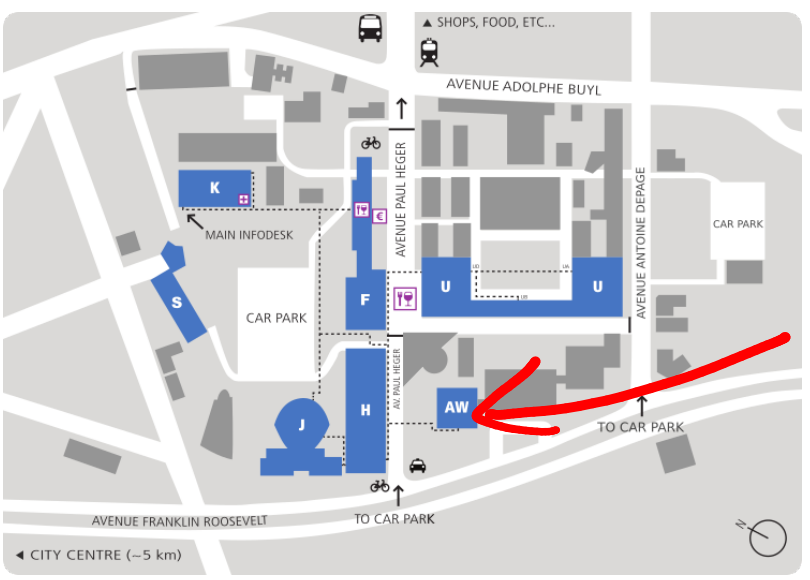
<https://tweag.io>

<https://nixos.org>

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[m]@theophane:hufschmitt.net



Meet me here

