Project Immortality

Using GitHub To Make Your Work Live Forever

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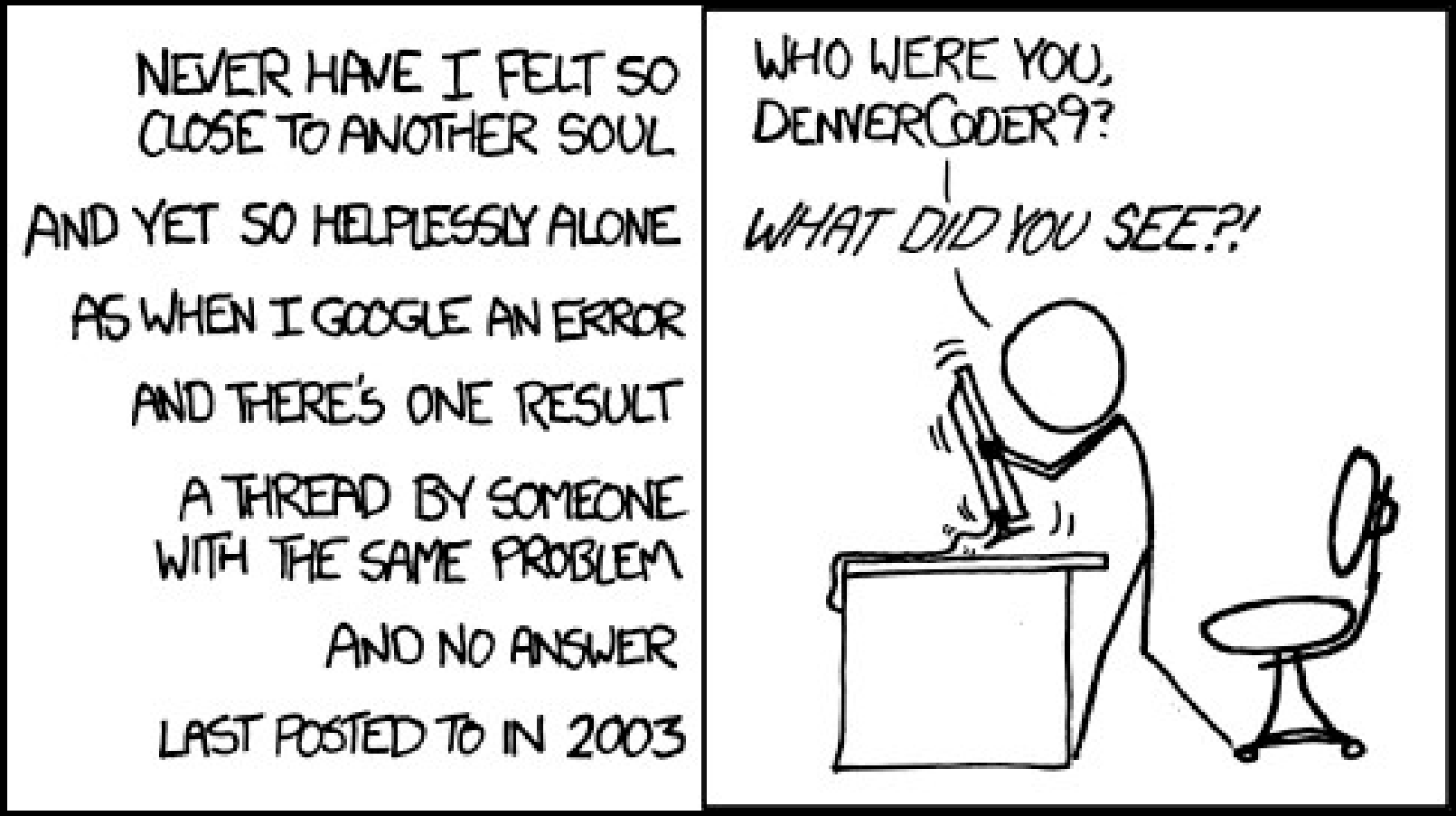
July 27, 2022

The Life and Times of a Machine Learning Project

- Import some data 📖
- Do some wrangling 🤠
- Throw it into a model 🧠
- Tweet a plot 🎉
- {...most projects die here} 💀



Sometime later...

Who This Talk Is For

About Me

Self-taught R developer

Hobby NFL analysis ▶ data science career

Maintain nflverse/ffverse R packages and data pipelines

ffopportunity

- Uses NFL play by play data
- Expected Fantasy Points
  - Measures the value of player opportunities in fantasy football

github.com/ffverse/ffopportunity

- Imports nflverse play by play data
- Does some data wrangling
- Trained an xgboost model
- Generated some predictions

...now what?

How can I make ffopportunity **live on?**

Can someone run my code and build on this project?

Can new predictions be automatically generated?

Where can I store data?

Can someone run my code and build on it?

Make It a Package

- Not (necessarily) for CRAN
- Add a DESCRIPTION
- Wrap code in functions

Can new predictions be automatically generated?

Add GitHub Actions

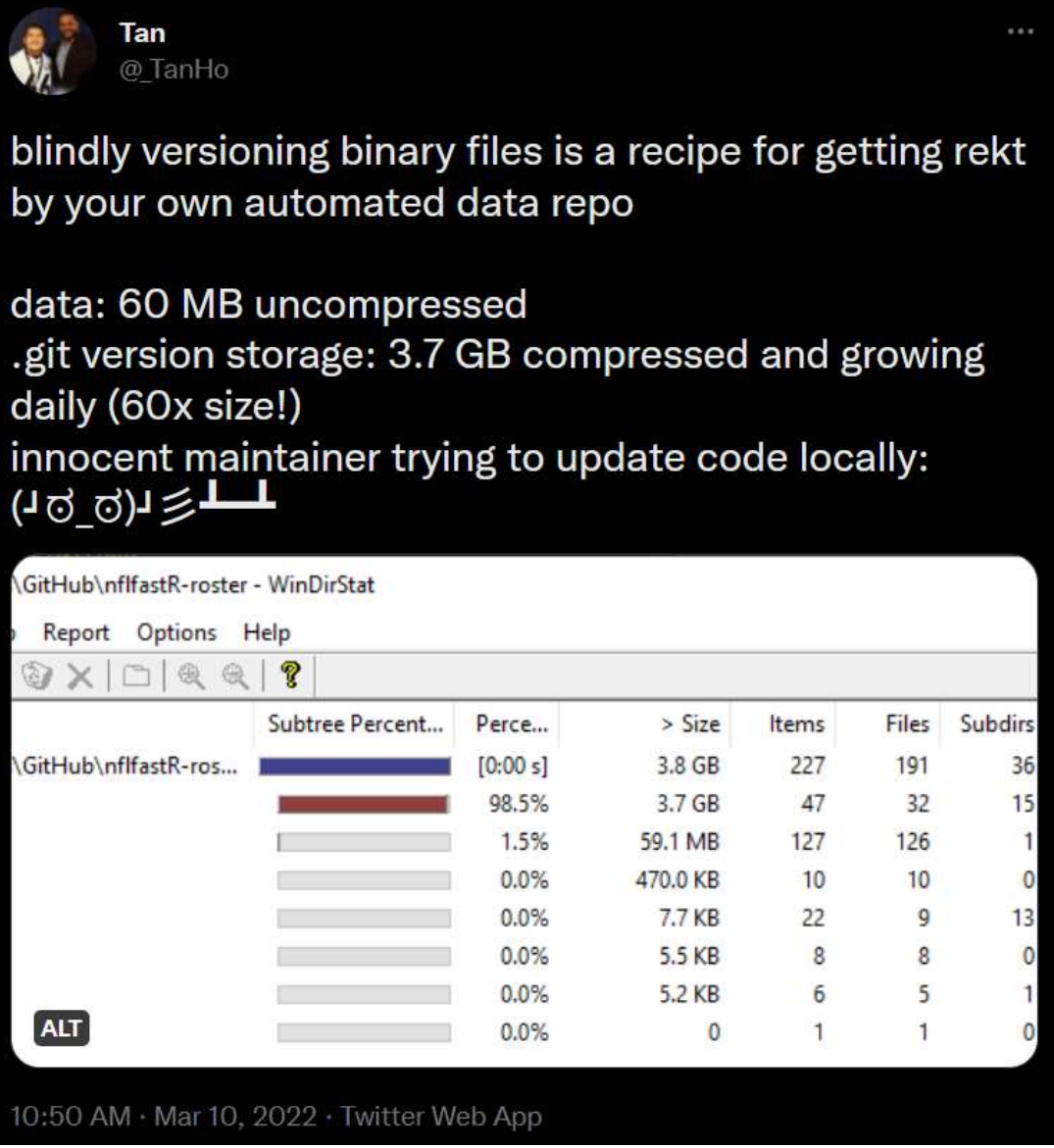
```yaml
# .github/workflows/update.yml
on:
  schedule:
 # At 4:05 every Mon, Tues, and Fri from Sep-Jan
    - cron: 5 4 * 9-12,1 5,1,2
  workflow_dispatch:

name: ep-update-data

jobs:
  ep-update-data:
    runs-on: ubuntu-latest
    env:
      GITHUB_PAT: ${{ secrets.GITHUB_TOKEN }}
    steps:
      - uses: actions/checkout@v2
      - uses: r-lib/actions/setup-r@v2
      - uses: r-lib/actions/setup-r-dependencies@v2
        with:
          extra-packages: piggyback, arrow, readr
      - name: Run data update
        run: |
          source("update/ep_update.R")
        shell: Rscript
```

Where can I store the data?

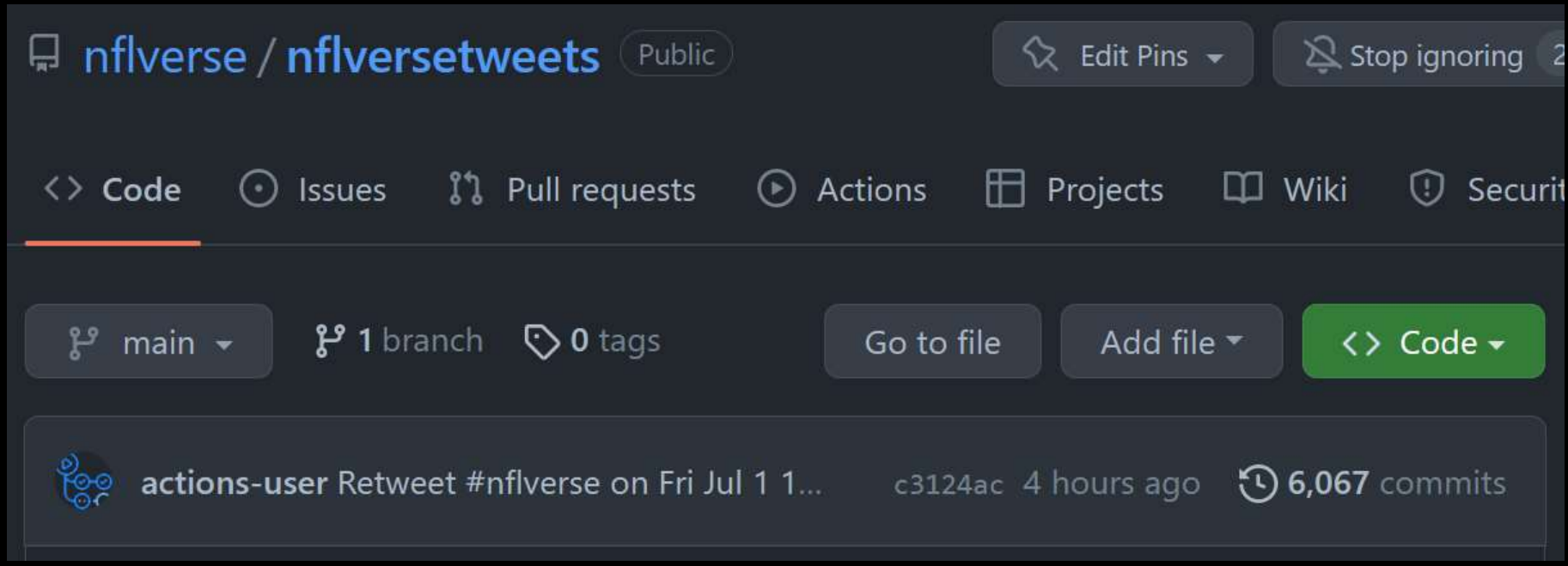
Three Common Problems with GitHub Data Repositories

- File Size Limits
- Inefficient binary data storage
- Commit history chaos

Blind version control is bad!



GitHub Data Repo Problems: Commit History Chaos!



Meh Solutions

- Git Large File Storage
- Amazon S3 buckets
- Dropbox (?)

Better Solution

GitHub Releases!

GitHub Releases

- Friendly file size limits
- Versioning by choice
- Keeps commit history clean
- Data stays with your project

{piggyback}

```r
library(piggyback)
repo ← "ffverse/ffopportunity"
tag ← "data-2022"

pb_new_release(repo = repo,
               tag = tag)

pb_upload("ep_2022-week1.rds",
          repo = repo,
          tag = tag)

# download all data from release
pb_download(repo = repo,
            tag = tag)
```

Recap

Project Immortality With GitHub

GitHub R Packages	Install and run
GitHub Actions	Automation
GitHub Releases	Store data with your project

Resources

- Packages
  - R Packages book by Hadley Wickham & Jenny Bryan https://r-pkgs.org
- GitHub Actions
  - r-lib/actions https://github.com/r-lib/actions/
  - GHA with R book https://orchid00.github.io/actions_sandbox/
- GitHub Releases
  - piggyback pkg https://github.com/ropensci/piggyback
- ffopportunity https://github.com/ffverse/ffopportunity